PLOT SCALE: 1:1
PLOT NAME: ----
REV. DATE: 10/16/2022 2:54 AM
ORIGINATOR: CITY_OF_MADISON

Madison, Wisconsin

CITY OF MADISON
CITY ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
PLAN OF PROPOSED IMPROVEMENT

EAST-WEST BUS RAPID TRANSIT SET 3 OF 11

CITY PROJECT NO. 13925

CONTRACT NO. 8716

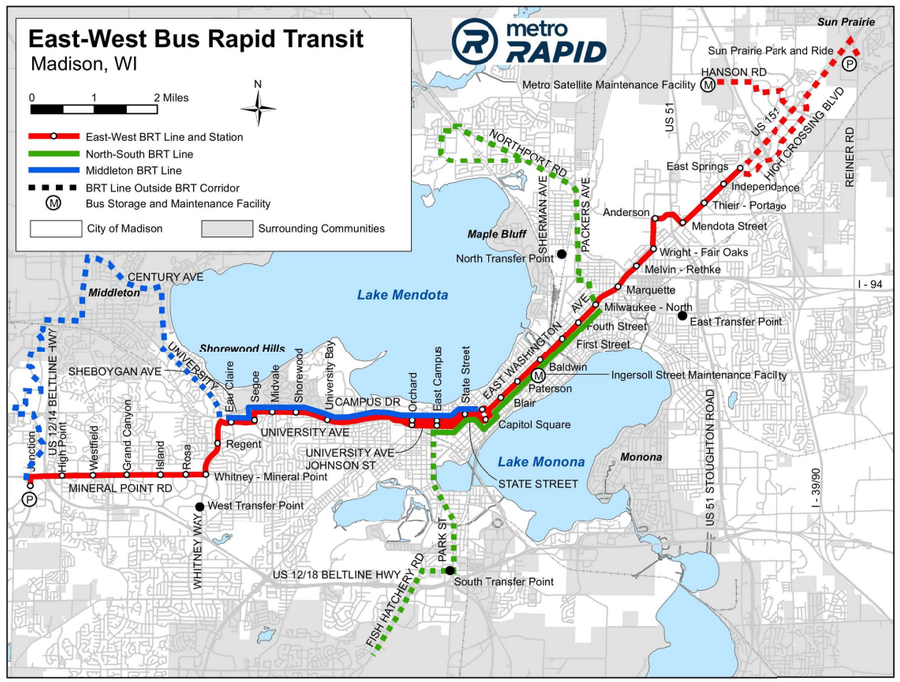
INDEX OF SHEETS

SEE TITLE SHEETS OF PLANS FOR SHEET NUMBERS

TRAFFIC SIGNALS

CONVENTIONAL SIGNS
FIELD VERIFY ALL UTILITY LOCATIONS

COMBUSTIBLE FLUIDS	CAUTION
BURIED ELECTRIC	E
FIBER OPTIC	FO
GAS	G
OVERHEAD ELECTRIC	OH
POWER POLE	
STORM SEWER	SS
SANITARY SEWER	SAN
COMMUNICATIONS	T
WATER	



FILE NAME: C:\pwworking\aecom_ds20_na_2019\phyllis.hanson@aecom.com\dms86348\010101-ti.dwg

DATE: 10/5/2022

FINAL PLANS
OCTOBER 5, 2022

SIGNALS
(NEW SIGNALIZED INTERSECTIONS)
DESIGNED BY: TOM NOTBOHM

WISCONSIN
THOMAS N NOTBOHM
E-22916
MADISON
WIS.
PROFESSIONAL ENGINEER

Oct 26, 2022

SIGNALS
WESTERN SEGMENT
DESIGNED BY: TYLER TKACHUK

WISCONSIN
TYLER TKACHUK
E-45086
VERONA
WI
PROFESSIONAL ENGINEER

Oct 26, 2022

SIGNALS
EASTERN SEGMENT
DESIGNED BY: KYLE HENDERSON

WISCONSIN
KYLE R. HENDERSON
E-42361
MADISON
WI
PROFESSIONAL ENGINEER

Oct 26, 2022

Traffic Signal Summary

Intersection	Controller	Associated Cabinet/Controller Improvements	Signal Plan Sheet
Junction Rd. at New Park and Ride	COBALT	New Traffic Signal Cabinet	X
Junction Rd. at Mineral Pt EB	ASC/3	New Traffic Signal Controller (Cobalt)	
Junction Rd. at Mineral Pt	ASC/3	New Traffic Signal Controller (Cobalt)	
Junction at Commerce Dr	ASC/3	New Traffic Signal Controller (Cobalt)	
Mineral Pt at Beltine (US12/14) EB	ASC/3	New Traffic Signal Controller (Cobalt)	
MPR and High Point	ASC/3	New Traffic Signal Cabinet	X
MPR and Randolph	ASC/3	New Traffic Signal Controller (Cobalt)	X
MPR and Westfield	ASC/3	New Traffic Signal Cabinet	X
MPR and Gammon	ASC/3	New Traffic Signal Controller (Cobalt)	X
MPR and Grand Canyon	ASC/3	New Traffic Signal Cabinet	X
MPR and Yellowstone	ASC/3	New Traffic Signal Controller (Cobalt)	X
MPR and Island	ASC/3	New Traffic Signal Cabinet	X
MPR and Rosa	ASC/3	New Traffic Signal Cabinet	X
Whitney Way and Tokay	ASC/3	New Traffic Signal Controller (Cobalt)	
Whitney Way and Science	ASC/2	New TS Cabinet	
MPR and Whitney Way	ASC/3	New Traffic Signal Cabinet	X
Whitney Way and Regent	ASC/3	New Traffic Signal Cabinet	X
Whitney Way and Sheboygan	COBALT	New Traffic Signal Cabinet	X
Sheboygan and Segoe	COBALT	New Traffic Signal Cabinet	X
Segoe and Frey	ASC/3	New Traffic Signal Controller (Cobalt)	
University and Segoe	COBALT	Firmware Update EOS	
University and Hilldale	COBALT	Firmware Update EOS	
University and Midvale	COBALT	Firmware Update EOS	X
University and Shorewood	COBALT	Firmware Update EOS	X
University and Ridge	COBALT	Firmware Update EOS	
University and Farley	COBALT	Firmware Update EOS	X
University and Campus Drive	ASC/3	New Traffic Signal Controller (Cobalt)	X
University and Babcock	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Randall	ASC/2	New TS Cabinet	X
University and Randall	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Orchard	ASC/3	New Traffic Signal Controller (Cobalt)	
University and Orchard	ASC/3	New Traffic Signal Controller (Cobalt)	X
Johnson and Charter	ASC/2	New TS Cabinet	
University and Charter	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Mills	ASC/2	New TS Cabinet	
University and Mills	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Brooks	ASC/3	New Traffic Signal Controller (Cobalt)	
University and Brooks	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Park	COBALT	Firmware Update EOS	
University and Park	COBALT	Firmware Update EOS	
Johnson and East Campus	ASC/3	New Traffic Signal Controller (Cobalt)	
University and East Campus	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Lake	ASC/3	New Traffic Signal Controller (Cobalt)	
University and Lake	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Frances	ASC/2	New TS Cabinet	
University and Frances	ASC/3	New Traffic Signal Controller (Cobalt)	

Traffic Signal Summary

Intersection	Controller	Associated Cabinet/Controller Improvements	Signal Plan Sheet
Johnson and Bassett	ASC/2	New TS Cabinet	
Gorham and Bassett	ASC/3	New Traffic Signal Controller (Cobalt)	
Johnson and Broom	ASC/2	New TS Cabinet	
Gorham and Broom	ASC/2	New TS Cabinet	
State and Gorham	ASC/2	New TS Cabinet	
State and Johnson	ASC/3	New Traffic Signal Controller (Cobalt)	
State and Dayton	ASC/3	New Traffic Signal Controller (Cobalt)	
State and Mifflin	ASC/2	New TS Cabinet	
Caroll and West Wash	ASC/3	New Traffic Signal Controller (Cobalt)	
Carroll and Main	ASC/3	New Traffic Signal Controller (Cobalt)	
Main and MLK	ASC/3	New Traffic Signal Controller (Cobalt)	
Main and Pinckney	ASC/3	New Traffic Signal Controller (Cobalt)	
Mifflin and Wisconsin	ASC/3	New Traffic Signal Controller (Cobalt)	
Pinckney and Mifflin	ASC/3	New Traffic Signal Controller (Cobalt)	
Pinckney and East Wash	ASC/3	New Traffic Signal Controller (Cobalt)	
East Wash and Webster	ASC/3	New Traffic Signal Controller (Cobalt)	
East Wash and Blair	COBALT	Firmware Update EOS	X
East Wash and Livingston	COBALT	Firmware Update EOS	X
East Wash and Paterson	COBALT	Firmware Update EOS	X
East Wash and Ingersoll	COBALT	Firmware Update EOS	
East Wash and Baldwin	COBALT	Firmware Update EOS	X
East Wash and First	COBALT	Firmware Update EOS	X
East Wash and Fourth	COBALT	Firmware Update EOS	X
East Wash and Sixth	COBALT	Firmware Update EOS	
East Wash and Milwaukee	COBALT	Firmware Update EOS	X
East Wash and Johnson	COBALT	Firmware Update EOS	
East Wash and Marquette	COBALT	Firmware Update EOS	X
East Wash and EB Hwy 30	COBALT	Firmware Update EOS	
East Wash and WB Hwy 30	COBALT	Firmware Update EOS	
East Wash and Melvin Ct	COBALT	New Traffic Signal Cabinet	X
East Wash and Wright	COBALT	Firmware Update EOS	X
Wright and Anderson	ASC/2	New TS Cabinet	X
Anderson and Stoughton	WisDOT	WisDOT controls the signal, unsure of controller type	
East Wash and Stoughton	WisDOT	WisDOT controls the signal, unsure of controller type	
East Wash and Mendota	COBALT	Firmware Update EOS	X
East Wash and Lien	COBALT	Firmware Update EOS	
East Wash and Thierer	COBALT	Firmware Update EOS	X
East Wash and Eagan	COBALT	Firmware Update EOS	
East Wash and Independence Ln	COBALT	New Traffic Signal Cabinet	X
East Wash and Zeier Rd	ASC/3	New Traffic Signal Controller (Cobalt)	
East Wash and East Springs	COBALT	Firmware Update EOS	X

New Service Location**
Junction Rd. at New Park and Ride
Whitney Way and Sheboygan
Sheboygan and Segoe
East Wash and Melvin Ct
East Wash and Independence Ln

**City of Madison Traffic Engineering Department to complete utility service requests for all new traffic signal cabinets.

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-04	Scale: N/A	

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

TRAFFIC SIGNAL SUMMARY

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

SD-1

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024000-SD.DWG
LAYOUT NAME - 01

LAST PLOT DATE - 2022-10-04

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- CONDUIT SPECIAL 3", UNLESS OTHERWISE NOTED
- 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 UNLESS OTHERWISE NOTED
- ELECTRICAL PULL BOX TYPE 3
- ELECTRICAL PULL BOX TYPE 5
- ELECTRICAL PULL BOX TYPE 7
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, DUAL MOUNT TRAFFIC SIGNAL POLE, 20-FOOT, TRANSFORMER BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 35'-45' ARM
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- APS PUSH BUTTON
- TRAFFIC SIGNAL HEAD
- BUS INDICATOR
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- BICYCLE DETECTION LOOP
- VX VIDEO DETECTION CAMERA
- GSX GRIDSMART CAMERA
- PTZX PTZ CAMERA
- MICROWAVE DETECTOR
- WIRELESS ANTENNA
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- X EVP DESIGNATOR
- EVP DETECTOR HEAD
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- LANE DESIGNATION FOR INFO ONLY
- XX DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"

NOTES:
- ALL LENSES ARE 12-INCH
- GRAYSHADE REPRESENTS EXISTING

BUS INDICATOR

- VERTICAL WHITE INDICATOR IS GO FOR BUS
- TRIANGLE WHITE INDICATOR IS CAUTION FOR BUS
- HORIZONTAL WHITE INDICATOR IS STOP FOR BUS
- ANGLED WHITE INDICATOR IS TURN FOR BUS

CONSTRUCTION NOTES:

1. THE CITY OF MADISON WILL PROVIDE TEMPORARY AND FINAL SIGNAL TIMING FOR ALL SIGNALS.
2. CABLE ROUTING SHEETS ARE PROVIDED FOR WIRING OF THE TRAFFIC SIGNALS. WHERE THE CABLE ROUTING SHEET LISTS "MATCH EXISTING" CONTRACTOR IS TO USE THE EXISTING WIRE COLORS AND CONFIGURATIONS TO CONNECT THE SIGNAL HEADS IN THE SAME PATTERN AS PREVIOUS.
3. 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 ADJUSTMENTS WITH THE ENGINEER.
4. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE AND LOOP DETECTOR WIRE TO BE REMOVED BY CONTRACTOR.
5. REMOVE ALL TRAFFIC SIGNAL CABLE, ELECTRICAL WIRE LIGHTING AND GROUND WIRES, ABANDON CONDUIT IN PLACE.

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-04	Scale: N/A	
60631225P			

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

TRAFFIC SIGNAL LEGEND

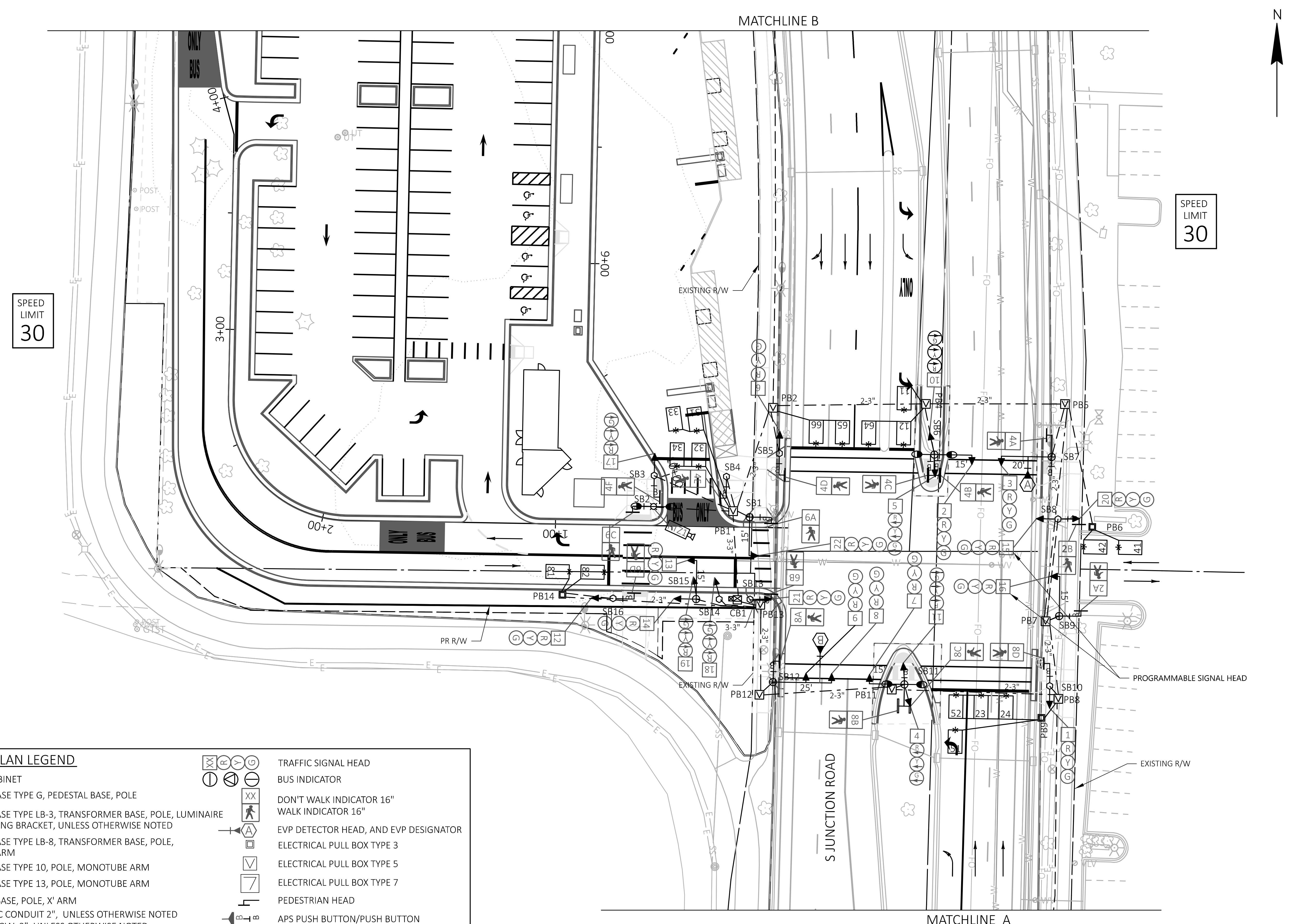
BUS RAPID TRANSIT

CITY OF MADISON

60631225P

SD-2

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024000-SD.DWG
LAYOUT NAME - 01 (2)
LAST PLOT DATE - 2022-10-04



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: TSI
60631225P
Date: 2022-09-27
Scale: 1:40_XREF

60631225P

SIGNAL PLAN: JUNCTION ROAD AT PARK AND RIDE ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

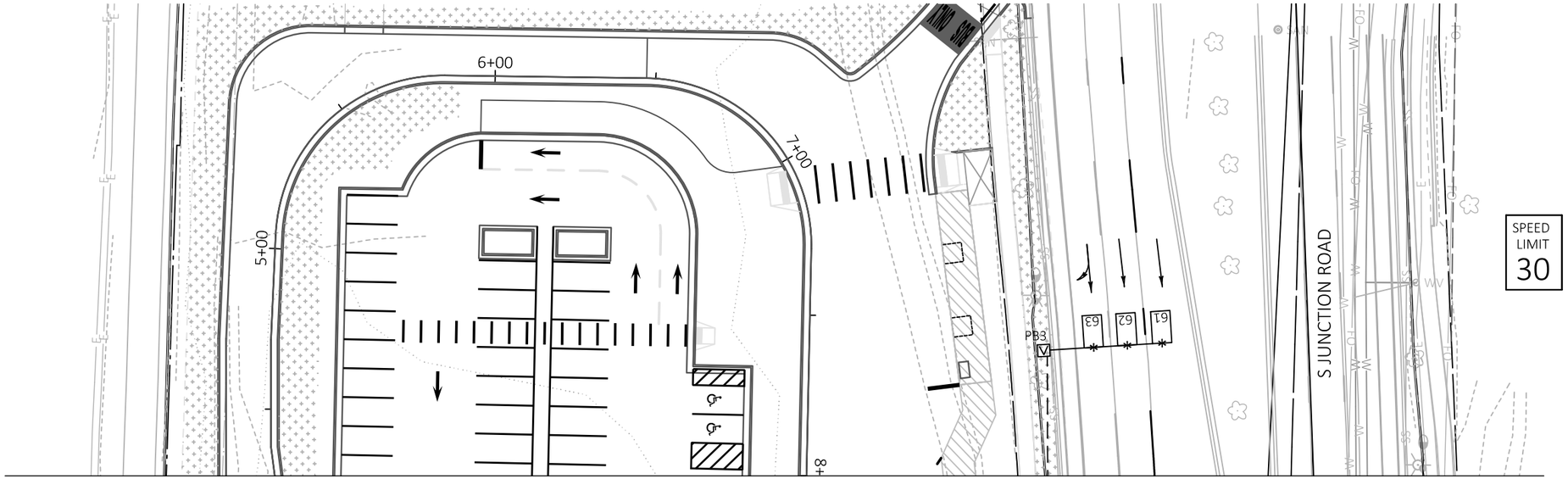
CONTRACT NO:60631225C

CITY OF MADISON

60631225P

S-1A

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS20_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/900-CAD GIS/West/Sheets/024217-sp.dwg
LAYOUT NAME - Plan 2 IN 40 FT
LAST PLOT DATE - 10/17/2022



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.GAUGE 7 AND GAUGE 11 POLES AT THIS LOCATION ARE KIM.

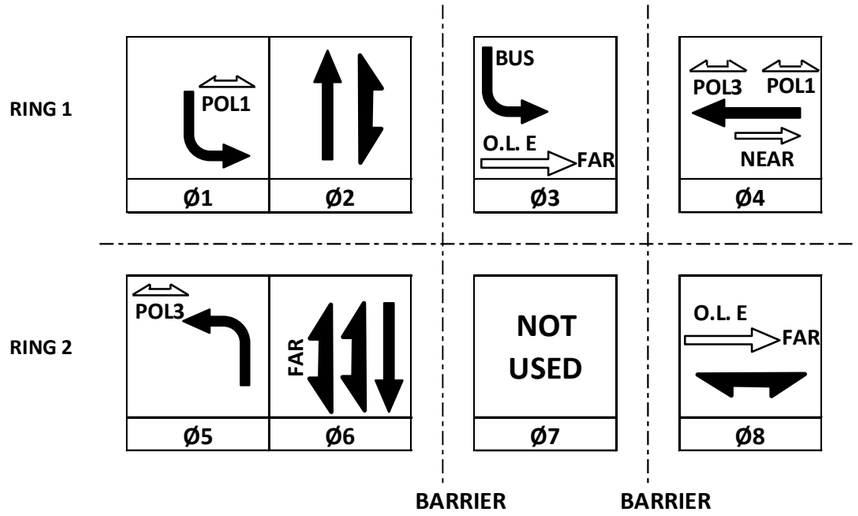
N

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

SIGNAL PLAN: JUNCTION ROAD AT PARK AND RIDE ROAD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO:60631225C
60631225P
CITY OF MADISON
60631225P
S-1B

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS20_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/900-CAD GIS/West/Sheets/024217-sp.dwg
LAYOUT NAME - ##########
LAST PLOT DATE - 9/9/2022

	HEAD NUMBERS	FLASH
Ø1	10, 11	R ←
Ø2	1,2,3	
Ø3	17,18, 19	
Ø4	12, 13, 14, 20, 21, 22	
Ø5	4,5	R ←
Ø6	6,7,8, 9	
Ø7	-	-
Ø8		
Ø2P	2A,2B	
Ø4P	4A,4B,4C,4D,4E,4F	
Ø6P	6A,6B,6C,6D	
Ø8P	8A,8B,8C,8D	
OLE	15, 16	
OLF		
OLG		
OLH		



POL1=4+1 (NE CROSSING)
POL2=8+5 (SW CROSSING)
POL3=4+5 (NW CROSSING)

LOGIC:
IF VEH CALL ON PHAS 3 AND PED CALL ON PHASE 4 OR 3, CALL PED PHASE 3

PED BUTTONS:
PB1 = NW CORNER
PB2 = N MEDIAN
PB3 = NE CORNER
PB4 = SE CORNER
PB5 = S MEDIAN
PB6 = SW CORNER

PB1 = CALLS PHASE 3+4
PB2 = CALLS PHASE 4
PB3 = CALLS PHASE 4+1 (W2)

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		x
2	x	6	x	x
3				x
4		8		x
5		2		x
6	x	2	x	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	x
TBC	
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	x
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	21	23	31	33	41	51	61	63	65	81					
CALLED PHASE	1	2	2	3	3	4	5	6	6	6	8					
CALL OPTION	1	2	2	3	3	4	5	6	6	6	8					
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	22	24	32	34	42	52	62	64	66	82					
CALLED PHASE	1	2	2	3	3	4	5	6	6	6	8					
CALL OPTION	1	2	2	3	3	4	5	6	6	6	8					
DELAY TIME																
EXTENTION OPTION																
EXTEND TIME																
USE ADDED INITIAL																
CROSS SWITCH PHASE																

JUNCTION/WATTS
CITY OF MADISON
COUNTY
SIGNAL NO: S67-0356 CABINET TYPE:TS2
CONTROLLER TYPE: COBALT
DATE: 10/22 PAGE NO. 3 of 4

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

60631225P

SEQUENCE OF OPERATION: JUNCTION RD AT PARK AND RIDE ROAD
BUS RAPID TRANSIT

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

60631225P

S-1C

CT ID:	60631225P
INTERSECTION:	JUNCTION RD & PARK AND RIDE 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	12	22	RED	ORG	GRN											
		6A											BLK	BLU		
		PB													WHT/BLK	
SB2	7	6C											BLK	BLU		
		PB													WHT/BLK	
SB3	12	17				RED/BLK	ORG/BLK		GRN/BLK							
		OLFA											BLK	BLU		
		PB													WHT/BLK	
SB4	7	OLFB											BLK	BLU		
		PB													WHT/BLK	
SB5	12	6	RED	ORG	GRN											
		4D											BLK	BLU		
		PB													WHT/BLK	
SB6	19	2	RED	ORG	GRN											
		5				RED/BLK	ORG/BLK		GRN/BLK							
		10				BLK	BLU		BLU/BLK							
		4B											BLK	BLU		
		4C											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
		PB													WHT/BLU	
SB7	12	3														
		4A											BLK	BLU		
		PB													WHT/BLK	
SB8	15	15	RED	ORG	GRN											
		20	RED/BLK	ORG/BLK	GRN/BLK											
		2B											BLK	BLU		
		PB													WHT/BLK	
SB9	12	16	RED	ORG	GRN											
		2A											BLK	BLU		
		PB													WHT/BLK	
SB10	12	1	RED	ORG	GRN											
		8D											BLK	BLU		
		PB													WHT/BLK	
SB11	19	4				RED/BLK	ORG/BLK		GRN/BLK							
		7	RED	ORG	GRN											
		11				BLK	BLU		BLU/BLK							
		8B											BLK	BLU		
		8C											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
SB12	15	8	RED	ORG	GRN											
		9	RED/BLK	ORG/BLK	GRN/BLK											
		8A											BLK	BLU		
		PB													WHT/BLK	
SB13	12	21	RED	ORG	GRN											
		6B											BLK	BLU		
		PB													WHT/BLK	
SB14	7	18	RED	ORG	GRN											
SB15	12	13	RED	ORG	GRN											
		14	RED/BLK	ORG/BLK	GRN/BLK											
		19				BLK	BLU		BLU/BLK							
SB16	12	12	RED	ORG	GRN											
		6D											BLK	BLU		
		PB													WHT/BLK	

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
SB9	SB13
SB13	SB14
SB14	SB15
SB15	SB16
SB16	CB1

LIGHTING UF	
8 AWG W/ GROUND	
FROM	TO
CB1	SB6
SB6	SB11
SB11	CB1

EMERGENCY VEHICLE PRREPTION WITH CONFIRMATION LIGHT		
HEAD	FROM	TO
A	CB1	SB7
B	CB1	SB12

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB2

Mark	Designed By: TSI 60631225P	REVISION Date: 9/22/2022	Scale: NTS	DATE	BY

60631225P

CABEL ROUTING: JUNCTION RD AT PARK AND RODE RD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

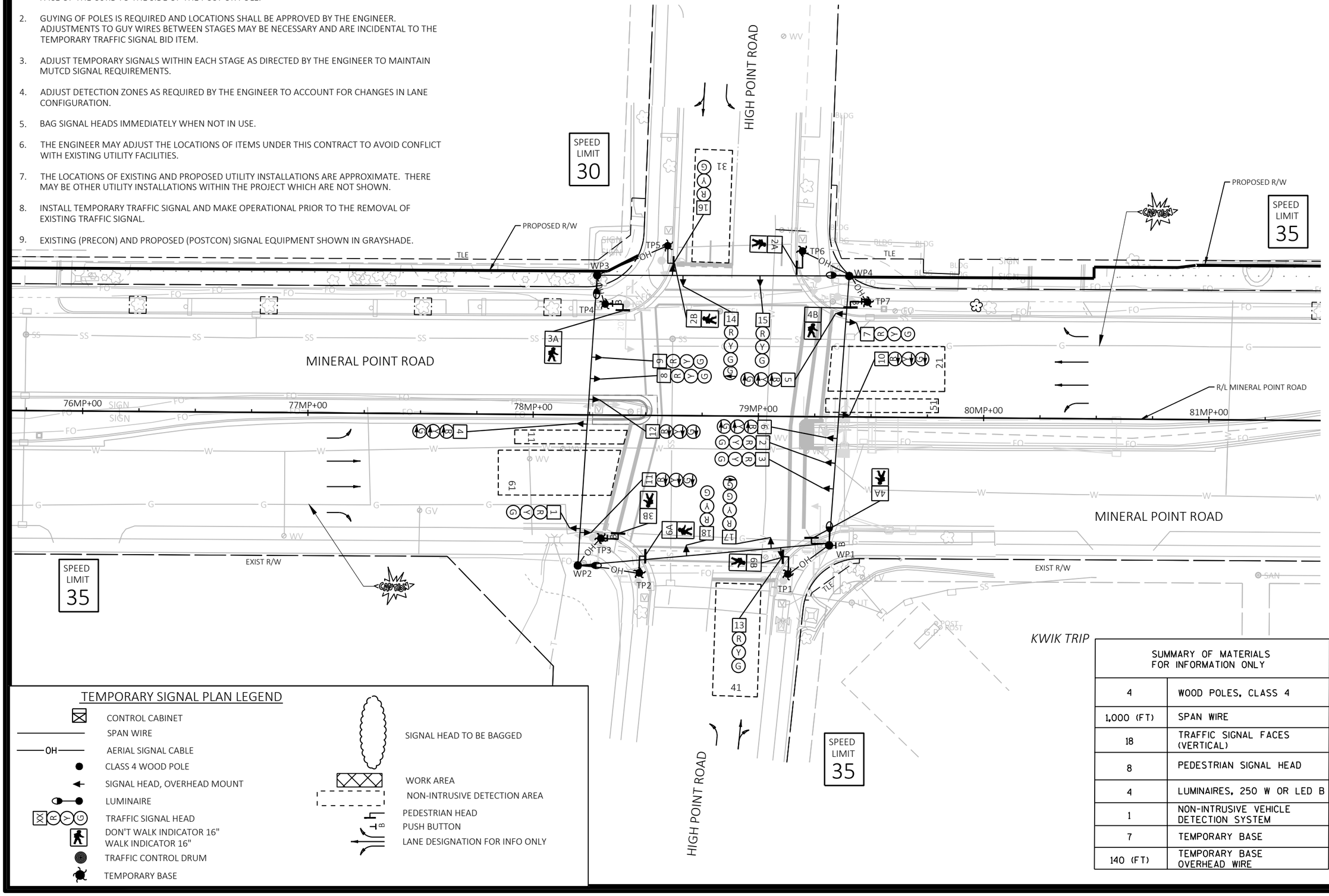
60631225P

S-1D

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE: 9/22/2022

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

SUMMARY OF MATERIALS FOR INFORMATION ONLY

4	WOOD POLES, CLASS 4
1,000 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
7	TEMPORARY BASE
140 (FT)	TEMPORARY BASE OVERHEAD WIRE

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-2A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024202-ST.DWG
LAYOUT NAME - Precon
LAST PLOT DATE - 2022-10-13

HIGH POINT ROAD

SPEED LIMIT 30

SPEED LIMIT 35

PROPOSED R/W

TLE

TP5

TP6

WP3

WP4

TP4

TP7

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

76MP+00

77MP+00

78MP+00

79MP+00

80MP+00

81MP+00

EXIST R/W

WP2

TP2

TP3

WP1

TP1

CAUTION

KWIK TRIP

SPEED LIMIT 35

HIGH POINT ROAD

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-13	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN - MEDIAN: MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

CONTRACT NO: 60631225C

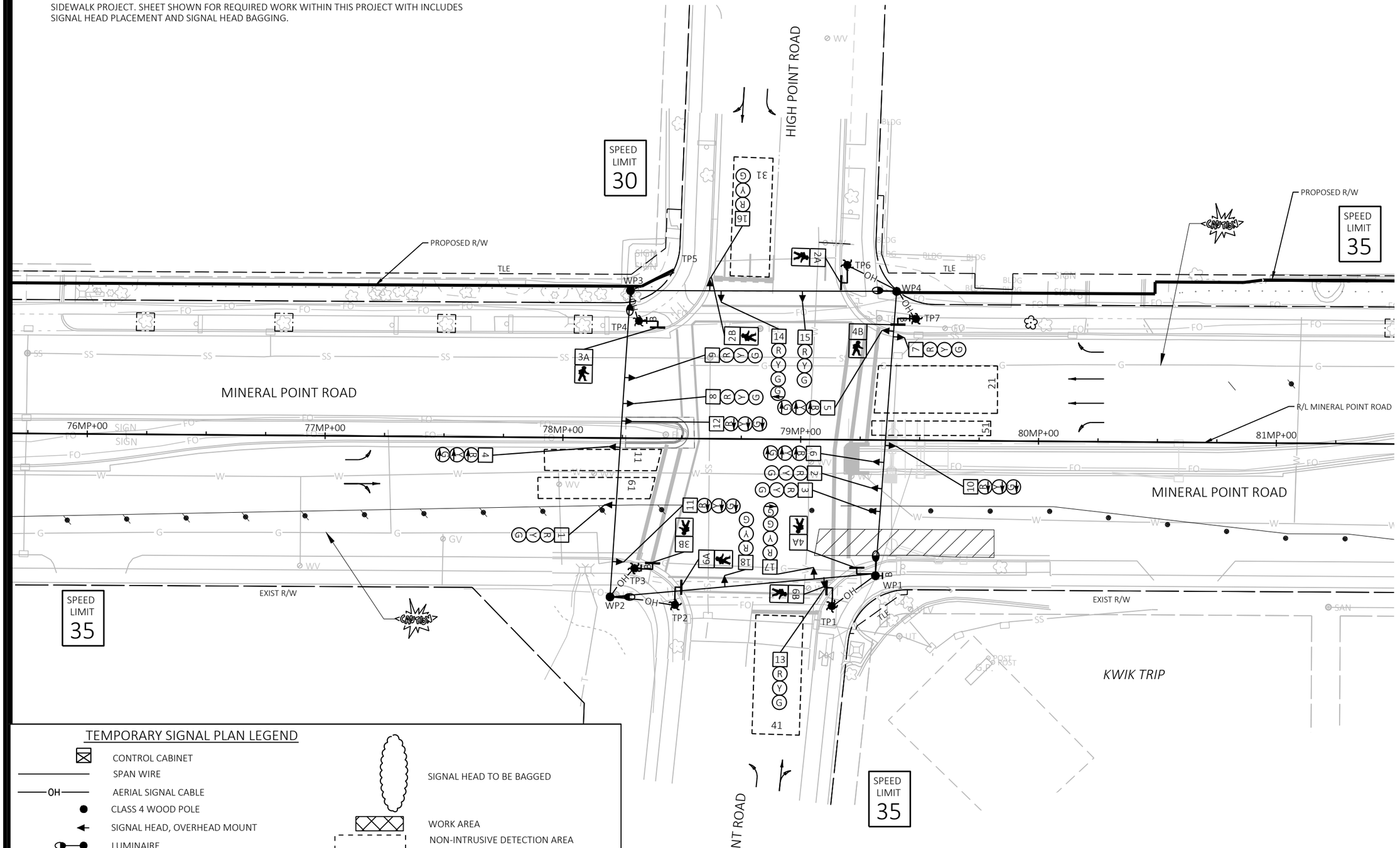
60631225P

S-2B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024202-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13

CONSTRUCTION NOTES:

1. CONTRACTOR NOT RESPONSIBLE FOR TRAFFIC CONTROL DEVICES REQUIRED FOR THE WIDENED SIDEWALK PROJECT. SHEET SHOWN FOR REQUIRED WORK WITHIN THIS PROJECT WITH INCLUDES SIGNAL HEAD PLACEMENT AND SIGNAL HEAD BAGGING.



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - SIDEWALK 1: MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

CONTRACT NO: 60631225C

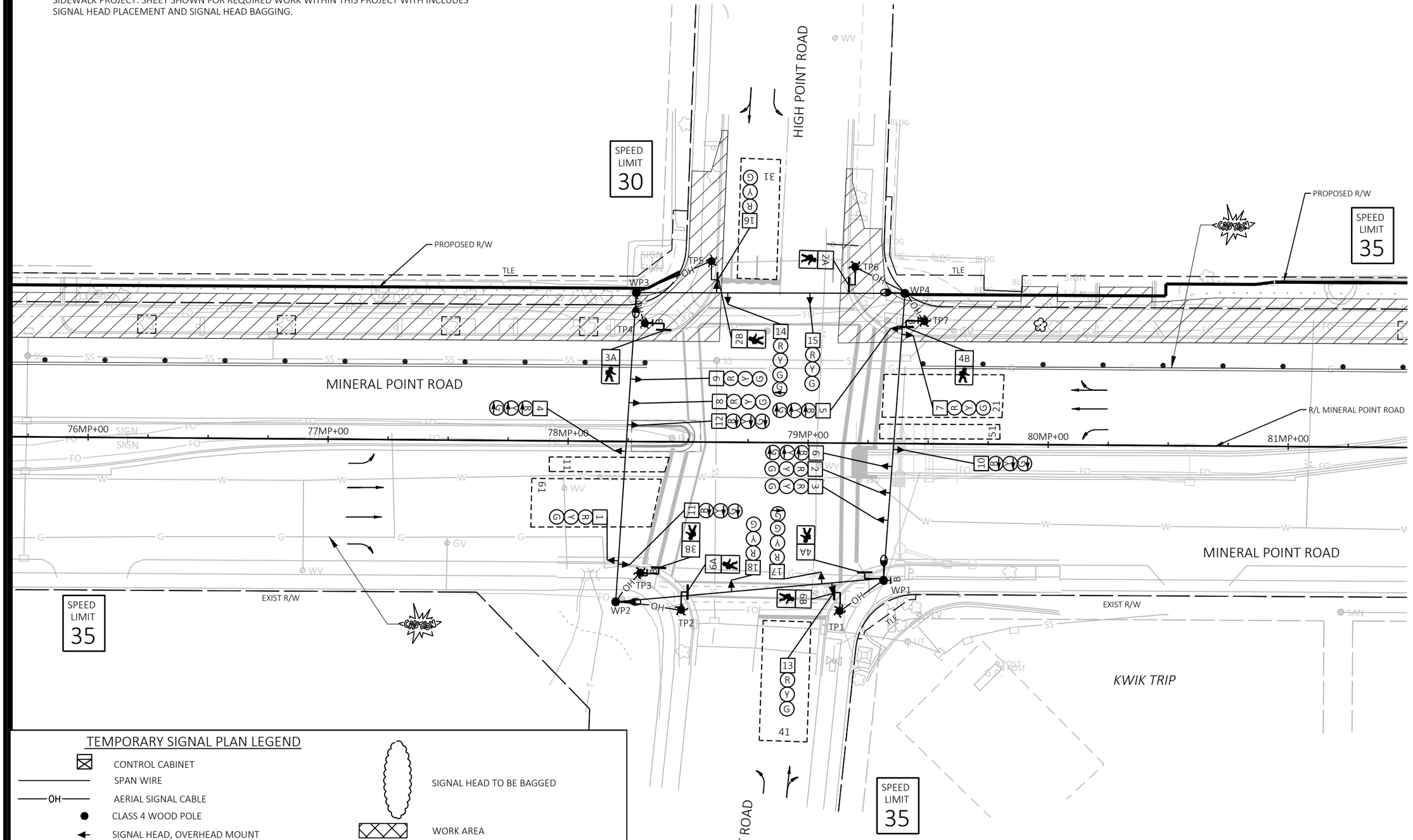
60631225P

S-2C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\0242202-ST.DWG
LAYOUT NAME - Sidewalk (2)
LAST PLOT DATE - 2022-10-13

CONSTRUCTION NOTES:

1. CONTRACTOR NOT RESPONSIBLE FOR TRAFFIC CONTROL DEVICES REQUIRED FOR THE WIDENED SIDEWALK PROJECT. SHEET SHOWN FOR REQUIRED WORK WITHIN THIS PROJECT WITH INCLUDES SIGNAL HEAD PLACEMENT AND SIGNAL HEAD BAGGING.



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

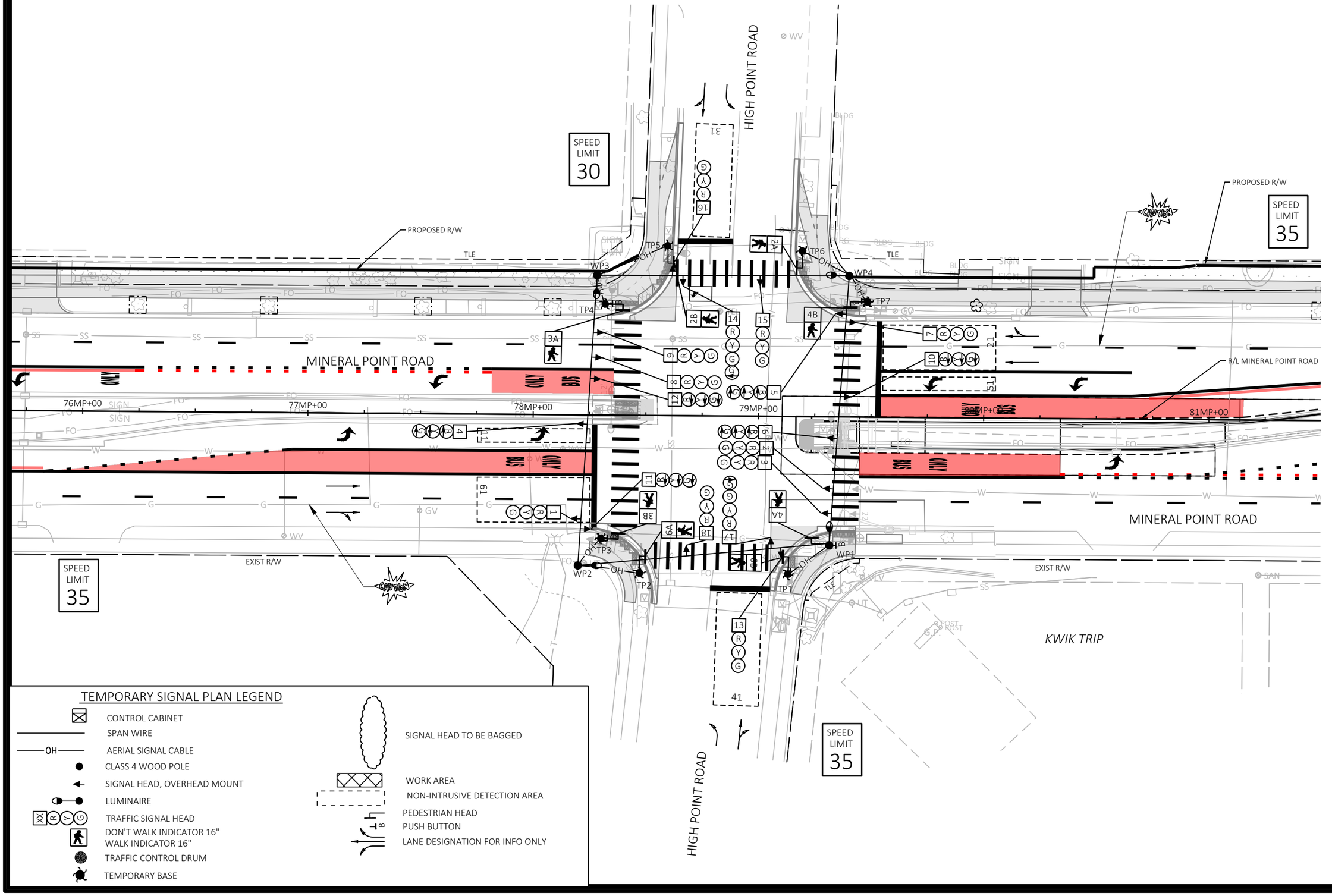
CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-2D

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\024202-ST.DWG
LAYOUT NAME - Sidewalk
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
60631225P
Scale: 1 IN:40 FT

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

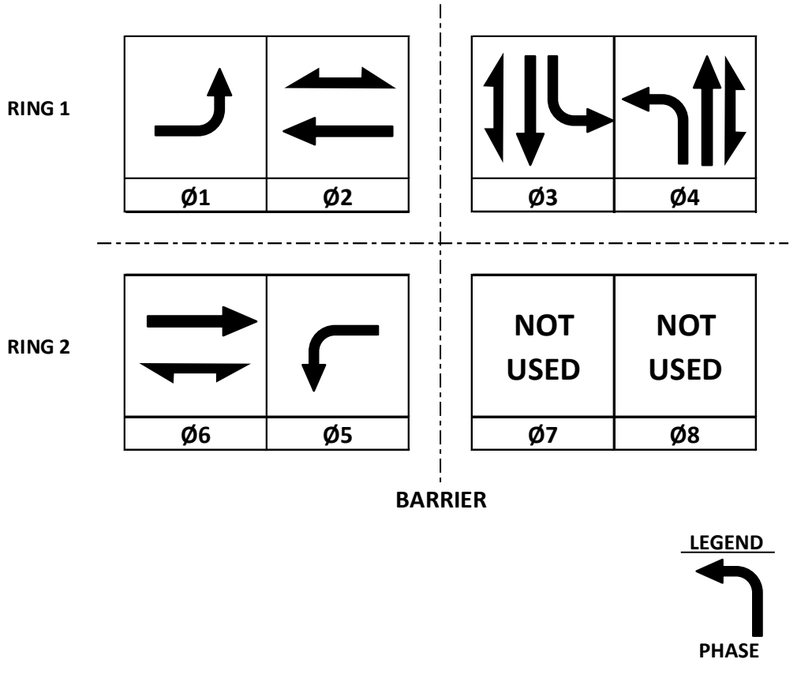
CONTRACT NO: 60631225C

60631225P

S-2E

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\024202-ST.DWG
LAYOUT NAME - Postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		R
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	62*	81	
PHASE CALLED	1	2	4	5	6	6	8	
PHASE EXTENDED	1	2	4	5	6	6	8	
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)								
PHASE CALLED								
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY
3. OMIT PHASES 1 AND 5 IN THE MEDIAN STAGE WHICH INCLUDES DETECTION ZONES 11 AND 51.
4.

Mark	REVISION	DATE	BY
	Designed By: AECOM Date: 10/13/2022	Scale: NTS	
	60631225P		

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT HIGH POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

MINERAL POINT ROAD AT HIGH POINT ROAD
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

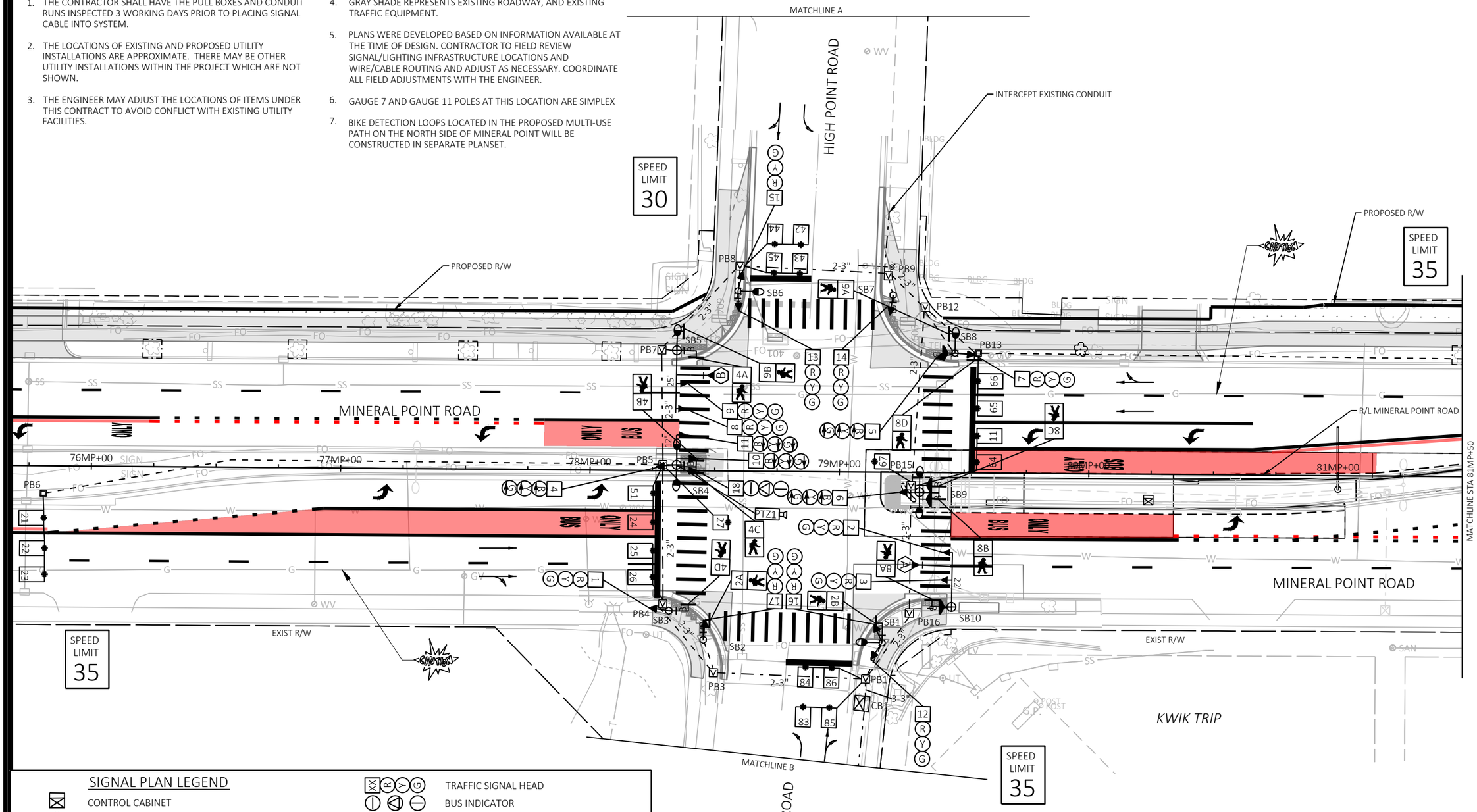
DATE: OCTOBER 2022 PAGE NUMBER: 6 OF 6

60631225P

S-2F

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
7. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLANSET.



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

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

SIGNAL PLAN: MINERAL POINT ROAD AT HIGH POINT ROAD
60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

60631225P
S-2G

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\D\M\586348\024202-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-12

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-11	Scale: 1 IN 40 FT	

SIGNAL PLAN: MINERAL POINT ROAD AT HIGH POINT ROAD

60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

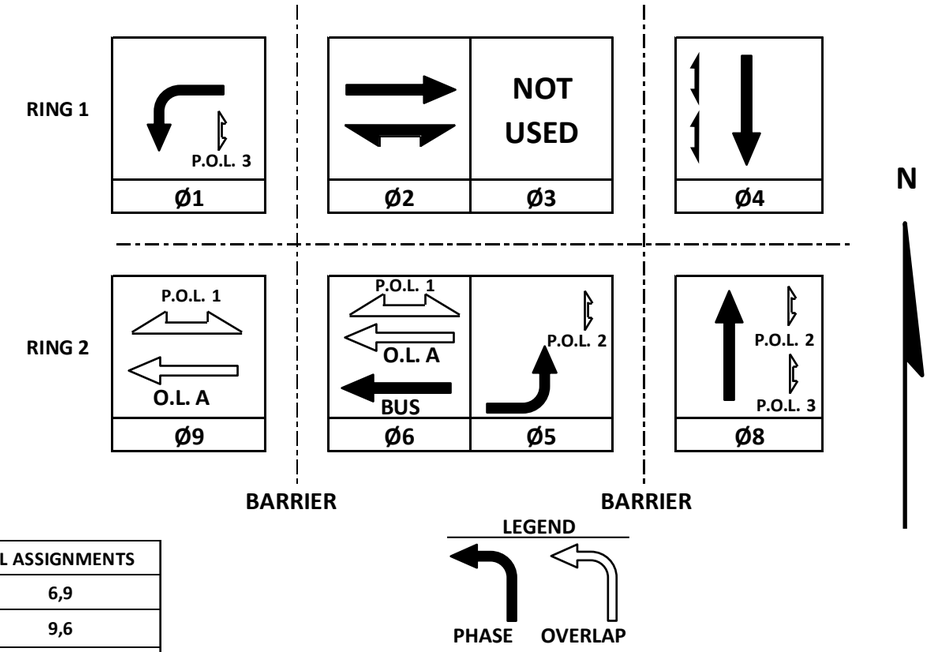
60631225P

S-2H

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024202-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-10-11

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

OL ASSIGNMENTS	
OLA	6,9
POL1	9A,9B
POL2	8C,8D
POL3	8A,8B



CONTROLLER LOGIC

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

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

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	X

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	22	24	26	41	43	45	51
PHASE CALLED	1	2	2	2	4	4	4	5
PHASE EXTENDED	1	2	2	2	4	4	4	5
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH		X			X			
LOOP FUNCTION								

19	17	23	21	27	25	31	29	
62	64	66	601	603	81	83	85	DETECTOR #(S)
6	6	6		6	8	8	8	PHASE CALLED
6	6	6		6	8	8	8	PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
X					X			EXTENSION STRETCH
			SYS					LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	21	23	25	27	42	44	401	61
PHASE CALLED	2	2	2		4	4	4	6
PHASE EXTENDED	2	2	2		4	4	4	6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X	X						X
LOOP FUNCTION								

20	18	24	22	28	26	32	30	
63	65	67	602	604	82	84	86	DETECTOR #(S)
6	6			6	8	8	8	PHASE CALLED
6	6			6	8	8	8	PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
X					X			EXTENSION STRETCH
			SYS					LOOP FUNCTION

GENERAL NOTES:

1.
2.
3.
4.

Mark	Designed By: AECOM 60631225P	REVISION	Date: 9/21/2022	Scale: NTS	DATE	BY

60631225P

SEQUENCE OF OPERATION:MINERAL POINT ROAD AT HIGH POINT ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

MINERAL POINT ROAD AT HIGH POINT ROAD
CITY OF MADISON
DANE COUNTY

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

60631225P

S-2I

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

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

DATE: Sep-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	12	RED	ORG	GRN										
		16	RED/BLK	ORG/BLK	GRN/BLK										
		2B											BLK	BLU	
		PB													WHT/BLK
SB2	12	17	RED	ORG	GRN										
		2A											BLK	BLU	
		PB													WHT/BLK
SB3	12	1	RED	ORG	GRN										
		4D											BLK	BLU	
		PB													WHT/BLK
SB4	19	4				RED	ORG		GRN						
		10				RED/BLK	ORG/BLK		GRN/BLK						
		11				RED/BLK	ORG/BLK		GRN/BLK						
		18								RED/WHT	BLK/RED	GRN/WHT			
		4B											BLK	BLU	
		4C											BLU/BLK	BLU/WHT	
		PB													WHT/BLK
SB5	12	8	RED	ORG	GRN										
		9	RED	ORG	GRN										
		4A											BLK	BLU	
		9B											BLU/BLK	BLK/WHT	
		PB													WHT/BLK
SB6	12	13	RED	ORG	GRN										
		15	RED/BLK	ORG/BLK	GRN/BLK										
		PB													WHT/BLK
SB7	7	14	RED	ORG	GRN										
		PB													WHT/BLK
SB8	15	5				RED/BLK	ORG/BLK		GRN/BLK						
		7	RED	ORG	GRN										
		8D											BLK	BLU	
		9A											BLU/BLK	BLK/WHT	
		PB													WHT/BLK
SB9	12	6				RED	ORG		GRN						
		8B											BLK	BLU	
		8C											BLU/BLK	BLK/WHT	
		PB													WHT/BLK
		PB													RED/BLK
SB10	12	2	RED	ORG	GRN										
		3	RED	ORG	GRN										
		8A											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.

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	SB1
SB1	SB4
SB4	SB5
CB1	SB9
SB9	SB8
SB8	SB6

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB10
B	CB1	SB5

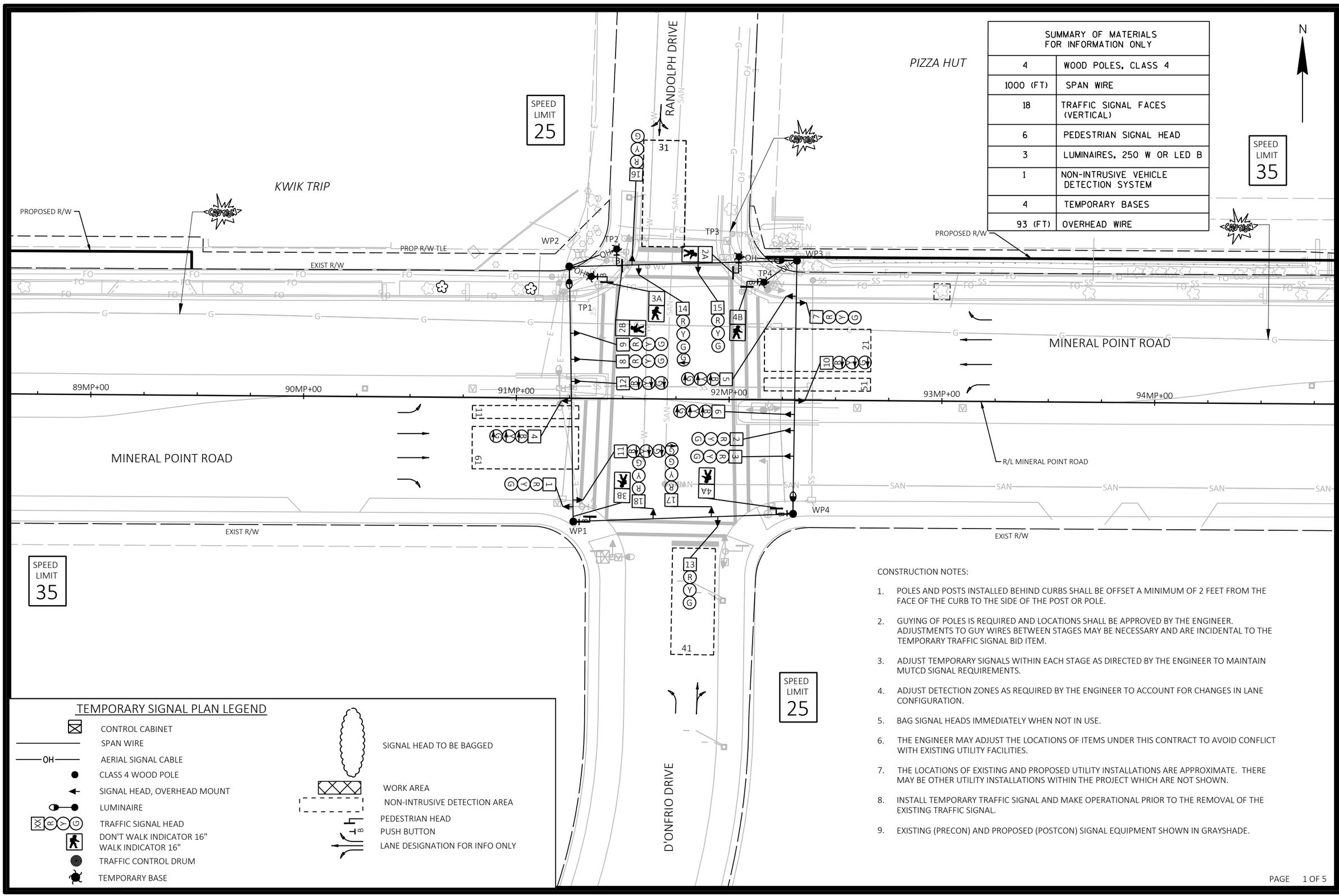
PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB4

Mark	Designed By: AECOM 60631225P	REVISION Date: 9/21/2022	DATE	BY
			Scale: NTS	

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

60631225P
S-2J

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE: 9/21/2022



SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
1000 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
6	PEDESTRIAN SIGNAL HEAD
3	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
93 (FT)	OVERHEAD WIRE

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - PRECON: MINERAL POINT RD AT D'ONFRIO DR/RANDOLPH DR 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

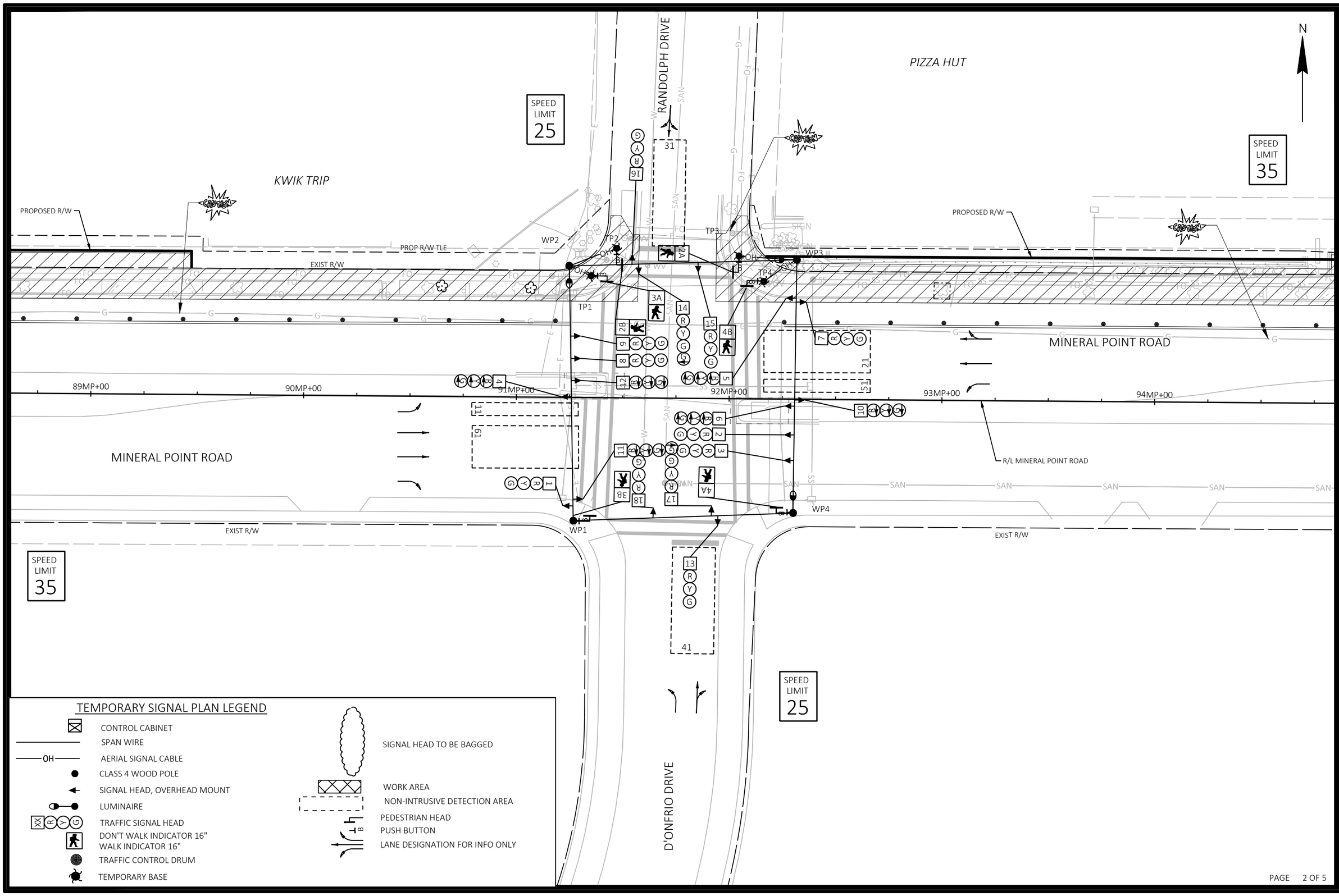
BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-3A

FILE NAME: C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024202A-ST.DWG
LAYOUT NAME - precon
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

D'ONOFRIO DR/RANDOLPH DR 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT RD AT D'ONOFRIO DR/RANDOLPH DR

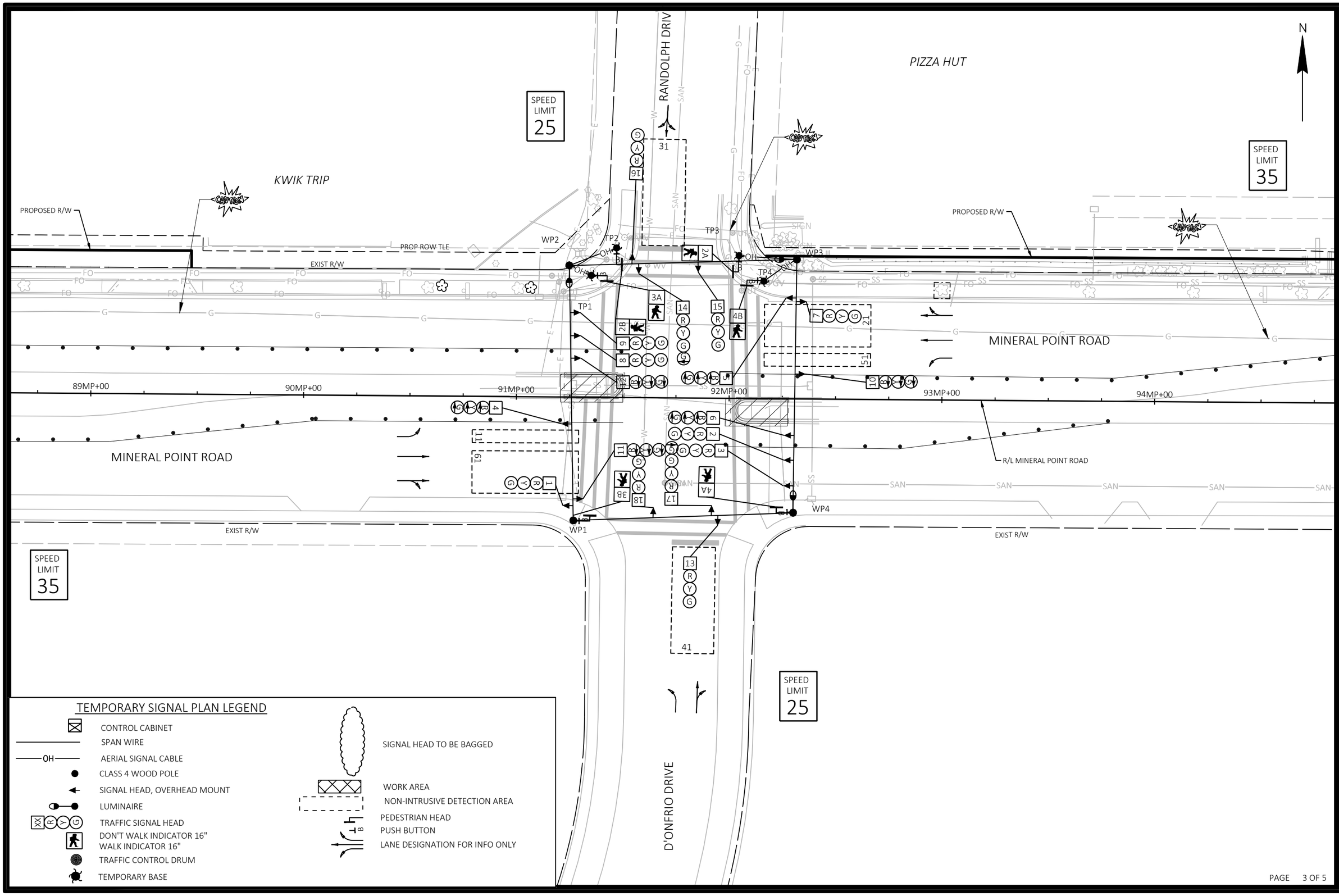
BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-3B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024202A-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13



MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - MEDIAN: MINERAL POINT RD AT D'ONFRIO DR/RANDOLPH DR 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

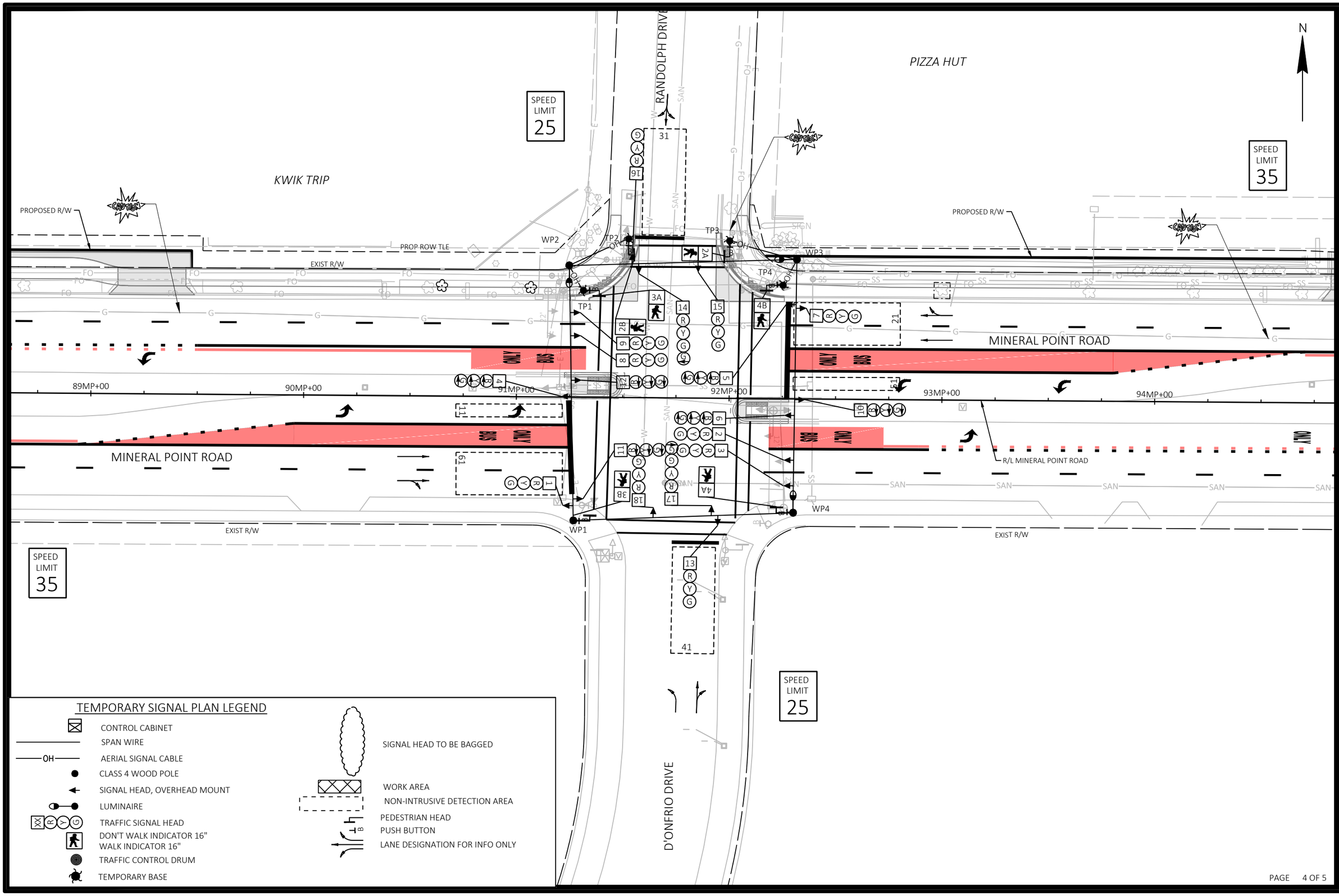
CITY OF MADISON

60631225P

S-3C

PAGE 3 OF 5

FILE NAME: C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863348\024202A-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13



MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT RD AT D'ONFRIO DR/RANDOLPH DR 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

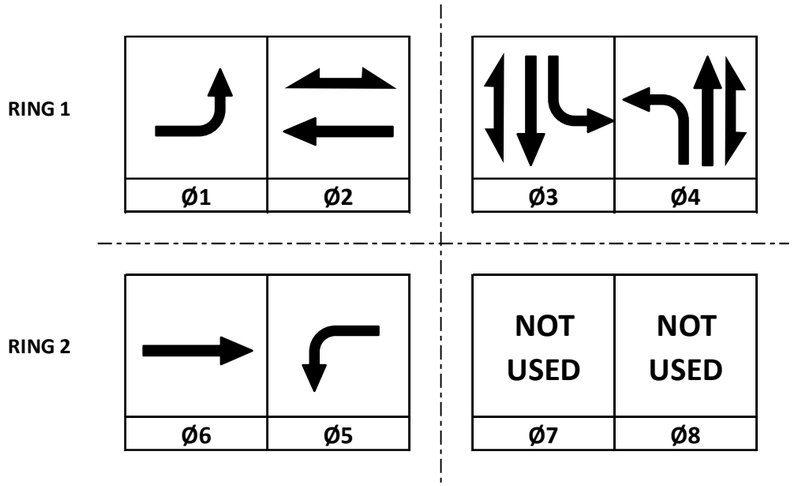
CITY OF MADISON

60631225P

S-3D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024202A-ST.DWG
LAYOUT NAME - Postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		R
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY
3.
4.

Mark	Designed By: AECOM 60631225P	REVISION	Date: 10/13/2022	Scale: NTS	DATE	BY

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT RANDOLPH DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

MINERAL POINT ROAD AT RANDOLPH DRIVE

CITY OF MADISON

DANE COUNTY

SIGNAL NO:

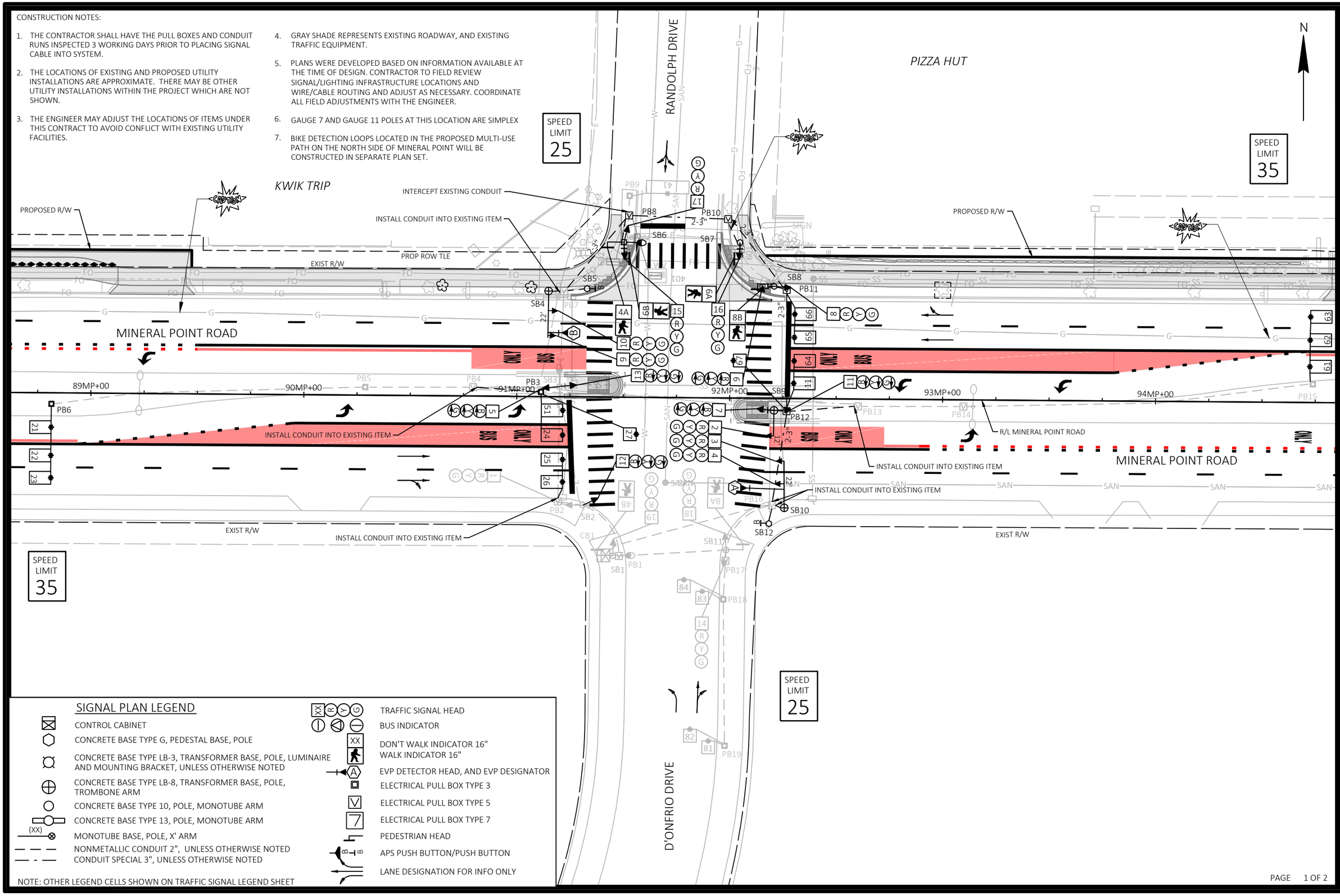
DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

60631225P

S-3E

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
7. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.



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

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-11	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: MINERAL POINT ROAD AT D'ONFRIO DRIVE 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

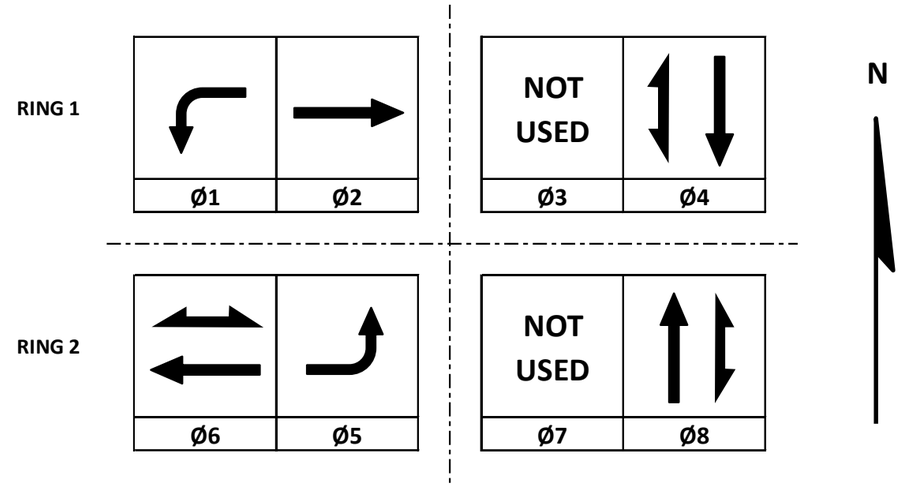
CITY OF MADISON

60631225P

S-3F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\024202A-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-11

	HEAD NUMBERS	FLASH
Ø1	11,12,13	R ←
Ø2	1,2,3,4	R
Ø3		
Ø4	17,18,19	R
Ø5	5,6,7	R ←
Ø6	8,9,10	R
Ø7		
Ø8	14,15,16	R
Ø1P		
Ø4P	4A,4B	
Ø6P	6A,6B	
Ø8P	8A,8B	
OLE		
OLF		
OLG		
OLH		



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3				
4		8		X
5		2		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 1+6, CONTROLLER SHALL RETURN TO PHASES 2+5.

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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	23	25	27	41	51	61
PHASE CALLED	1	2	2	2		4	5	6
PHASE EXTENDED	1	2	2	2		4	5	6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
63	65	67	602	81	83			DETECTOR #(S)
6	6		6	8	8			PHASE CALLED
6	6		6	8	8			PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)		22	24	26		401		62
PHASE CALLED		2	2	2		4		6
PHASE EXTENDED		2	2	2		4		6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32	30	DETECTOR INPUT
64	66	601		82	84			DETECTOR #(S)
6	6	6		8	8			PHASE CALLED
6	6	6		8	8			PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

GENERAL NOTES:

1.
2.
3.
4.

Mark	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 10/13/2022	Scale: NTS	

SEQUENCE OF OPERATION:MINERAL POINT RD AT D'ONFRIO DR/RANDOLPH DR 60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

MINERAL POINT ROAD AT D'ONFRIO DRIVE
CITY OF MADISON
DANE COUNTY

SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: ECONOLITE
DATE: JULY 2022	PAGE NUMBER: 2 OF 2

60631225P
S-3G

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & RANDOLPH DR

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	EXISTING	19	EXISTING													
		4B	EXISTING													
SB2	12	1	RED	ORG	GRN											
		12				RED/BLK	ORG/BLK		GRN/BLK							
		PB													WHT/BLK	
SB3	12	5				RED	ORG		GRN							
		13				RED/BLK	ORG/BLK		GRN/BLK							
		PB													WHT/BLK	
SB4	7	9	RED	ORG	GRN											
		10	RED	ORG	GRN											
SB5	7	PB													WHT/BLK	
SB6	15	15	RED	ORG	GRN											
		17	RED/BLK	ORG/BLK	GRN/BLK											
		4A											BLK	BLU		
		6B											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
SB7	12	16	RED	ORG	GRN											
		6A											BLK	BLU		
		PB													WHT/BLK	
SB8	12	6				RED	ORG		GRN							
		8	RED/BLK	ORG/BLK	GRN/BLK											
		8B											BLK	BLU		
		PB													WHT/BLK	
SB9	15	2	RED	ORG	GRN											
		7				RED/BLK	ORG/BLK		GRN/BLK							
		11				BLK	BLU		BLU/BLK							
		PB													WHT/BLK	
SB10	7	3	RED	ORG	GRN											
		4	RED	ORG	GRN											
SB11	EXISTING	14	EXISTING													
		18	EXISTING													
		8A	EXISTING													
SB12	7	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.
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
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB12
SB12	SB11
SB11	CB1

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB10
B	CB1	SB4

Mark	Designed By: AECOM 60631225P	REVISION Date: 9/19/2022	DATE	BY
			Scale: NTS	

60631225P

CABLE ROUTING: MINERAL POINT ROAD AND RANDOLPH DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

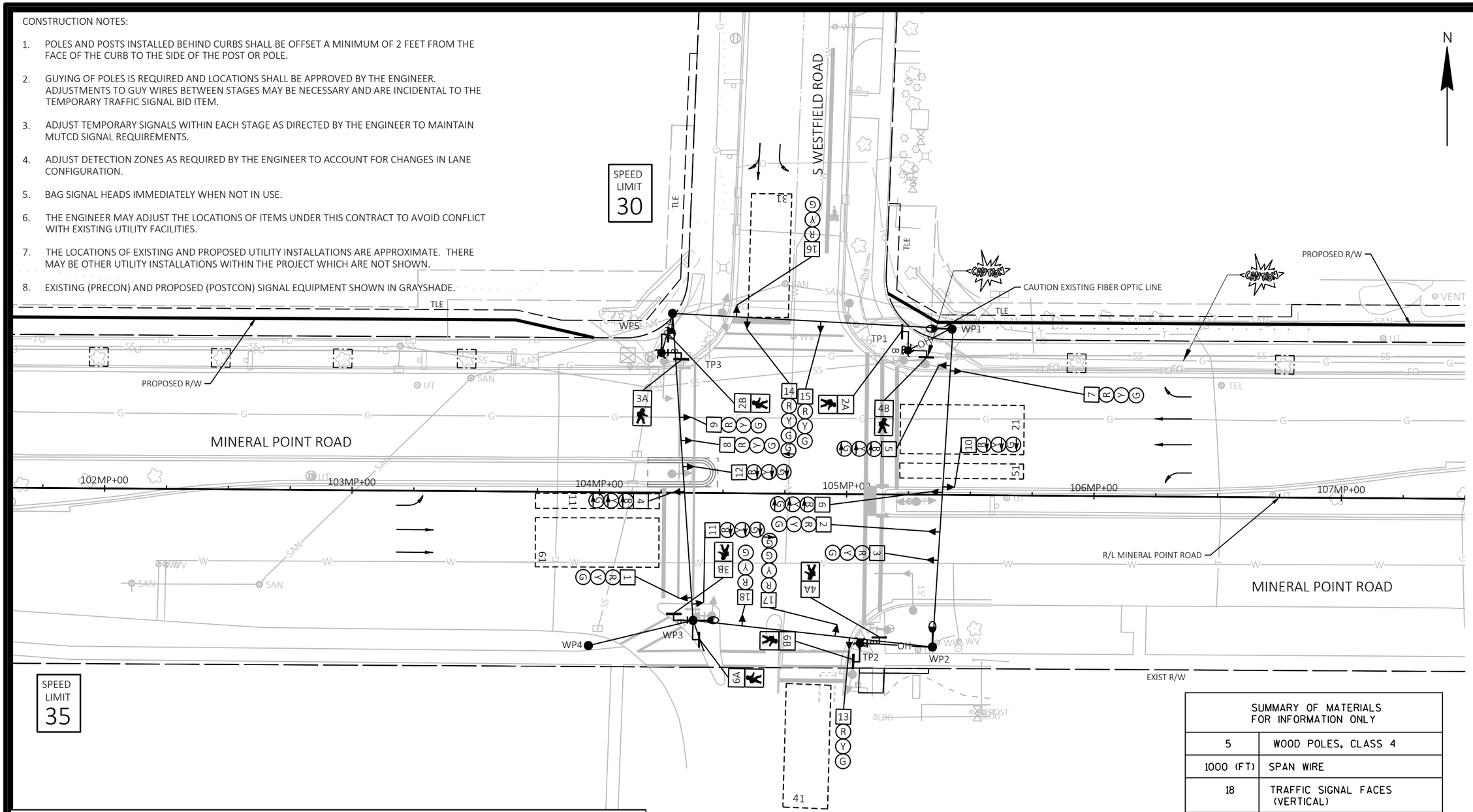
60631225P

S-3H

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE - 9/19/2022

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY
- GUY WIRE

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
1000 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
3	TEMPORARY BASES
75 (FT)	OVERHEAD WIRE

WEST TOWNE MALL

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN PRECON: MINERAL POINT ROAD AT WESTFIELD ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

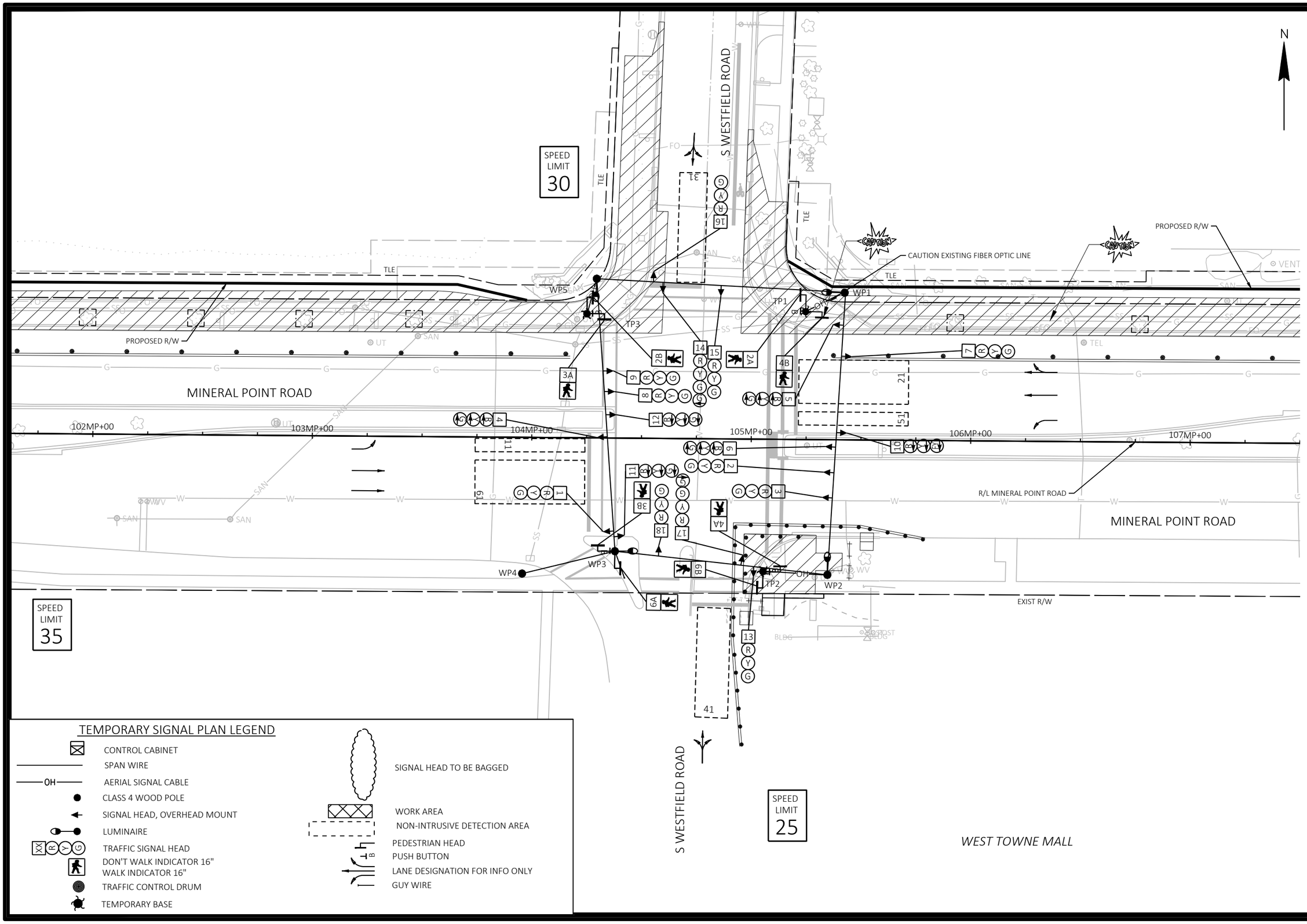
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-4A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-ST.DWG
LAYOUT NAME - Precon
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY
- GUY WIRE

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN SIDEWALK: MINERAL POINT ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

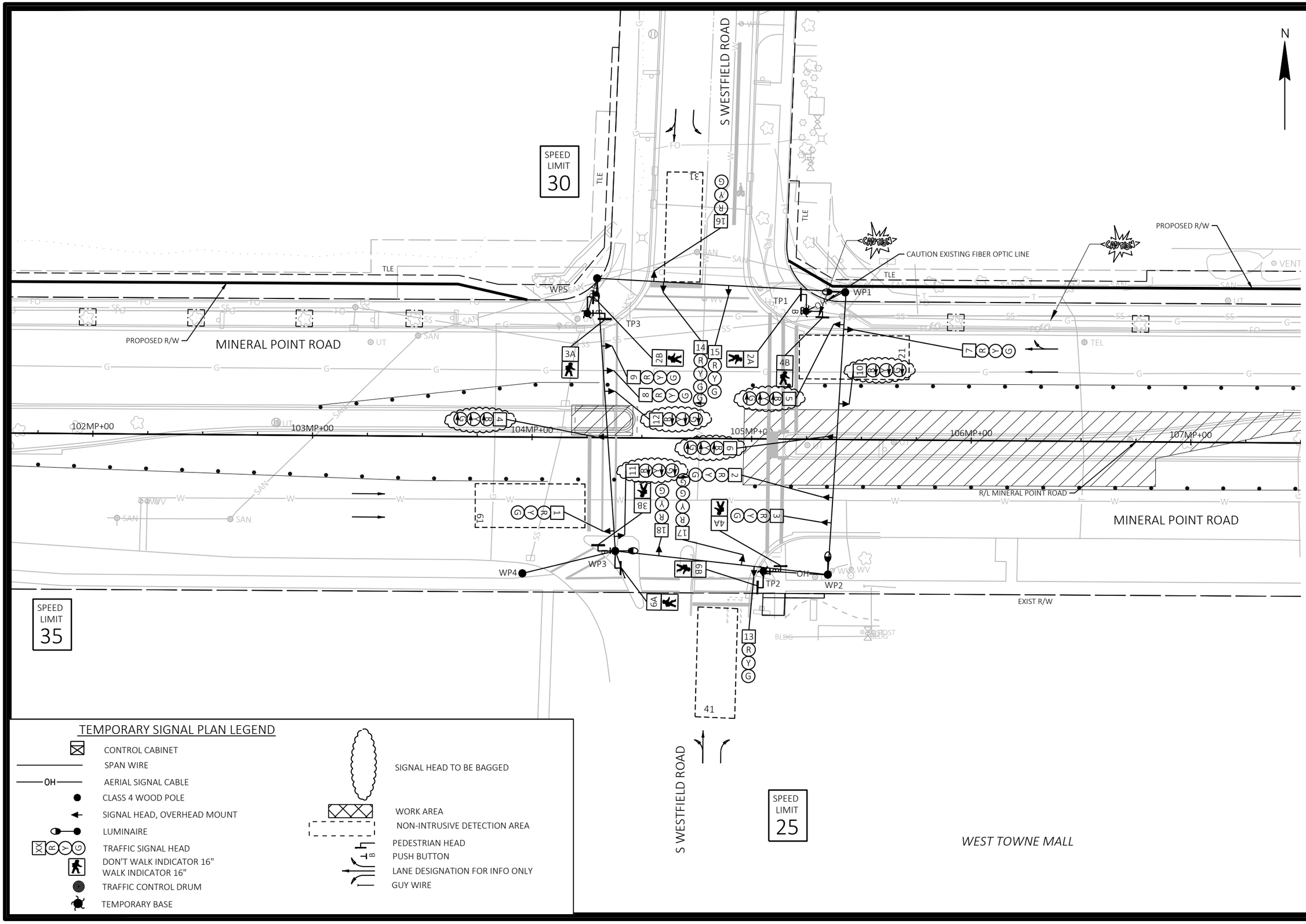
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-4B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-ST.DWG
LAYOUT NAME - Sidewalk
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY
- GUY WIRE

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-13	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN MEDIAN: MINERAL POINT ROAD AT WESTFIELD ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

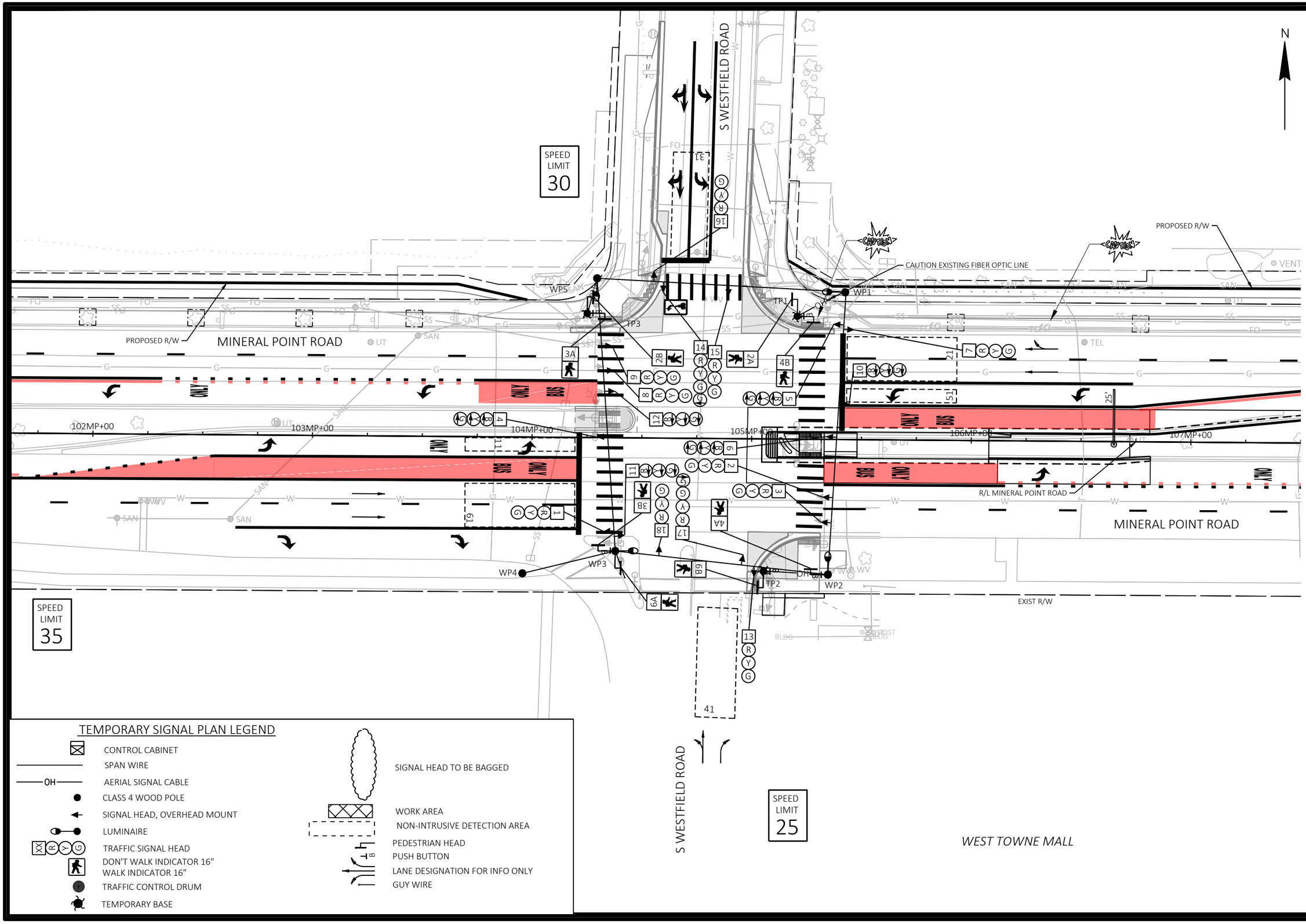
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-4C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY
- GUY WIRE

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT WESTFIELD ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

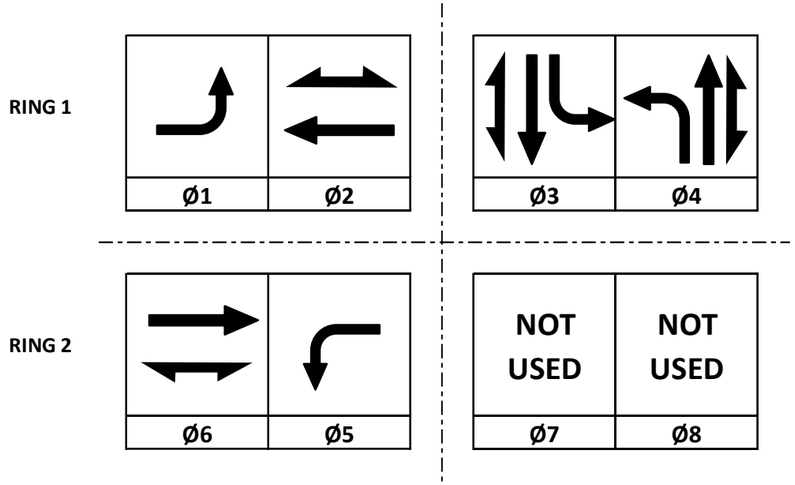
CITY OF MADISON

60631225P

S-4D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-ST.DWG
LAYOUT NAME - Postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R
Ø6	1,2,3	R
Ø7		
Ø8		
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY
3. OMIT PHASES 1 AND 5 IN THE MEDIAN STAGE WHICH INCLUDES DETECTION ZONES 11 AND 51.
4.

Mark	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 10/13/2022	Scale: NTS	

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT S. WESTFIELD ROAD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

MINERAL POINT ROAD AT S. WESTFIELD ROAD
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

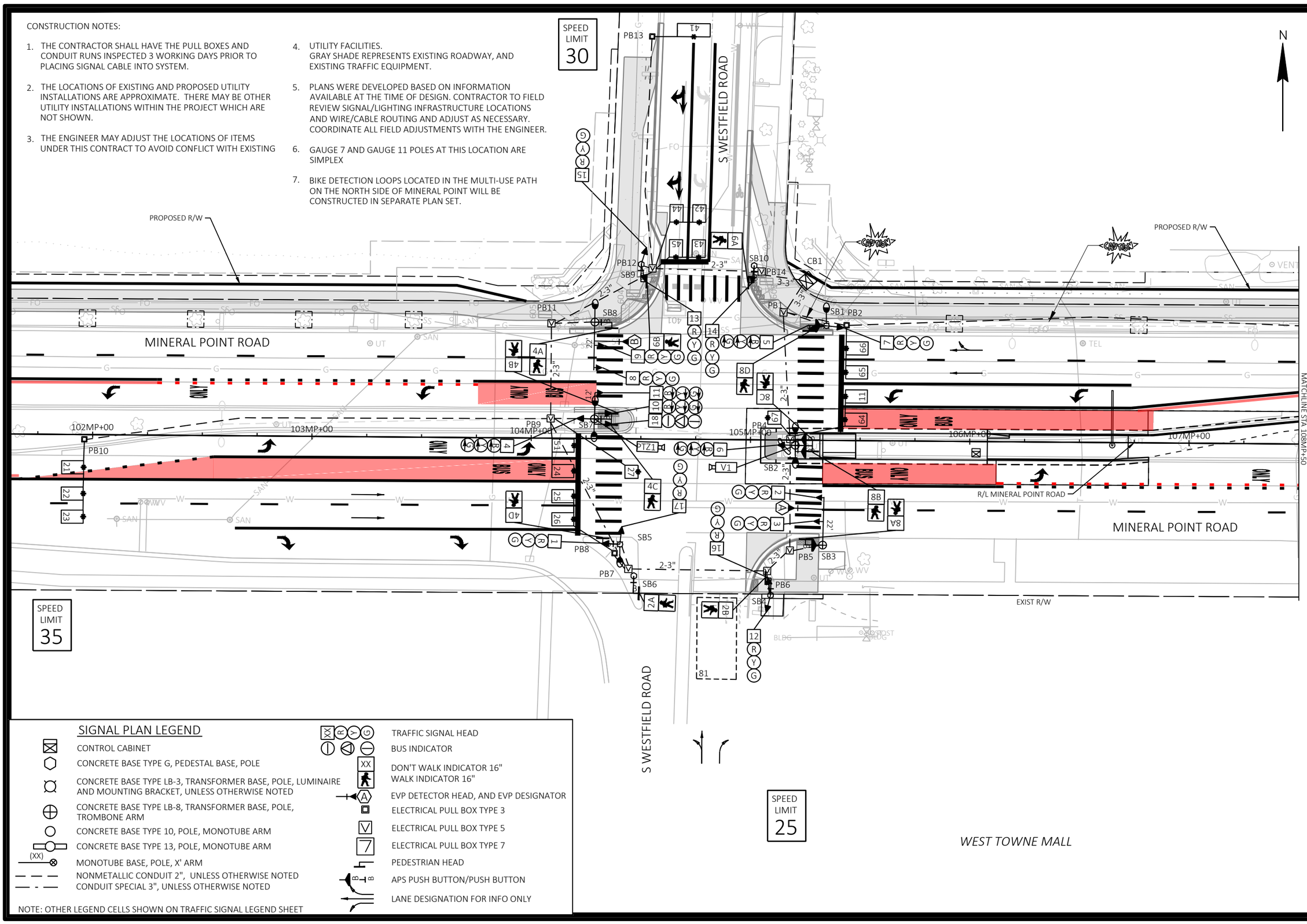
DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

60631225P

S-4E

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
4. UTILITY FACILITIES.
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
7. BIKE DETECTION LOOPS LOCATED IN THE MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.



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: AECOM 60631225P	Date: 2022-10-04	Scale: 1 IN:40 FT	

SIGNAL PLAN: MINERAL POINT ROAD AT WESTFIELD ROAD
60631225P

BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

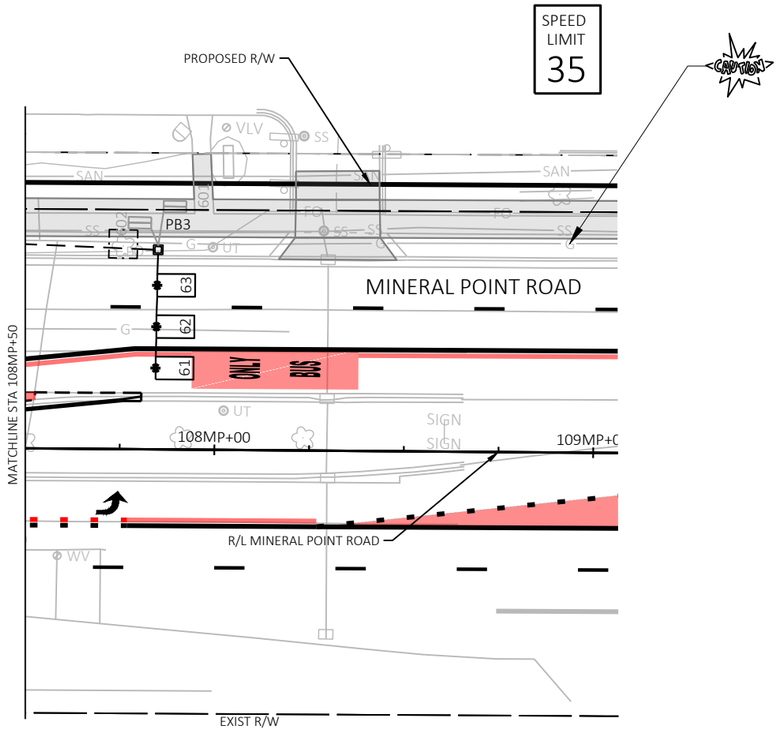
CITY OF MADISON

60631225P

S-4F

FILE NAME: C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-SP.DWG
LAYOUT NAME - Plan 1 IN:40 FT 01
LAST PLOT DATE - 2022-10-04

N



PAGE 2 OF 3

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-09-24
60631225P
Scale: 1 IN:40 FT

60631225P

CONTRACT NO: 60631225C

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

SIGNAL PLAN: EB MINERAL POINT ROAD AT WESTFIELD ROAD

CITY OF MADISON

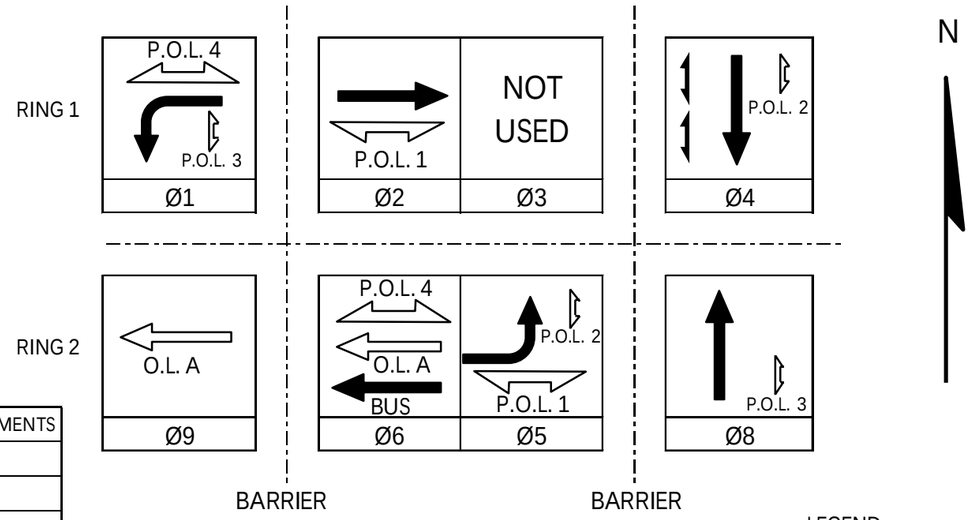
60631225P

S-4G

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024203-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-09-24

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

			OL ASSIGNMENTS
OLA	7,8,9		6,9
POL1	2A,2B		2,5
POL2	8C,8D		4,5
POL3	8A,8B		8,1
POL4	6A,6B		1,6



CONTROLLER LOGIC

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

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

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	
IN SEPARATE LIGHTING CABINET	X

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	22	24	26	41	43	45	51
PHASE CALLED	1	2	2	2	4	4	4	5
PHASE EXTENDED	1	2	2	2	4	4	4	5
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH		X			X	X		
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
62	64	66	601	603	605	V81		DETECTOR #(S)
6	6	6		6	6	8		PHASE CALLED
6	6	6		6	6	8		PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
X								EXTENSION STRETCH
			SYS					LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	21	23	25	27	42	44	401	61
PHASE CALLED	2	2	2		4	4	4	6
PHASE EXTENDED	2	2	2		4	4	4	6
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X	X						X
LOOP FUNCTION								

20	18	24	22	28	26	32	30	DETECTOR INPUT
63	65	67	602	604				DETECTOR #(S)
6	6			6				PHASE CALLED
6	6			6				PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
X								EXTENSION STRETCH
			SYS					LOOP FUNCTION

GENERAL NOTES:

1.
2.
3.
4.

EB MINERAL POINT ROAD AT WESTFIELD ROAD
CITY OF MADISON
DANE COUNTY

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

Mark	Designed By: AECOM 60631225P	REVISION Date: 10/17/2022	DATE	BY

Scale: NTS

60631225P

SEQUENCE OF OPERATION:MINERAL POINT ROAD AT WESTFIELD ROAD
BUS RAPID TRANSIT

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

60631225P

S-4H

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & WESTFIELD 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	12	5				RED/BLK	ORG/BLK		GRN/BLK						
		7	RED	ORG	GRN										
		8D											BLK	BLU	
		PB													WHT/BLK
SB2	12	6				RED	ORG		GRN						
		8B											BLK	BLU	
		8C											BLU/BLK	BLK/WHT	
		PB													WHT/BLK
		PB													RED/BLK
SB3	12	2	RED	ORG	GRN										
		3	RED	ORG	GRN										
		8A											BLK	BLU	
		PB													WHT/BLK
SB4	12	12	RED	ORG	GRN										
		16	RED/BLK	ORG/BLK	GRN/BLK										
		2B											BLK	BLU	
		PB													WHT/BLK
SB5	12	1	RED	ORG	GRN										
		17	RED/BLK	ORG/BLK	GRN/BLK										
		4D											BLK	BLU	
		PB													WHT/BLK
SB6	7	2A											BLK	BLU	
		PB													WHT/BLK
SB7	19	4				RED	ORG		GRN						
		10				RED/BLK	ORG/BLK		GRN/BLK						
		11				RED/BLK	ORG/BLK		GRN/BLK						
		18								RED/WHT	BLK/RED	GRN/WHT			
		4B											BLK	BLU	
		4C											BLU/BLK	BLU/WHT	
		PB													WHT/BLK
SB8	12	8	RED	ORG	GRN										
		9	RED	ORG	GRN										
		4A											BLK	BLU	
		PB													WHT/BLK
SB9	12	13	RED	ORG	GRN										
		15	RED/BLK	ORG/BLK	GRN/BLK										
		PB													WHT/BLK
SB10	7	14	RED	ORG	GRN										
		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.

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	SB1
SB1	SB2
CB1	SB8
SB8	SB7
SB7	SB5

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB7

VIDEO DETECTION		
HEAD	FROM	TO
V1	CB1	SB2

Mark	REVISION	Date:	BY
		DATE	

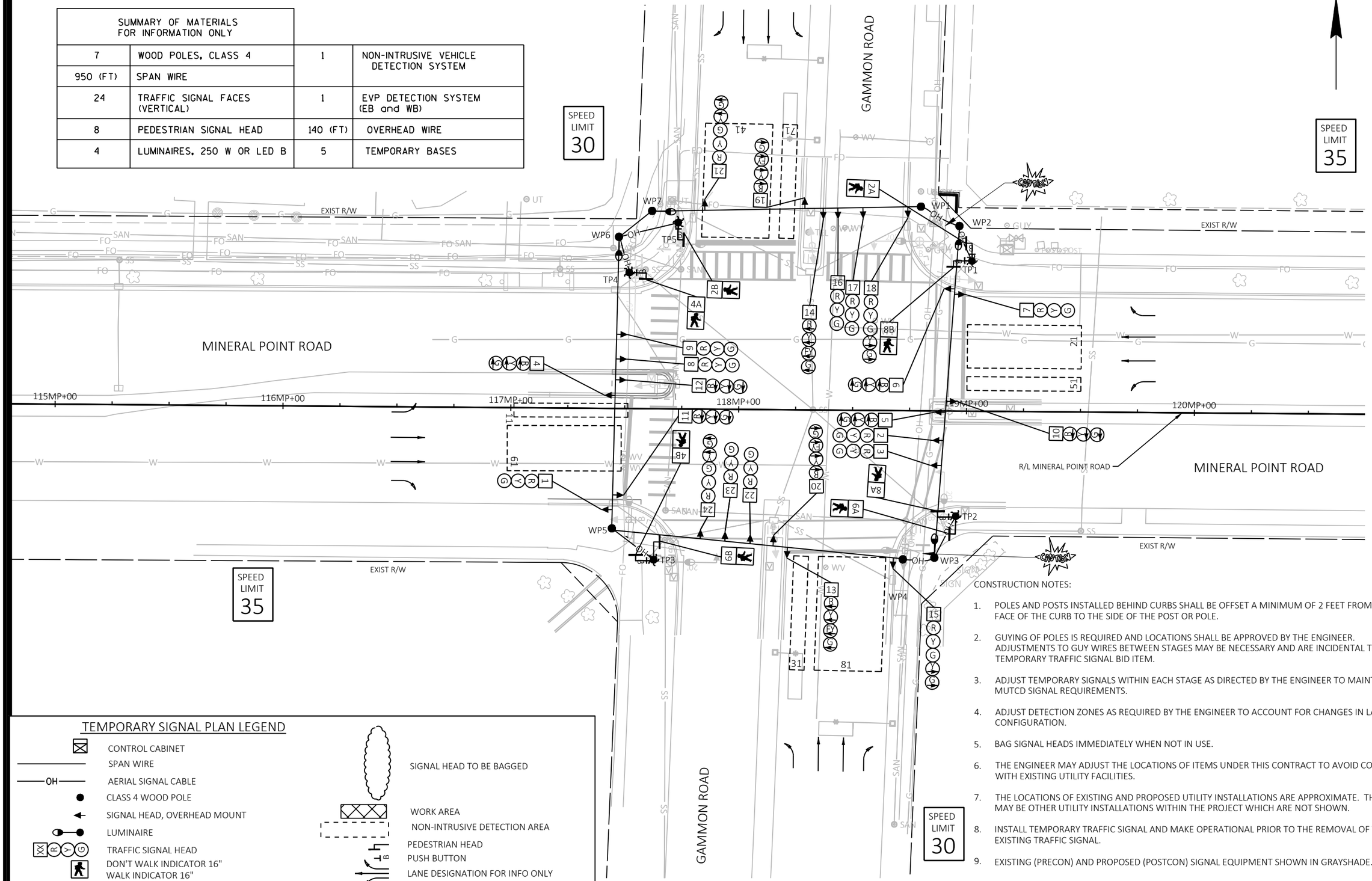
Designed By: AECOM
60631225P
Date: 9/19/2022
Scale: NTS

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

60631225P
S-41

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE - 9/19/2022

SUMMARY OF MATERIALS FOR INFORMATION ONLY			
7	WOOD POLES, CLASS 4	1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
950 (FT)	SPAN WIRE		
24	TRAFFIC SIGNAL FACES (VERTICAL)	1	EVP DETECTION SYSTEM (EB and WB)
8	PEDESTRIAN SIGNAL HEAD	140 (FT)	OVERHEAD WIRE
4	LUMINAIRES, 250 W OR LED B	5	TEMPORARY BASES



CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 1 OF 5

MARK	REVISION	DATE	BY
Designed By: AECOM Date: 2022-10-13	Scale: 1 IN:40 FT		
60631225P			

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT GAMMON ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-5A

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\D0586348\024203A-ST.DWG
LAYOUT NAME - precon
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 30

SPEED LIMIT 35

GAMMON ROAD

MINERAL POINT ROAD

EXIST R/W

115MP+00

116MP+00

117MP+00

118MP+00

119MP+00

120MP+00

R/L MINERAL POINT ROAD

WP1

WP2

WP3

WP4

WP5

WP6

WP7

TP1

TP2

TP3

TP4

TP5

CAUTION

SPEED LIMIT 35

SPEED LIMIT 30

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 2 OF 5

MARK	REVISION	DATE	BY
	Designed By: AECOM Date: 2022-10-13 60631225P	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT GAMMON ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

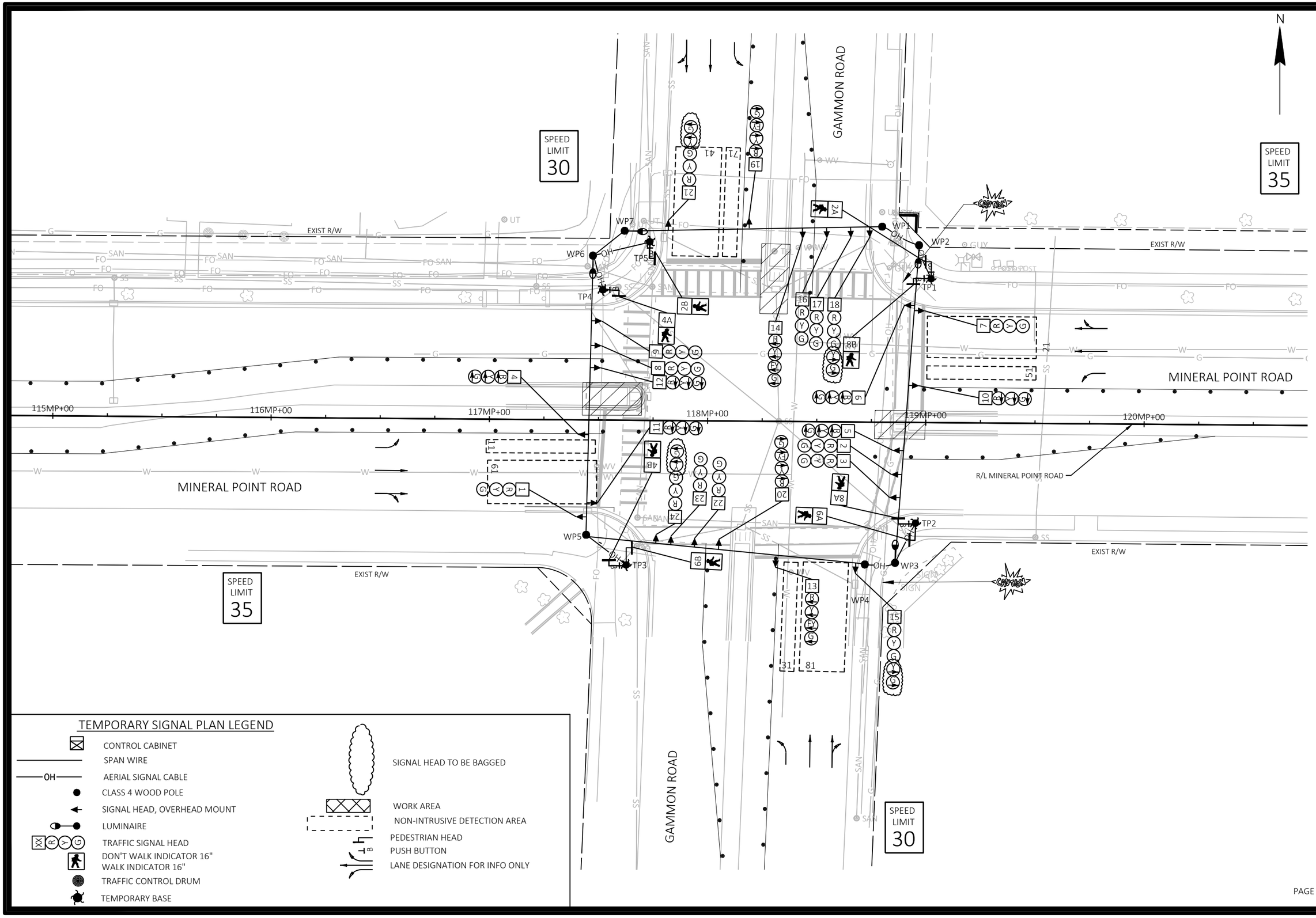
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-5B

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024203A-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 3 OF 5

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - MEDIAN: MINERAL POINT ROAD AT GAMMON ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-5C

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\D\586348\024203A-ST.DWG
LAYOUT NAME - median
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 30

SPEED LIMIT 35

GAMMON ROAD

MINERAL POINT ROAD

EXIST R/W

BUS ONLY

115MP+00

116MP+00

117MP+00

118MP+00

119MP+00

120MP+00

R/L MINERAL POINT ROAD

WP1

WP2

WP3

WP4

WP5

WP6

WP7

TP1

TP2

TP3

TP4

TP5

CAUTION

SPEED LIMIT 35

SPEED LIMIT 30

GAMMON ROAD

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE

- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 4 OF 5

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT

60631225P

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT GAMMON ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

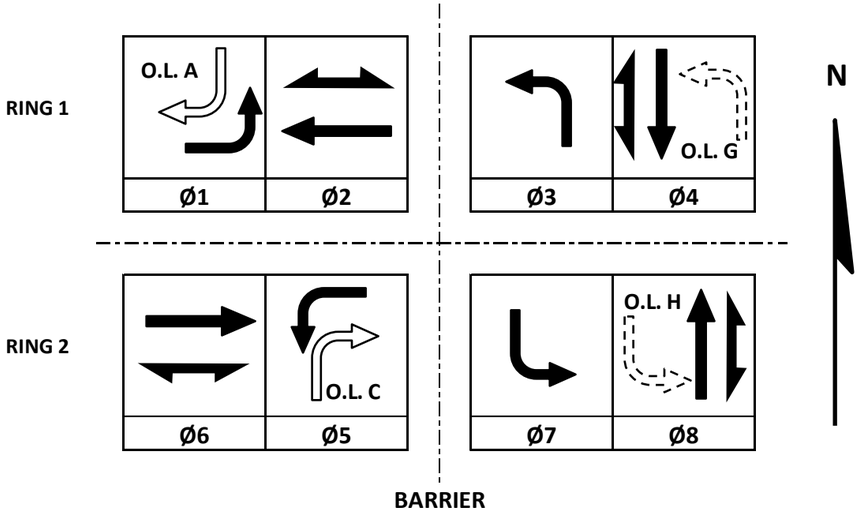
60631225P

S-5D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024203A-ST.DWG
LAYOUT NAME - postcon

LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	13, 14	-
Ø4	21, 22, 23, 24	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7	19, 20	-
Ø8	15, 16, 17, 18	R
Ø2P	2A,2B	
Ø4P	4A,4B	
Ø6P	6A,6B	
Ø8P	8A,8B	
OLC	15, 18	
OLA	21,24	
OLG	13, 14	
OLH	19, 20	



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

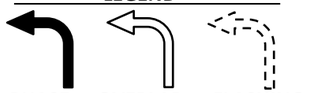
TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

LEGEND



GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY
3. OMIT OVERLAP A AND OVERLAP C DURING THE MEDIAN STAGE AND THE SIDEWALK STAGE.
4.

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	42	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)						82		
PHASE CALLED						8		
PHASE EXTENDED						8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

Mark	Designed By: AECOM 60631225P	REVISION	Date: 10/13/2022	Scale: NTS	DATE	BY

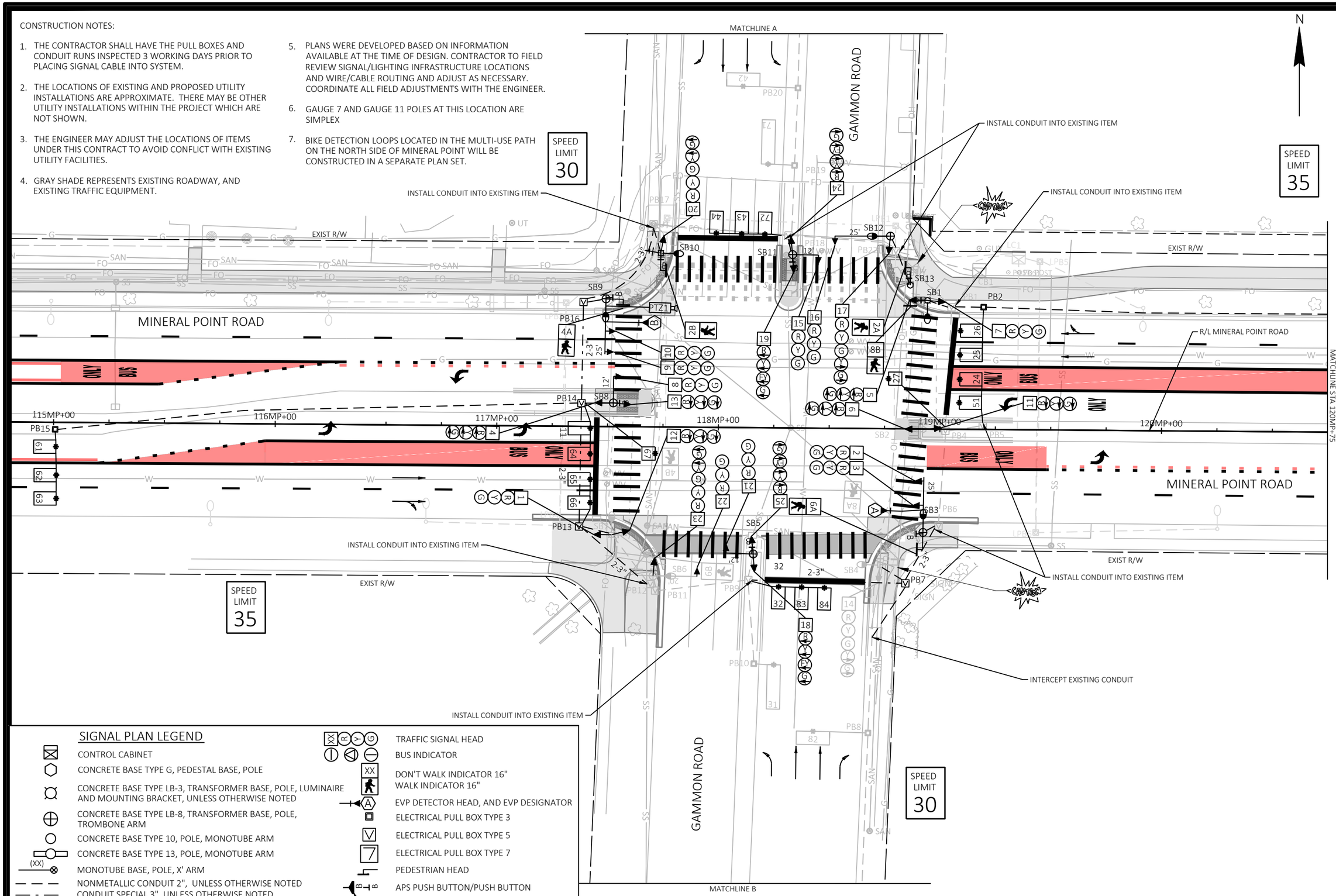
TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT GAMMON ROAD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

MINERAL POINT ROAD AT GAMMON ROAD
CITY OF MADISON
DANE COUNTY
SIGNAL NO:
DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

60631225F
S-5E

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
7. BIKE DETECTION LOOPS LOCATED IN THE MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN A SEPARATE PLAN SET.



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

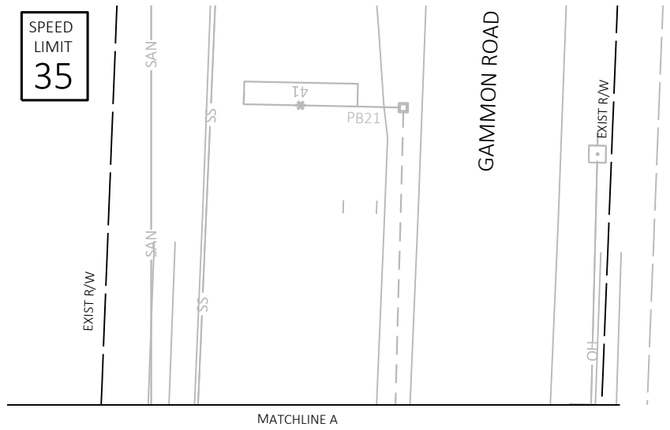
MARK	REVISION	DATE	BY

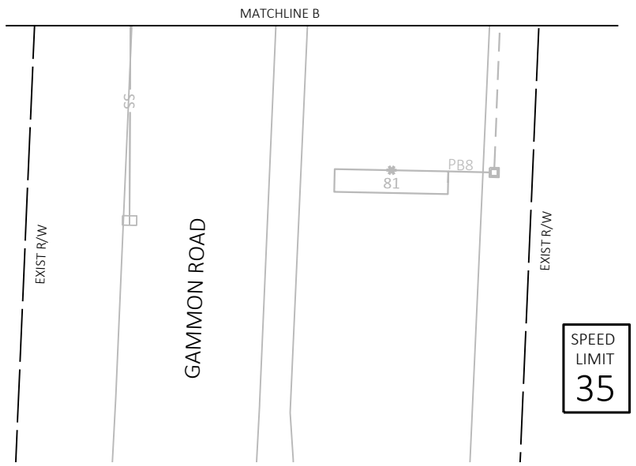
Designed By: AECOM Date: 2022-10-11 Scale: 1 IN:40 FT
60631225P

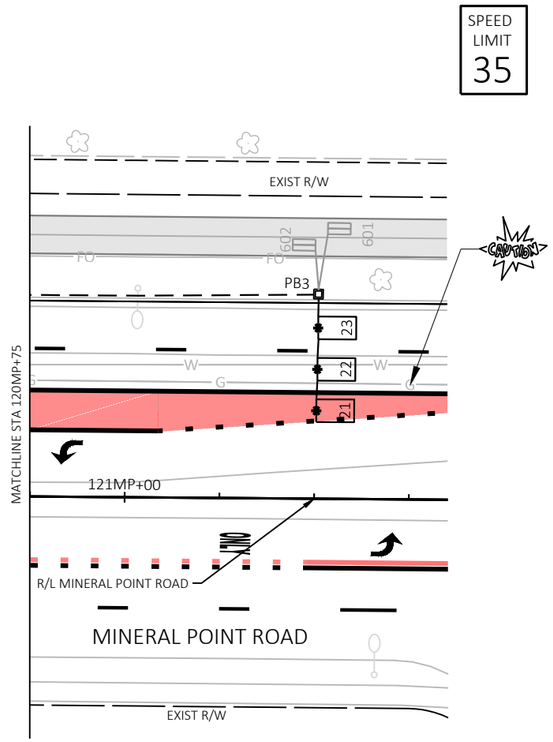
60631225P
SIGNAL PLAN: MINERAL POINT ROAD AT GAMMON ROAD
BUS RAPID TRANSIT
CITY OF MADISON
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P
S-5F

FILE NAME : C:\PWWORKINGVAECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024203A-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-11







N

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-11	Scale: 1 IN:40 FT	
60631225P			

60631225P

SIGNAL PLAN: MINERAL POINT ROAD AT GAMMON ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

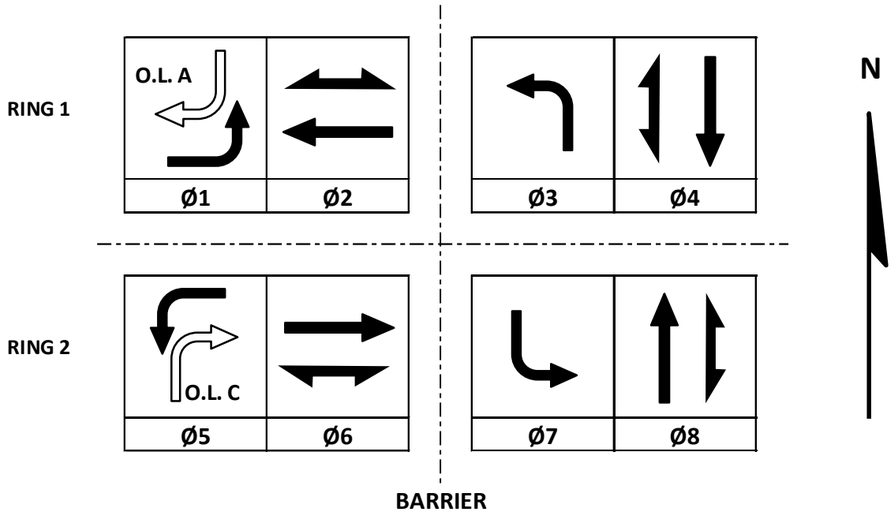
CITY OF MADISON

60631225P

S-5G

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\024203A-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-10-11

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9,10	R
Ø3	18,19	-
Ø4	20,21,22,23	R
Ø5	11,12,13	R ←
Ø6	1,2,3	R
Ø7	24,25	-
Ø8	14,15,16,17	R
Ø2P	2A,2B	
Ø4P	4A,4B	
Ø6P	6A,6B	
Ø8P	8A,8B	
OLA	20,23	
OLC	14,17	
OLG		
OLH		



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	X
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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
DETECTOR #(S)	11	22	24	26	31	41	43	51	62	64	66	601	71	81	83		DETECTOR #(S)
PHASE CALLED	1	2	2	2	3	4	4	5	6	6	6		7	8	8		PHASE CALLED
PHASE EXTENDED	1	2	2	2	3	4	4	5	6	6	6		7	8	8		PHASE EXTENDED
DISCONNECT TIME																	DISCONNECT TIME
CALLING DELAY																	CALLING DELAY
EXTENSION STRETCH		X			X	X			X				X				EXTENSION STRETCH
LOOP FUNCTION												SYS					LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
DETECTOR #(S)	21	23	25	27	32	42	44	61	63	65	67	602	72	82	84		DETECTOR #(S)
PHASE CALLED	2	2	2		3	4	4	6	6	6			7	8	8		PHASE CALLED
PHASE EXTENDED	2	2	2		3	4	4	6	6	6			7	8	8		PHASE EXTENDED
DISCONNECT TIME																	DISCONNECT TIME
CALLING DELAY																	CALLING DELAY
EXTENSION STRETCH	X	X						X	X								EXTENSION STRETCH
LOOP FUNCTION												SYS					LOOP FUNCTION

GENERAL NOTES:

1.

2.

3.

4.

Mark	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 10/13/2022	Scale: NTS	

SEQUENCE OF OPERATION: MINERAL POINT ROAD AT GAMMON ROAD
BUS RAPID TRANSIT

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

MINERAL POINT ROAD AT GAMMON ROAD
CITY OF MADISON
DANE COUNTY

SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: ECONOLITE
DATE: SEPTEMBER 2022 PAGE NUMBER: 3 OF 3

60631225P

S-5H

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & GAMMON 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	12	5				RED/BLK	ORG/BLK		GRN/BLK							
		7	RED	ORG	GRN											
		8B											BLK	BLU		
		PB													WHT/BLK	
SB2	EXISTING	6	MATCH EXISTING													
		11	MATCH EXISTING													
		PB	EXISTING													
SB3	12	2	RED	ORG	GRN											
		3	RED	ORG	GRN											
		6A											BLK	BLU		
		PB													WHT/BLK	
SB4	EXISTING	14	EXISTING													
		8A	EXISTING													
		PB	EXISTING													
SB5	15	18				RED/BLK	ORG/BLK	BLU/BLK	GRN/BLK							
		21	RED	ORG	GRN											
		25				RED/WHT	BLK	BLU	GRN/WHT							
		PB													WHT/BLK	
SB6	12	22	RED	ORG	GRN											
		23	RED	ORG	GRN		BLK		BLU							
		6B	EXISTING													
		PB	EXISTING													
SB7	12	1	RED	ORG	GRN											
		12				RED/BLK	ORG/BLK		GRN/BLK							
		4B	EXISTING													
		PB	EXISTING													
SB8	15	4				RED/BLK	ORG/BLK		GRN/BLK							
		8	RED	ORG	GRN											
		13				BLU	BLU/BLK		BLK/WHT							
		PB													WHT/BLK	
SB9	12	9	RED	ORG	GRN											
		10	RED	ORG	GRN											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB10	12	20	RED	ORG	GRN		ORG/BLK		GRN/BLK							
		2B											BLK	BLU		
		PB													WHT/BLK	
SB11	15	15	RED	ORG	GRN											
		19				RED/BLK	ORG/BLK	BLU/BLK	GRN/BLK							
		24				RED/WHT	BLK	BLU	GRN/WHT							
		PB													WHT/BLK	
SB12	7	16	RED	ORG	GRN											
		17	RED	ORG	GRN		BLK		WHT/BLK							
SB13	7	2A											BLK	BLU		
		PB													WHT/BLK	

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

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.

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB9

LIGHTING UF 8 AWG W/ GROUND	
FROM	TO
CB1	SB1
SB1	SB3
SB3	SB4
CB1	SB12
SB12	SB10
SB10	SB9
SB9	SB7

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB3
B	CB1	SB9

WIRELESS ANTENNA	
FROM	TO
CB1	SB10

Mark	Designed By: AECOM 60631225P	REVISION Date: 9/19/2022	DATE	BY
			Scale: NTS	

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

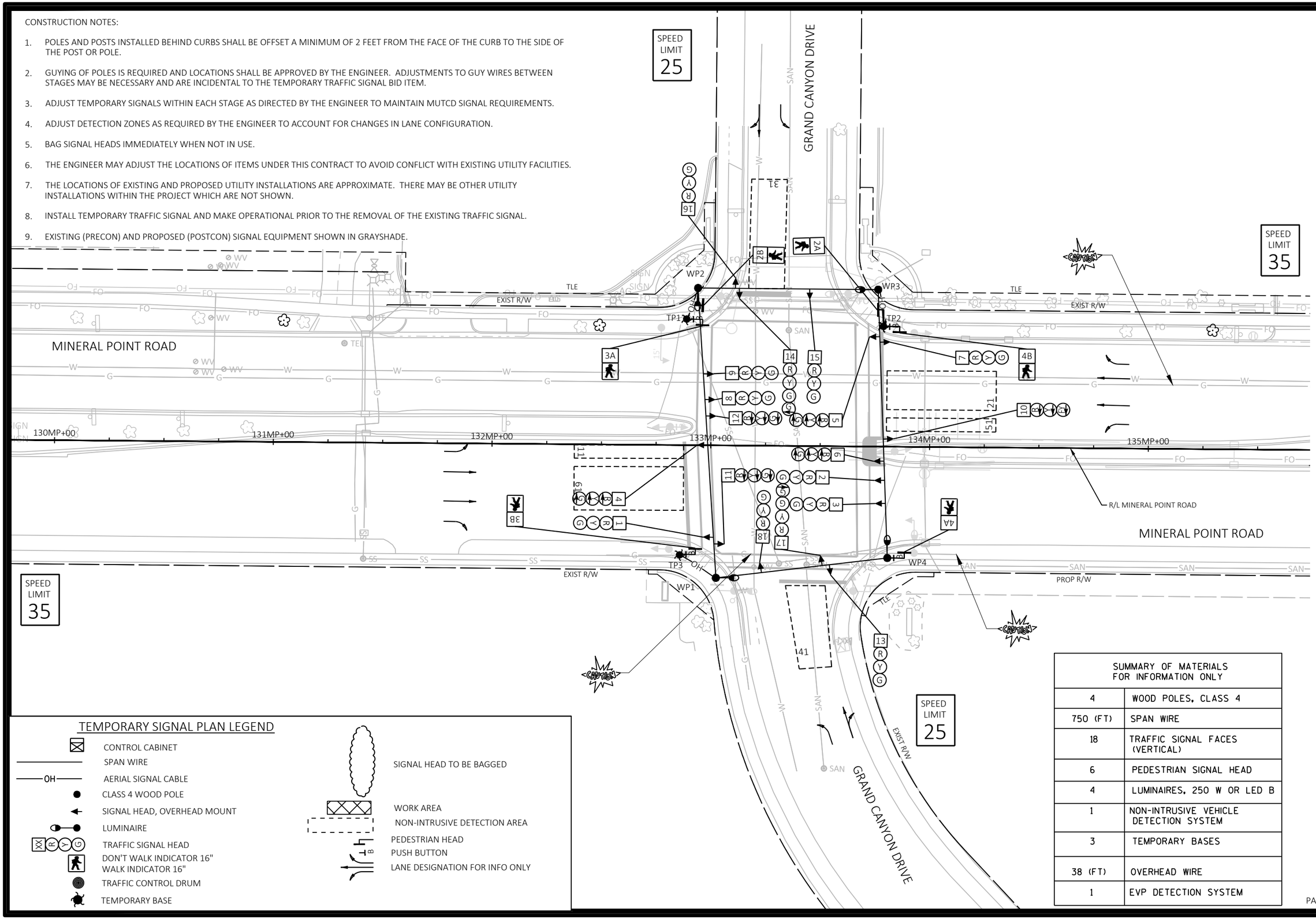
60631225P

S-5I

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE - 9/19/2022

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
750 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
6	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
3	TEMPORARY BASES
38 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT **CITY OF MADISON**

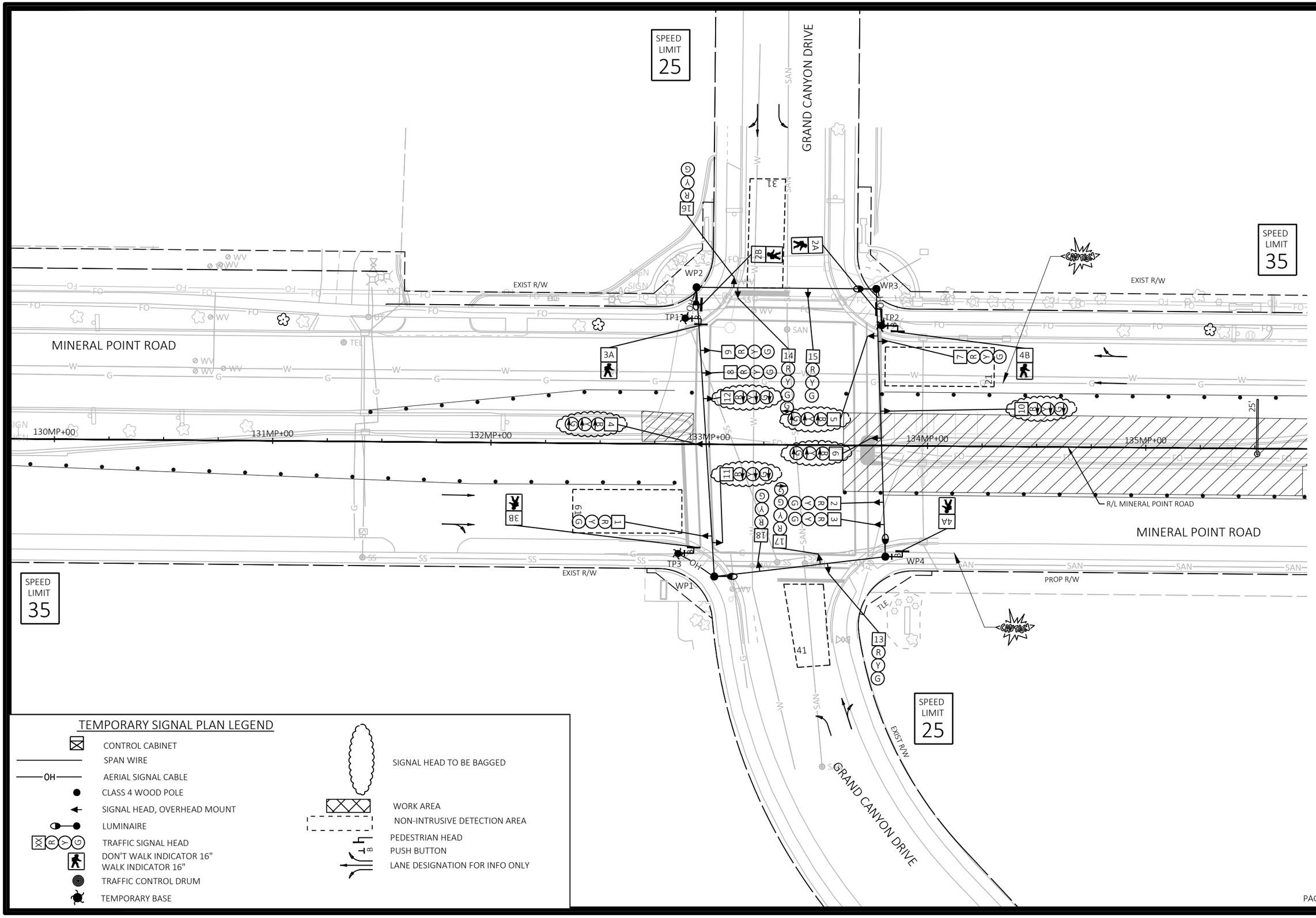
CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-6A

FILE NAME: C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204-ST.DWG
LAYOUT NAME - precon
LAST PLOT DATE - 2022-10-13



PAGE 2 OF 7

MARK | REVISION | DATE | BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT

60631225P

TEMP SIGNAL PLAN - MEDIAN: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

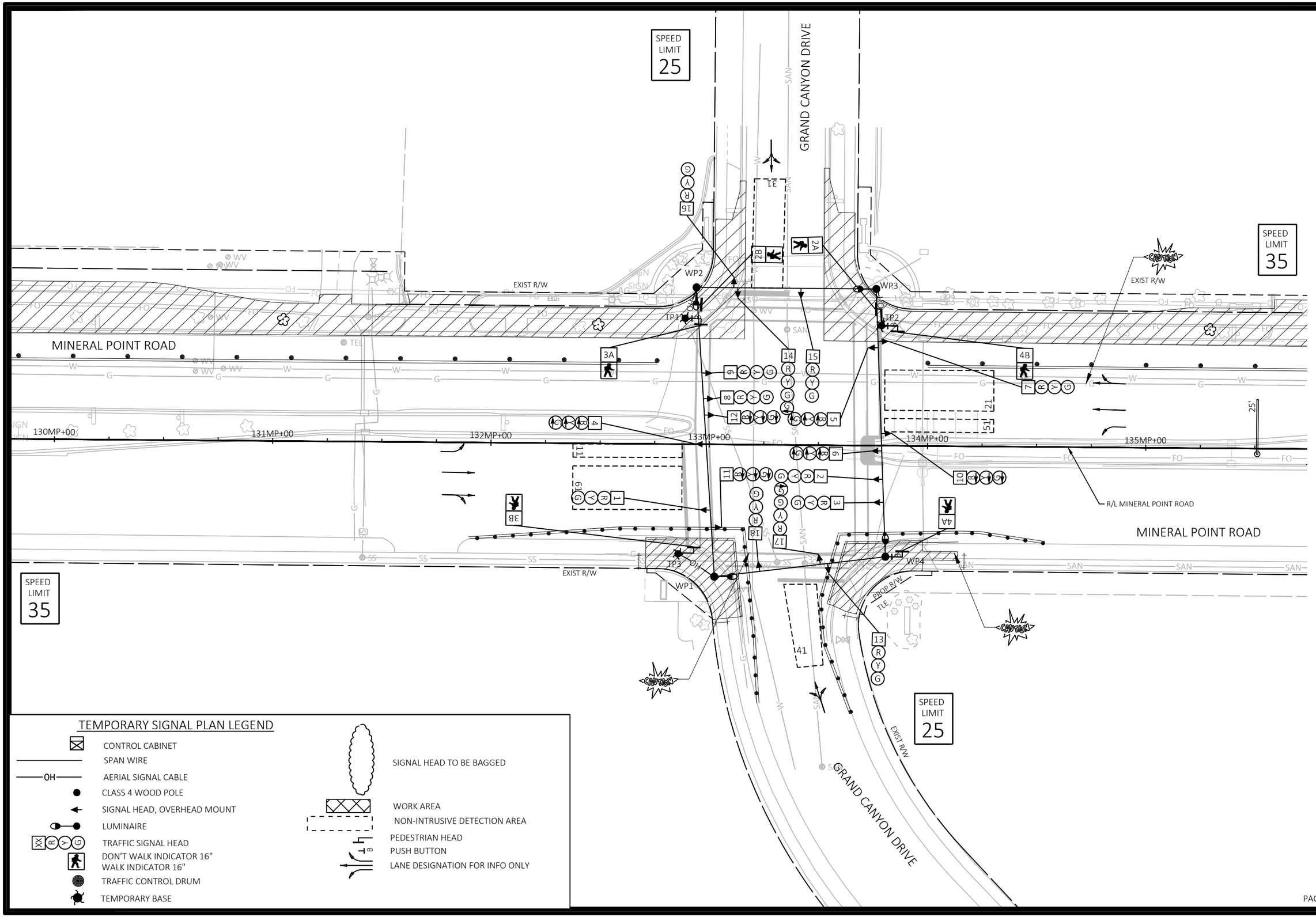
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-6B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204-ST.DWG
LAYOUT NAME - median
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

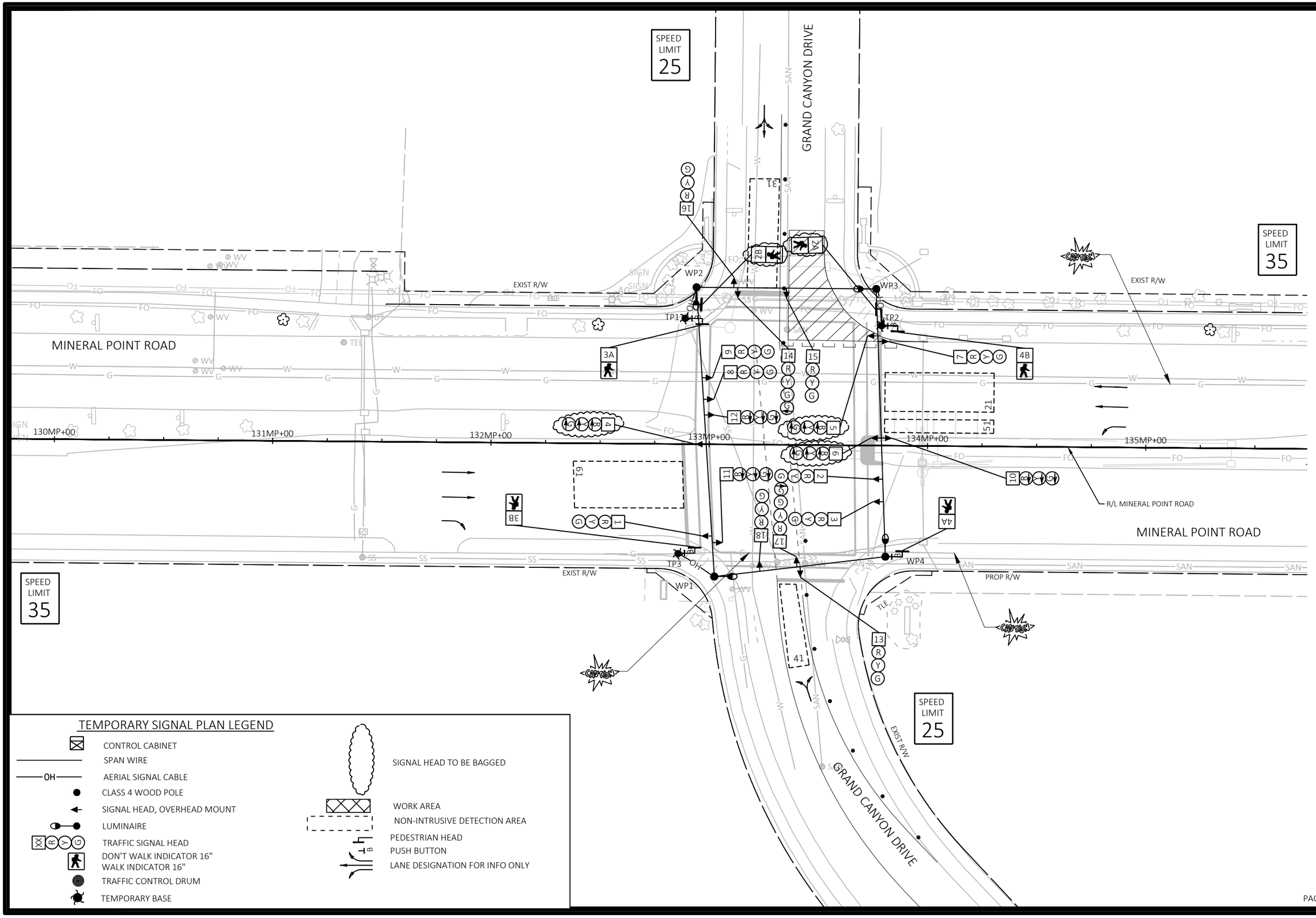
CONTRACT NO: 60631225C

60631225P

S-6C

PAGE 3 OF 7

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13
60631225P
Scale: 1 IN:40 FT

TEMP SIGNAL PLAN - CENTERLANE: MINERAL POINT RD AT GRAND CANYON DR 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

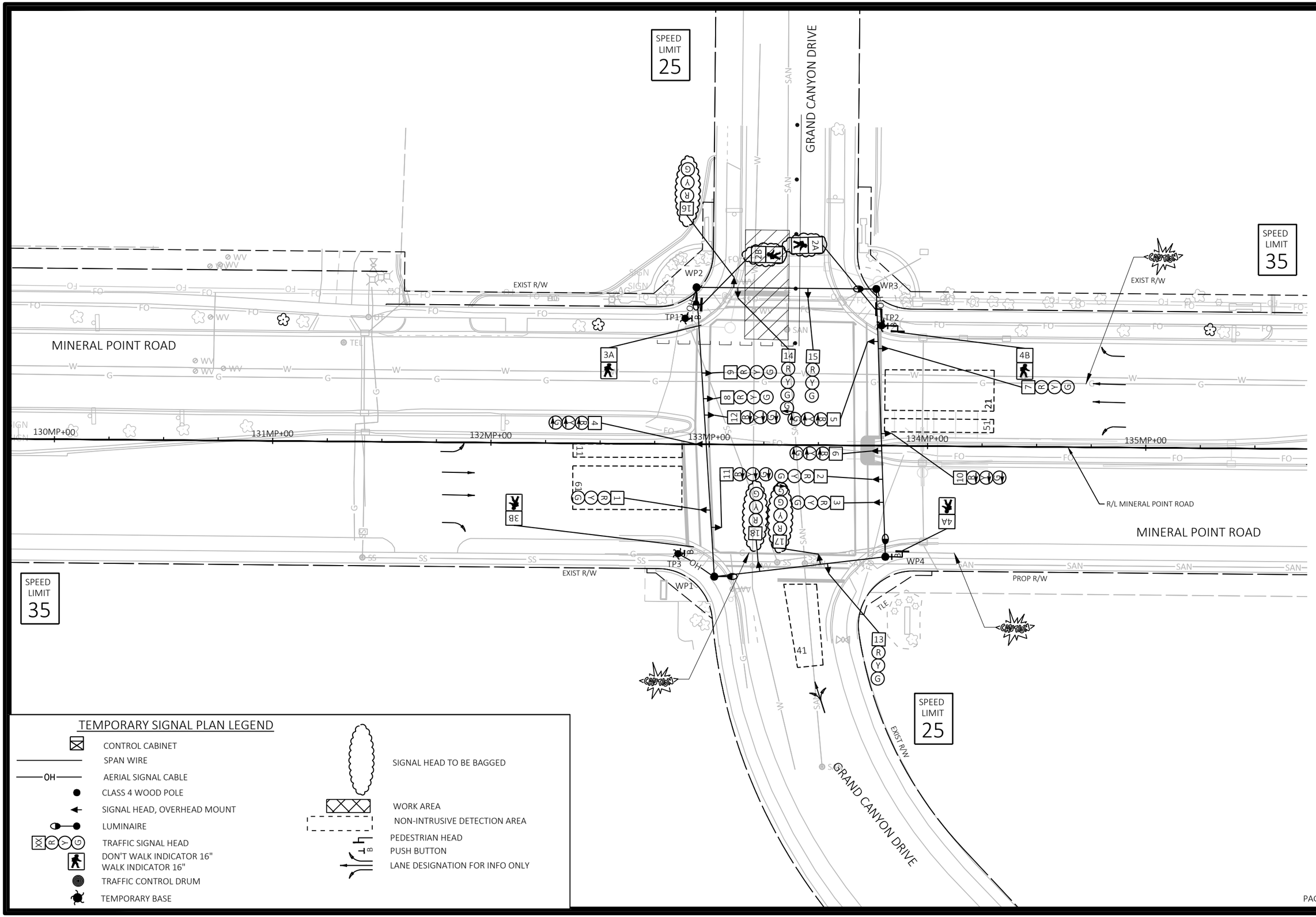
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-6D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204-ST.DWG
LAYOUT NAME - centerlane
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN - PAVEMENT: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

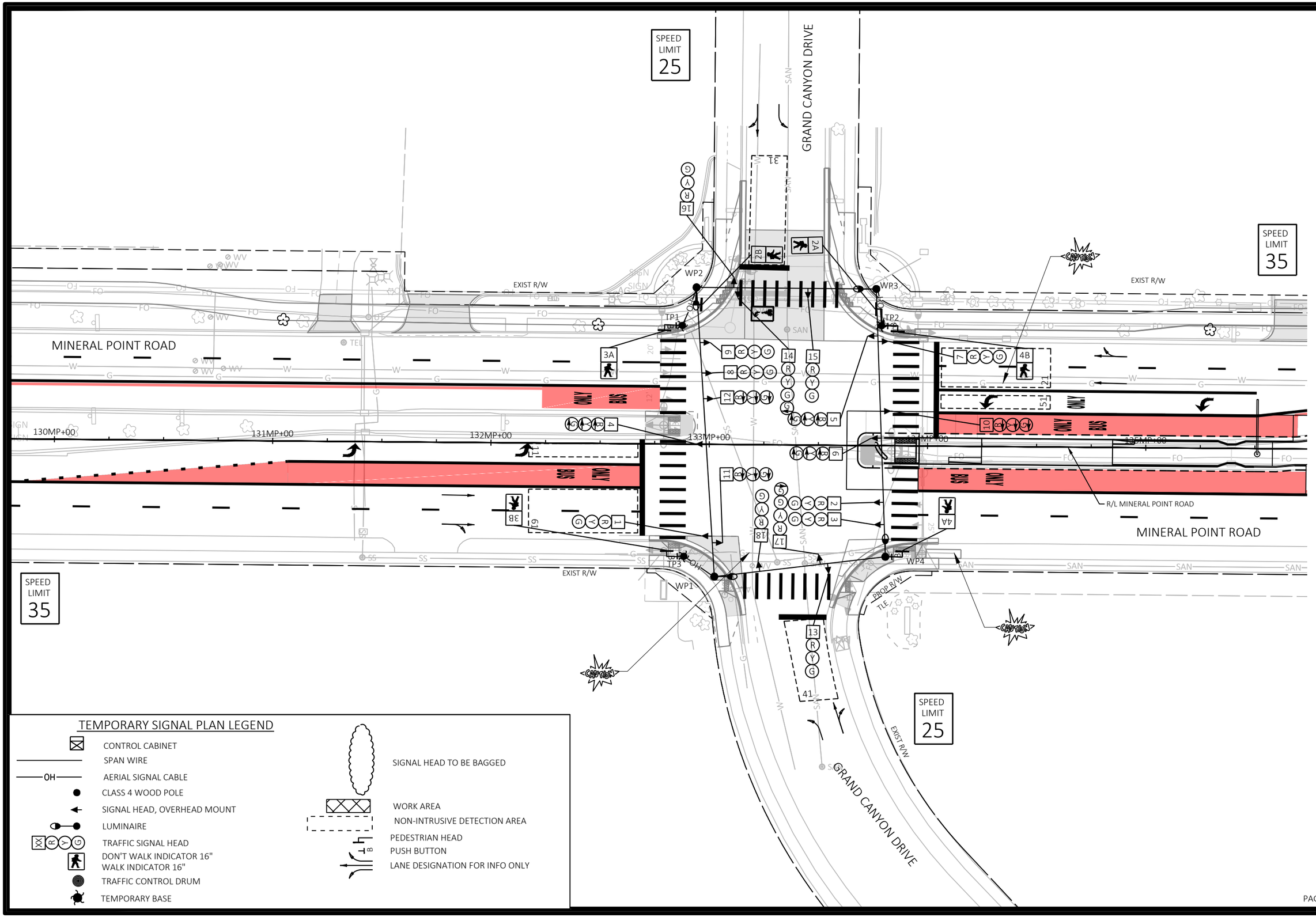
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-6E

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204-ST.DWG
LAYOUT NAME - pavement
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
60631225P
Scale: 1 IN:40 FT

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

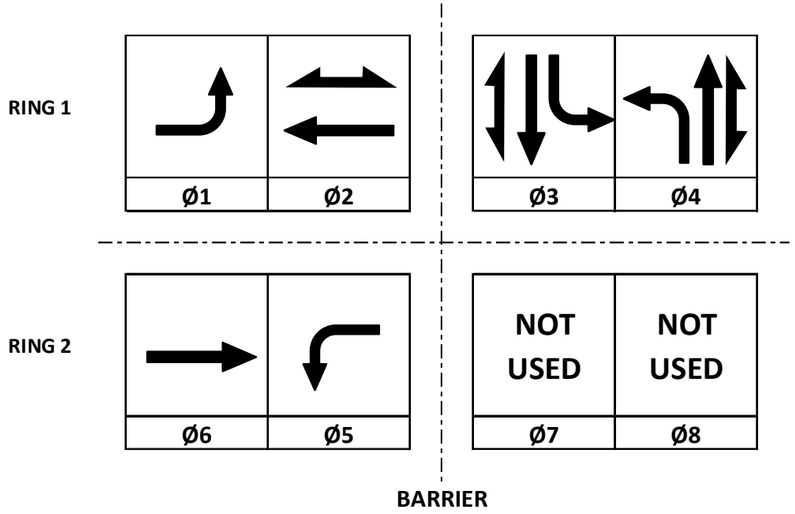
CONTRACT NO: 60631225C

60631225P

S-6F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\0241204-ST.DWG
LAYOUT NAME - postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P		
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+8	

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

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

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)								
PHASE CALLED								
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
2. PHASE 1 SHALL NOT TIME CONCURRENTLY WITH PHASE 5.
3. OMIT PHASES 1 AND 5 IN THE MEDIAN STAGE WHICH INCLUDES DETECTION ZONES 11 AND 51.
4.

Mark	Designed By: AECOM 60631225P	REVISION	Date: 10/13/2022	DATE	Scale: NTS	BY

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT GRAND CANYON DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

MINERAL POINT ROAD AT GRAND CANYON DRIVE
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

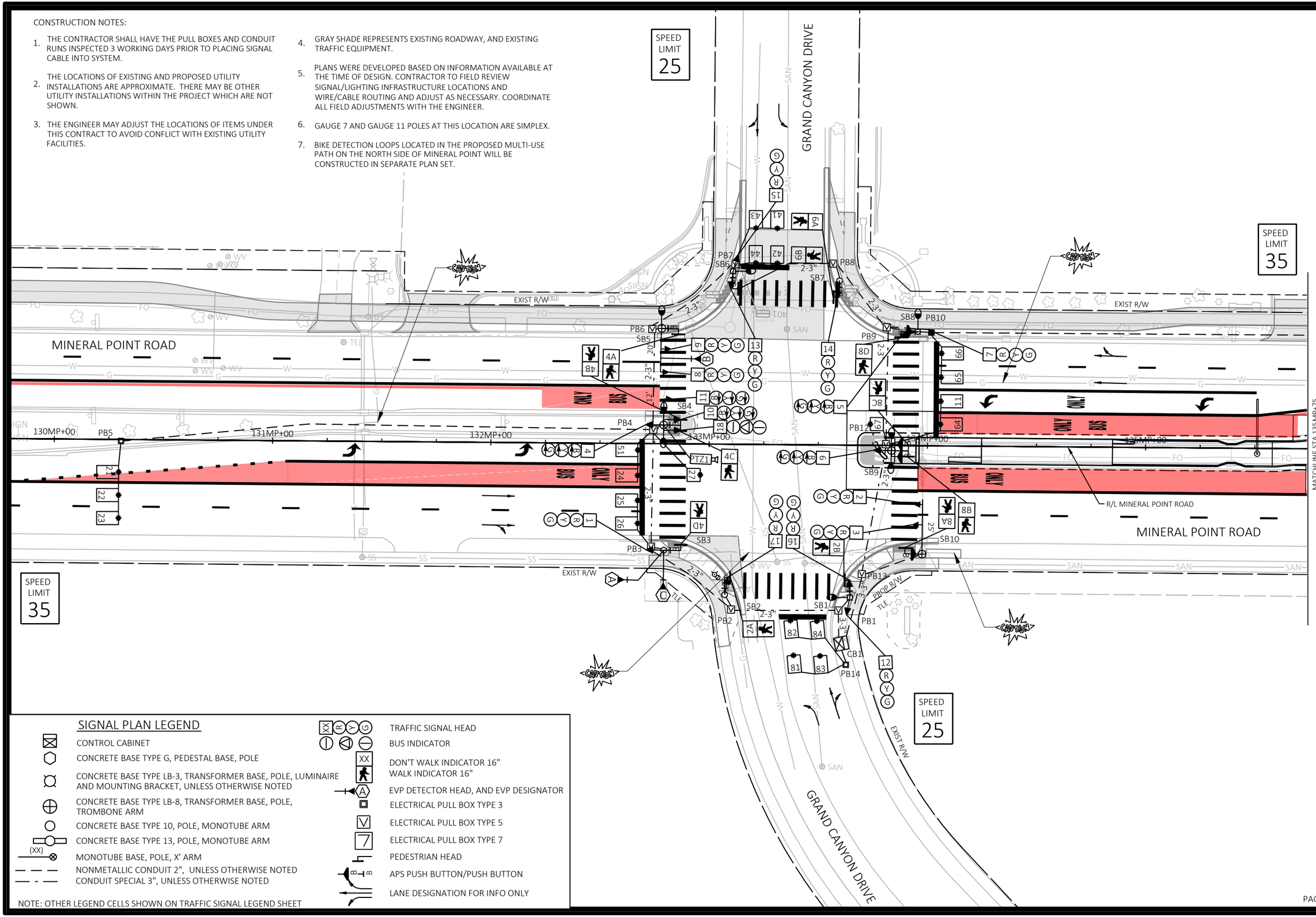
DATE: OCTOBER 2022 PAGE NUMBER: 6 OF 6

60631225P

S-6G

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.
7. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.



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: AECOM	Date: 2022-10-12	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: MINERAL POINT ROAD AT GRAND CANYON DRIVE

60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

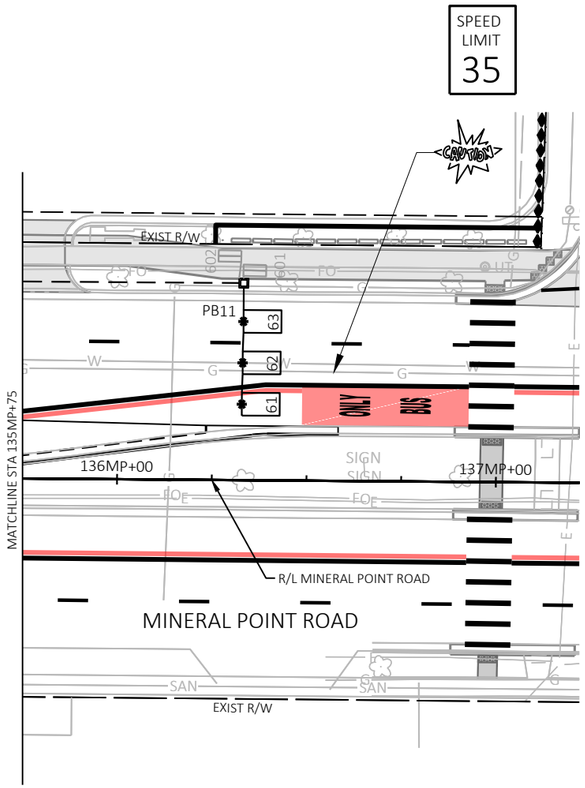
CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-6H

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\0224204-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-12



N

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-11	Scale: 1 IN:40 FT	

SIGNAL PLAN: MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

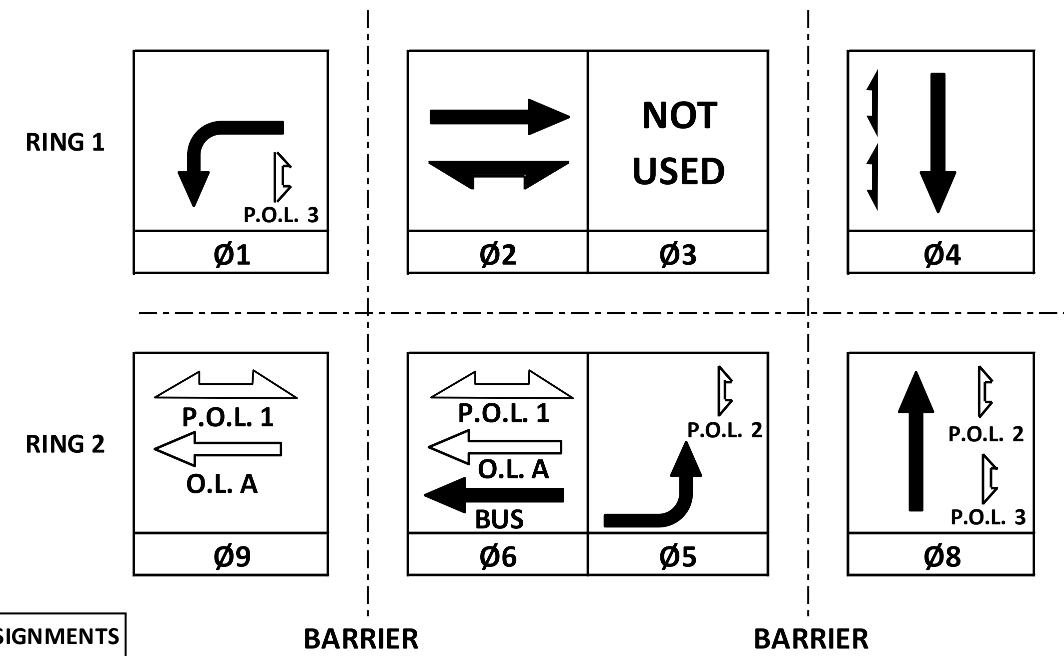
CITY OF MADISON

60631225P

S-6I

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024204-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-10-11

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



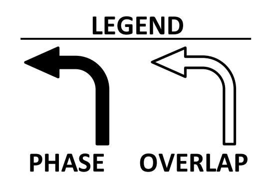
CONTROLLER LOGIC

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

AFTER PREEMPTION SEQUENCE 2+5 OR 1+6, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 4+8, CONTROLLER SHALL RETURN TO PHASES 4+8.



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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	22	24	26	41	43	401	51
PHASE CALLED	1	2	2	2	4	4	4	5
PHASE EXTENDED	1	2	2	2	4	4	4	5
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH		X						
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)	61	63	65	67	602	604	81	83
PHASE CALLED	6	6	6		6	6	8	8
PHASE EXTENDED	6	6	6		6	6	8	8
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X	X			X			
LOOP FUNCTION								

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	21	23	25	27	42	44		
PHASE CALLED	2	2	2		4	4		
PHASE EXTENDED	2	2	2		4	4		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X	X						
LOOP FUNCTION								

DETECTOR INPUT	20	18	24	22	28	26	32	30
DETECTOR #(S)	62	64	66	601	603		82	84
PHASE CALLED	6	6	6		6		8	8
PHASE EXTENDED	6	6	6		6		8	8
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X							
LOOP FUNCTION				SYS				

GENERAL NOTES:

1.

2.

3.

4.

MINERAL POINT ROAD AT GRAND CANYON DRIVE
CITY OF MADISON
DANE COUNTY

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

Mark	Designed By: AECOM 60631225P	Date: 10/13/2022	REVISION	Scale: NTS	DATE	BY

SEQUENCE OF OPERATION:MINERAL POINT ROAD AT GRAND CANYON DRIVE 60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON
CONTRACT NO: 60631225C

60631225P

S-6J

FILE NAME: https://aecom.sharepoint.com/sites/BRTdesigners/Shared Documents/General/Signal_Lighting_Electrical/2_Real Estate_Utility Plans/Signal Plan Sheets/024204 sequence of Operations.xlsx PLOT DATE: 3/3/2022 PLOT NAME: 024204 sequence of Operations.xlsx PLOT BY: James Jeninga PLOT SCALE: 1:1

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & GRAND CANYON DR

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

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	SB1
SB1	SB9
SB9	SB8
CB1	SB4
SB4	SB5
SB5	SB6

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB10
B	CB1	SB5

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB4

Mark	Designed By: AECOM 60631225P	REVISION Date: 9/20/2022	DATE	BY
			Scale: NTS	

CABLE ROUTING: MINERAL POINT ROAD AND GRAND CANYON DRIVE
BUS RAPID TRANSIT
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MQ Plan Sheets.pptx
LAST PLOT DATE - 9/20/2022

60631225P

S-6K

FILE NAME:

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
950 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
5	TEMPORARY BASES
85 (FT)	OVERHEAD WIRE

N

SPEED LIMIT 25

SPEED LIMIT 35

SPEED LIMIT 35

SPEED LIMIT 25

YELLOWSTONE DRIVE

YELLOWSTONE DRIVE

MADISON NO FEAR DENTISTRY

MINERAL POINT ROAD

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

SUMMIT CREDIT UNION

PROP R/W

PROP R/W TLE

EXIST R/W

WP1 WP2 WP3 WP4

TP1 TP2 TP3 TP4 TP5

144MP+00 145MP+00 146MP+00 147MP+00 148MP+00 149MP+00 150MP+00

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT YELLOWSTONE DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

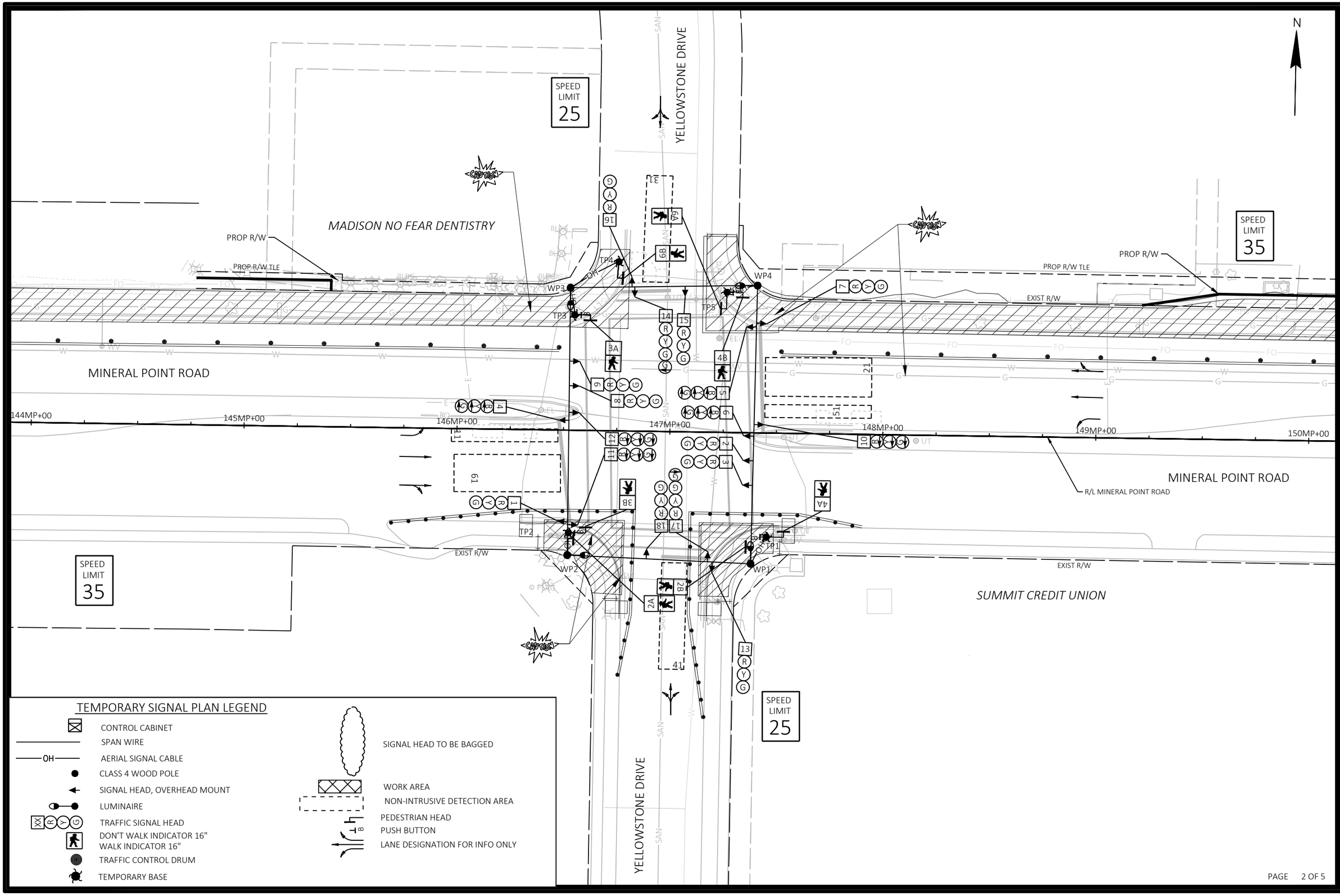
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-7A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024204A-ST.DWG
LAYOUT NAME - precon
LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT

60631225P

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT YELLOWSTONE DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

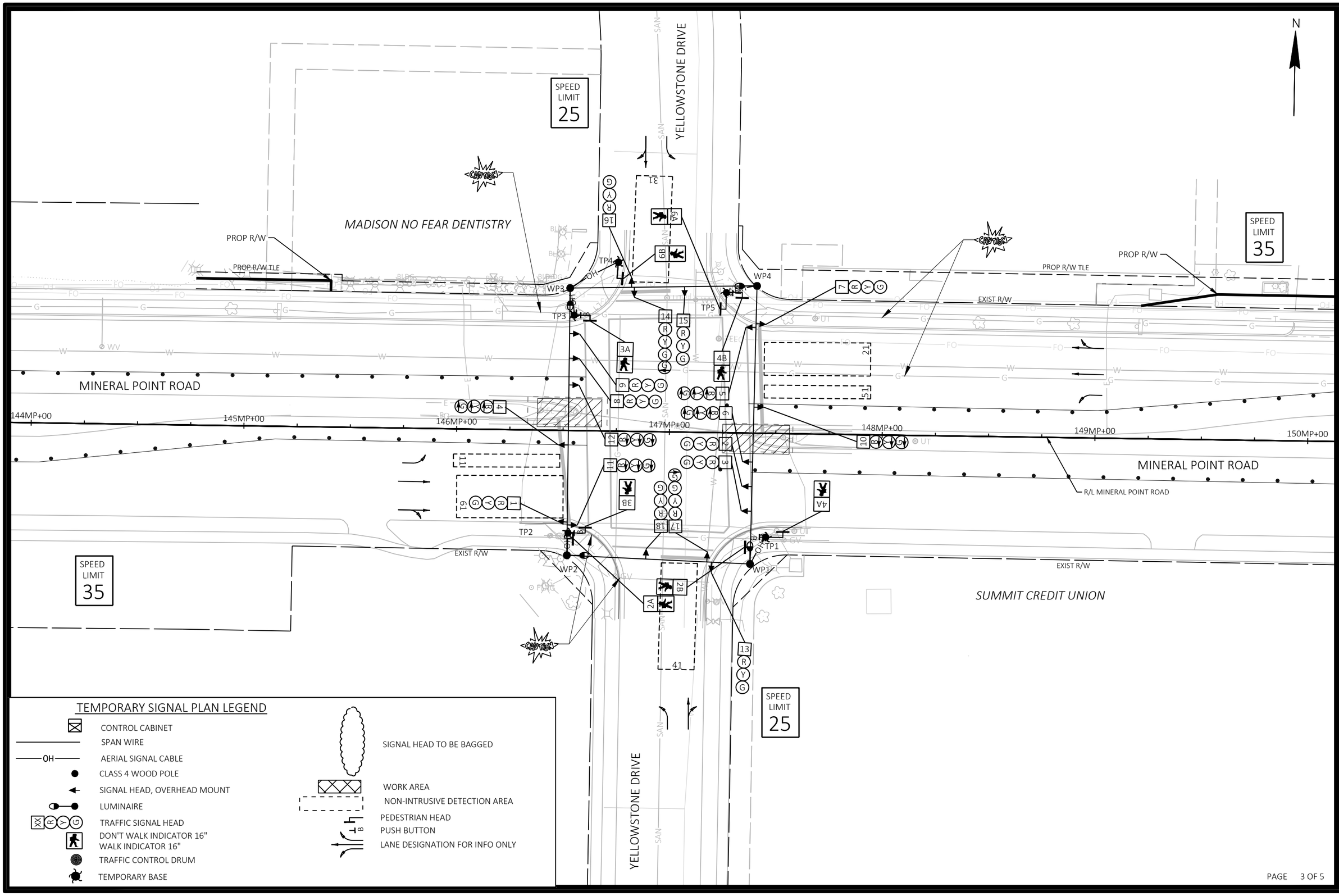
CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-7B

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481024204A-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13



MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN MEDIAN: MINERAL POINT ROAD AT YELLOWSTONE DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

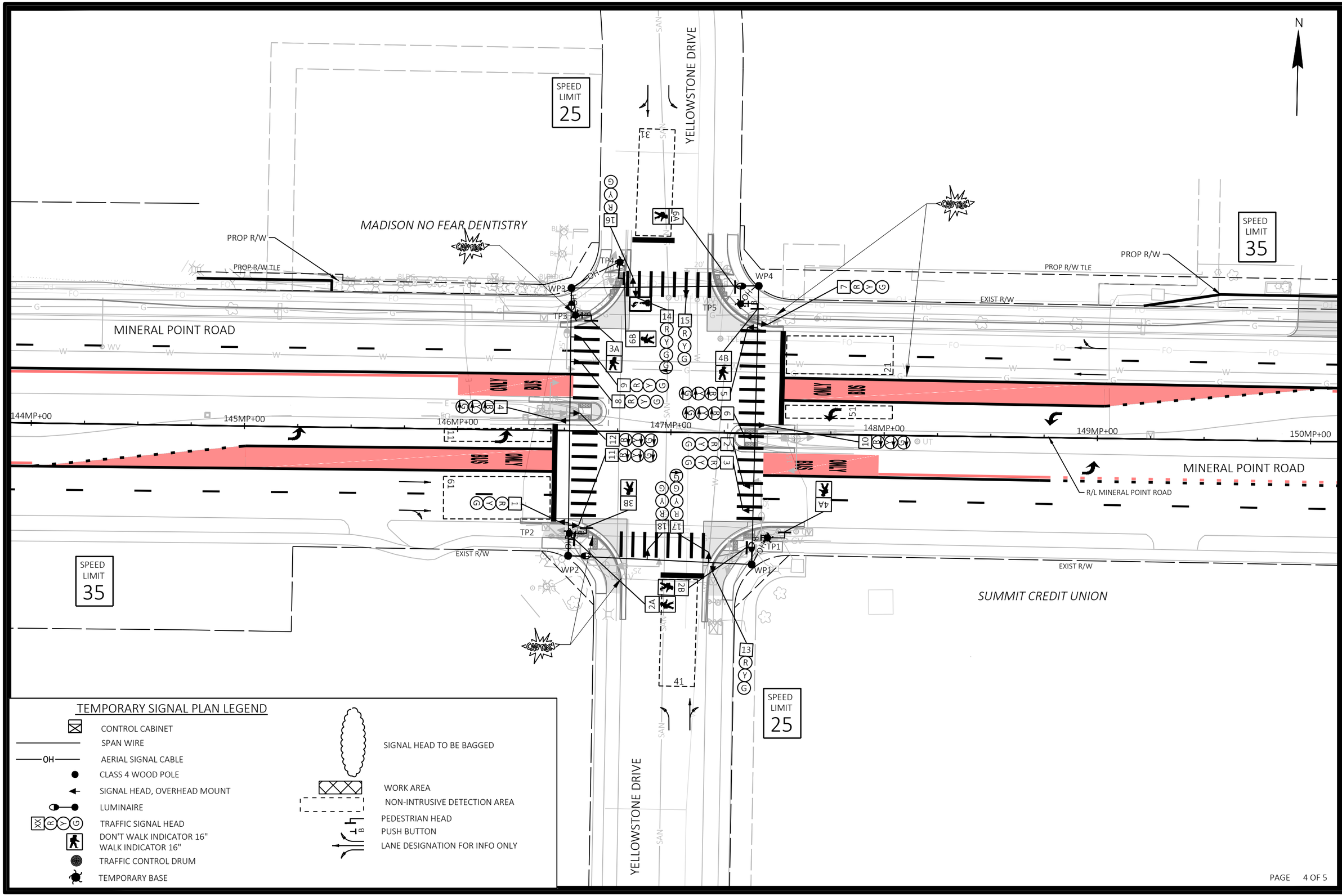
CONTRACT NO: 60631225C

60631225P

S-7C

PAGE 3 OF 5

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\0242104A-ST.DWG
LAYOUT NAME - median
LAST PLOT DATE - 2022-10-13



MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT YELLOWSTONE DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

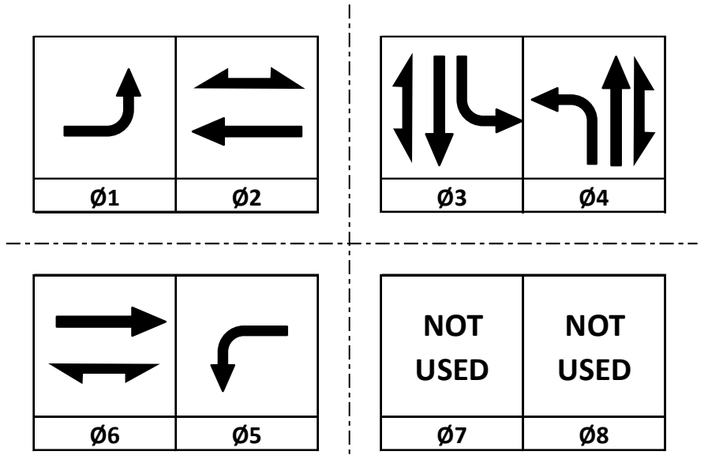
S-7D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DM586348\024204A-ST.DWG
LAYOUT NAME - postcon
LAST PLOT DATE - 2022-10-13

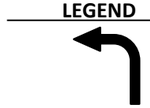
	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		

RING 1

RING 2



LEGEND



PHASE

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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
3.
4.

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61			
PHASE CALLED	1	2	4	5	6			
PHASE EXTENDED	1	2	4	5	6			
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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

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

MINERAL POINT ROAD AT YELLOWSTONE DRIVE
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

Mark	Designed By: AECOM 60631225P	REVISION	Date: 10/13/2022	DATE	Scale: NTS	BY

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT YELLOWSTONE DRIVE
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P

S-7E

N

SPEED LIMIT 25

SPEED LIMIT 35

SPEED LIMIT 35

SPEED LIMIT 25

YELLOWSTONE DRIVE

MINERAL POINT ROAD

MADISON NO FEAR DENTISTRY

SUMMIT CREDIT UNION

EXIST R/W

PROP R/W

PROP R/W TLE

INSTALL CONDUIT INTO EXISTING ITEM

CONDUIT EXTENDS TO STREET LIGHTING SYSTEM

R/L MINERAL POINT ROAD

BUS ONLY

144MP+00

145MP+00

146MP+00

147MP+00

148MP+00

149MP+00

150MP+00

PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17

SB1 SB2 SB4 SB5 SB6 SB7 SB8 SB9 SB10

CB1

2-3"

20'

60'

40'

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
- NONMETALLIC 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

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
7. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13
60631225P
Scale: 1 IN:40 FT

60631225P

SIGNAL PLAN: MINERAL POINT ROAD AT YELLOWSTONE DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

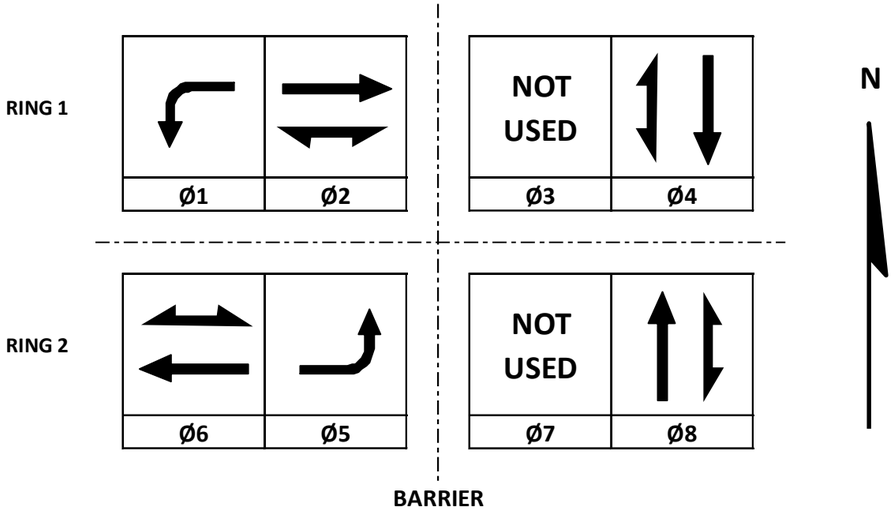
CITY OF MADISON

60631225P

S-7F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024204A-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	10,11,12	R ←
Ø2	1,2,3	R
Ø3		
Ø4	16,17,18	R
Ø5	4,5,6	R ←
Ø6	7,8,9	R
Ø7		
Ø8	13,14,15	R
Ø2P	2A,2B	
Ø4P	4A,4B	
Ø6P	6A,6B	
Ø8P	8A,8B	
OLA		
OLC		
OLG		
OLH		



LEGEND

PHASE OVERLAP

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3				
4		8		X
5		2		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 1+6, CONTROLLER SHALL RETURN TO PHASES 2+5.

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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	23	25	27	41	43	401
PHASE CALLED	1	2	2	2		4	4	4
PHASE EXTENDED	1	2	2	2		4	4	4
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31
51	61	63	65	67	601	81
5	6	6	6		6	8
5	6	6	6		6	8

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)		22	24	26		42	44	
PHASE CALLED		2	2	2		4	4	
PHASE EXTENDED		2	2	2		4	4	
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32
	62	64	66		602	82
	6	6	6		6	8
	6	6	6		6	8

GENERAL NOTES:

1. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
2.
3.
4.

MINERAL POINT ROAD AT YELLOWSTONE ROAD
CITY OF MADISON
DANE COUNTY

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

Mark | REVISION | DATE | BY:
Designed By: AECOM 60631225P | Date: 10/13/2022 | Scale: NTS

SEQUENCE OF OPERATION:MINERAL POINT ROAD AT YELLOWSTONE ROAD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
60631225P
S-7G

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & YELLOWSTONE DR

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	EXISTING	18	EXISTING													
		4B	EXISTING													
SB2	12	1	RED	ORG	GRN											
		11				RED/BLK	ORG/BLK		GRN/BLK							
		2A											BLK	BLU		
		PB													WHT/BLK	
SB3	EXISTING	4	MATCH EXISTING													
		8	EXISTING													
		12	MATCH EXISTING													
SB4	12	9	RED	ORG	GRN											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB5	12	14	RED	ORG	GRN											
		16	RED/BLK	ORG/BLK	GRN/BLK											
		6B											BLK	BLU		
		PB													WHT/BLK	
SB6	12	15	RED	ORG	GRN											
		6A											BLK	BLU		
		PB													WHT/BLK	
SB7	12	5				RED/BLK	ORG/BLK		GRN/BLK							
		7	RED	ORG	GRN											
		8B											BLK	BLU		
		PB													WHT/BLK	
SB8	EXISTING	6	MATCH EXISTING													
		10	MATCH EXISTING													
SB9	EXISTING	3	EXISTING													
		2B	EXISTING													
SB10	EXISTING	13	EXISTING													
		17	EXISTING													
		8A	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.

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

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

60631225P

CABLE ROUTING: MINERAL POINT ROAD AT YELLOWSTONE DRIVE

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

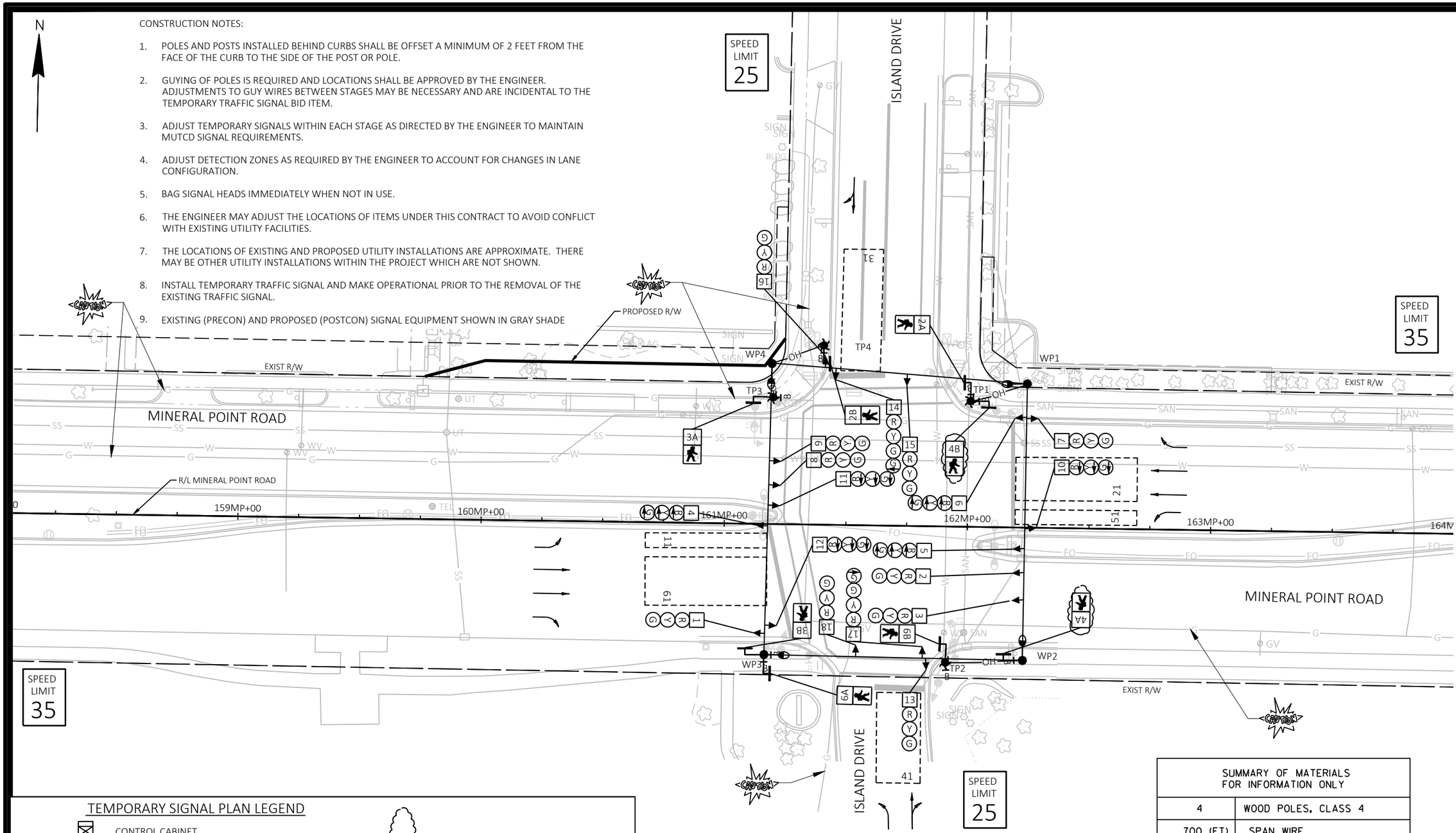
60631225P

S-7H

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MQ Plan Sheets.pptx
LAST PLOT DATE - 9/26/2022

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAY SHADE



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
700 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
95 (FT)	OVERHEAD WIRE

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-8A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024205-ST.DWG
LAYOUT NAME - Precon
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 25

ISLAND DRIVE

ONLY

SPEED LIMIT 35

CAUTION

PROPOSED R/W

EXIST R/W

MINERAL POINT ROAD

WP4

WP1

WP2

WP3

TP1

TP2

TP3

TP4

OH

159MP+00

160MP+00

161MP+00

162MP+00

163MP+00

164M

R/L MINERAL POINT ROAD

SPEED LIMIT 35

SPEED LIMIT 25

ISLAND DRIVE

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - MEIDAN: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-8B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024205-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 25

ISLAND DRIVE

SPEED LIMIT 35

CAUTION

PROPOSED R/W

EXIST R/W

WP4

WP1

WP2

WP3

TP1

TP2

TP3

TP4

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

159MP+00

160MP+00

161MP+00

162MP+00

163MP+00

164MP+00

SPEED LIMIT 35

SPEED LIMIT 25

ISLAND DRIVE

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE

- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 3 OF 7

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

60631225P

S-8C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\024205-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 25

ISLAND DRIVE

SPEED LIMIT 35

CAUTION

PROPOSED R/W

EXIST R/W

WP4

WP1

WP2

WP3

TP1

TP2

TP3

TP4

OH

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

159MP+00

160MP+00

161MP+00

162MP+00

163MP+00

164MP+00

SPEED LIMIT 35

SPEED LIMIT 25

ISLAND DRIVE

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - CENTERLANE: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-8D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DM5863481024205-ST.DWG

LAYOUT NAME - Centerlane

LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 25

ISLAND DRIVE

SPEED LIMIT 35

CAUTION

PROPOSED R/W

EXIST R/W

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

159MP+00

160MP+00

161MP+00

162MP+00

163MP+00

164MP+00

WP1

WP2

WP3

WP4

TP1

TP2

TP3

TP4

OH

SPEED LIMIT 35

SPEED LIMIT 25

ISLAND DRIVE

MINERAL POINT ROAD

EXIST R/W

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-13	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN - PAVEMENT: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-8E

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\024205-ST.DWG
LAYOUT NAME - Pavement
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 25

ISLAND DRIVE

ONLY

31

SPEED LIMIT 35

CAUTION

PROPOSED R/W

EXIST R/W

MINERAL POINT ROAD

WP4

WP1

WP2

WP3

TP1

TP2

TP3

TP4

OH

R/L MINERAL POINT ROAD

159MP+00

160MP+00

161MP+00

162MP+00

163MP+00

164MP+00

BUS ONLY

2A

2B

3A

3B

4A

4B

5

6A

6B

9

11

12

13

14

15

16

17

18

21

41

51

SPEED LIMIT 35

SPEED LIMIT 25

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13
60631225P

Scale: 1 IN:40 FT

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT ISLAND DRIVE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

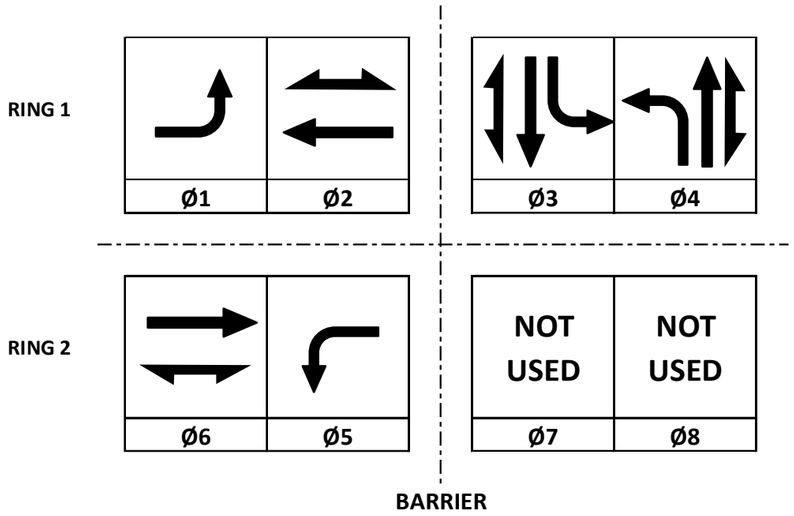
CITY OF MADISON

60631225P

S-8F

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024205-ST.DWG
LAYOUT NAME - Postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		R
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)								
PHASE CALLED								
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

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

GENERAL NOTES:

1. * DETECTOR ZONE 62 IS ONLY USED IN THE CENTERLANE STAGE.
2. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
3. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY
4. OMIT PHASES 1 AND 5 IN THE MEDIAN STAGE WHICH INCLUDES DETECTION ZONES 11 AND 51. OMIT PHASE 1 IN THE CENTERLANE PHASE WHICH INCLUDES DETECTION ZONE 11.

Mark | Designed By: AECOM 60631225P | REVISION | Date: 10/13/2022 | DATE | BY | Scale: NTS

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT ISLAND DRIVE
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

MINERAL POINT ROAD AT ISLAND DRIVE
CITY OF MADISON
DANE COUNTY
SIGNAL NO:
DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

60631225P
S-8G

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
XX Ⓡ Ⓨ Ⓖ	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
V	ELECTRICAL PULL BOX TYPE 5
7	ELECTRICAL PULL BOX TYPE 7
┗┓	PEDESTRIAN HEAD
B ┤ B	APS PUSH BUTTON/PUSH BUTTON
←	LANE DESIGNATION FOR INFO ONLY

NOTE: OTHER LEGEND CELLS SHOWN ON TRAFFIC SIGNAL LEGEND SHEET

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. SB6 IS TO BE REUSED FROM EXISTING. NO NEW R/W IS BEING ACQUIRED IN SOUTHEAST QUADRANT.
6. 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.
7. GAUGE 7 AND GAUGE 11 POLES AT THIS LOCATION ARE SIMPLEX
8. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.

MARK	REVISION	DATE	BY

Designed By: AECOM
60631225P
Date: 2022-10-04
Scale: 1 IN:40 FT

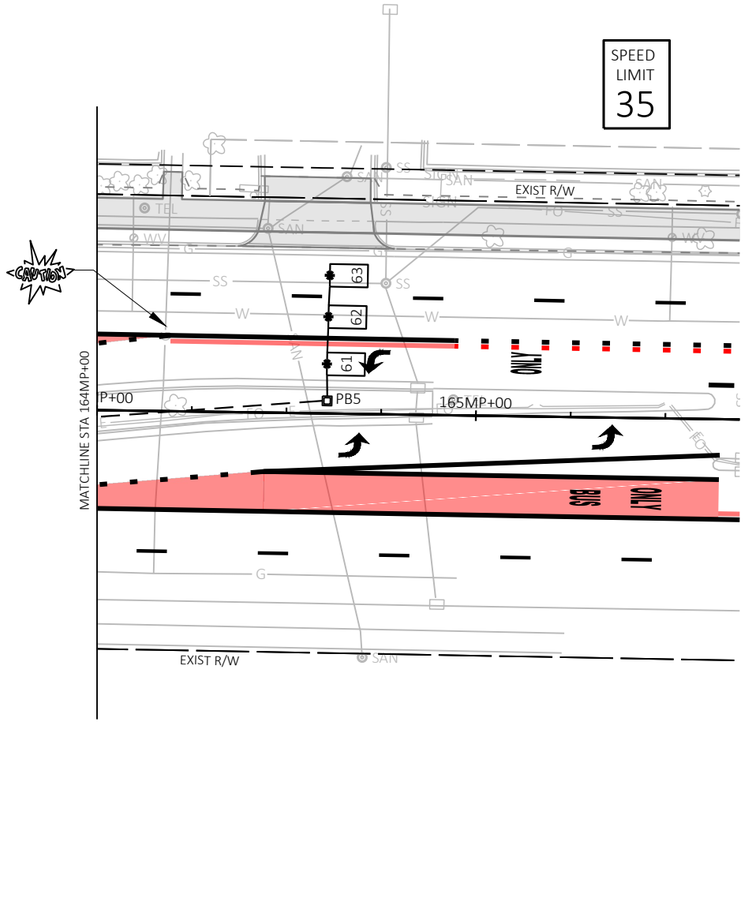
60631225P

SIGNAL PLAN: MINERAL POINT ROAD AT ISLAND DRIVE

BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON
CONTRACT NO: 60631225C

N



MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-09-24	Scale: 1 IN 40 FT	
60631225P			

60631225P

SIGNAL PLAN: MINERAL POINT ROAD AT ISLAND DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

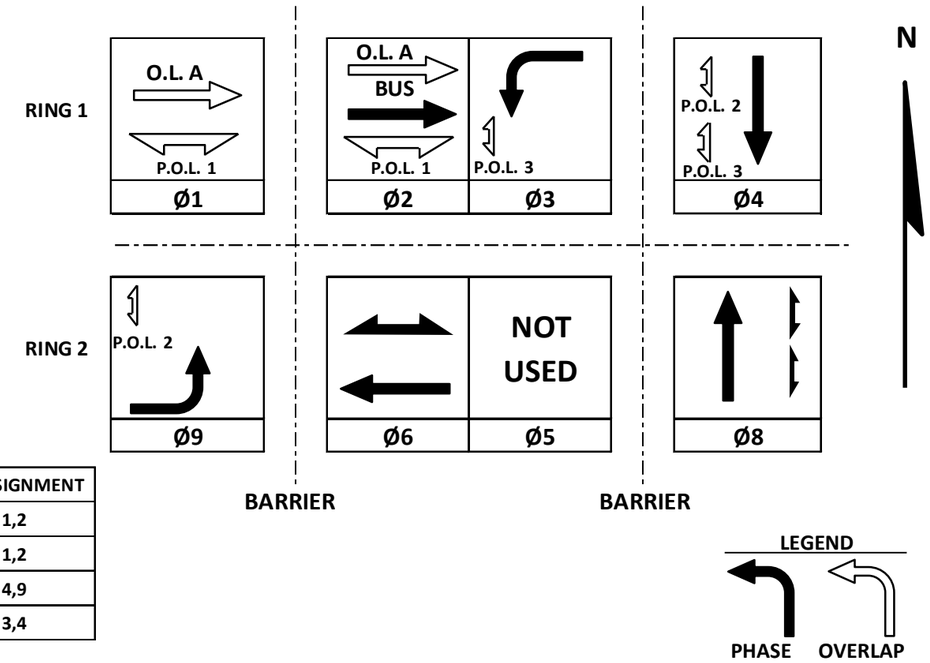
S-8I

PAGE 2 OF 3

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024205-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-09-24

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

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



LEGEND

PHASE OVERLAP

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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	21	23	25	27	31	41	43	401
PHASE CALLED	2	2	2		3	4	4	4
PHASE EXTENDED	2	2	2		3	4	4	4
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
61	63	65	67	601	81V	91		DETECTOR #(S)
6	6	6		6	8	9		PHASE CALLED
6	6	6		6	8	9		PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	22	24	26			42	44	
PHASE CALLED	2	2	2			4	4	
PHASE EXTENDED	2	2	2			4	4	
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32	30	DETECTOR INPUT
62	64	66		602				DETECTOR #(S)
6	6	6		6				PHASE CALLED
6	6	6		6				PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

GENERAL NOTES:

1.

2.

3.

4.

MINERAL POINT ROAD AT ISLAND DRIVE
CITY OF MADISON
DANE COUNTY
SIGNAL NO: CABINET TYPE: TS2
CONTROLLER TYPE: ECONOLITE
DATE: SEPTEMBER 2022 PAGE NUMBER: 3 OF 3

REVISION | DATE | BY:
Mark | Date: 10/13/2022 | Scale: NTS
Designed By: AECOM
60631225P

SEQUENCE OF OPERATION:MINERAL POINT ROAD AT ISLAND DRIVE 60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P
S-8J

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & ISLAND DR

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

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	SB1
SB1	SB3
SB3	SB4
CB1	SB10
SB10	SB9

EMERGENCY VEHICLE PREEMPTION WITH CONFIRMATION LIGHTS		
HEAD	FROM	TO
A	CB1	SB5
B	CB1	SB10

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	CB1	SB4

VIDEO DETECTION		
HEAD	FROM	TO
V1	CB1	SB9

Mark	Designed By: AECOM 60631225P	REVISION Date: 9/20/2022	DATE	BY
			Scale: NTS	

60631225P

CABLE ROUTING: MINERAL POINT AT ISLAND DRIVE

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

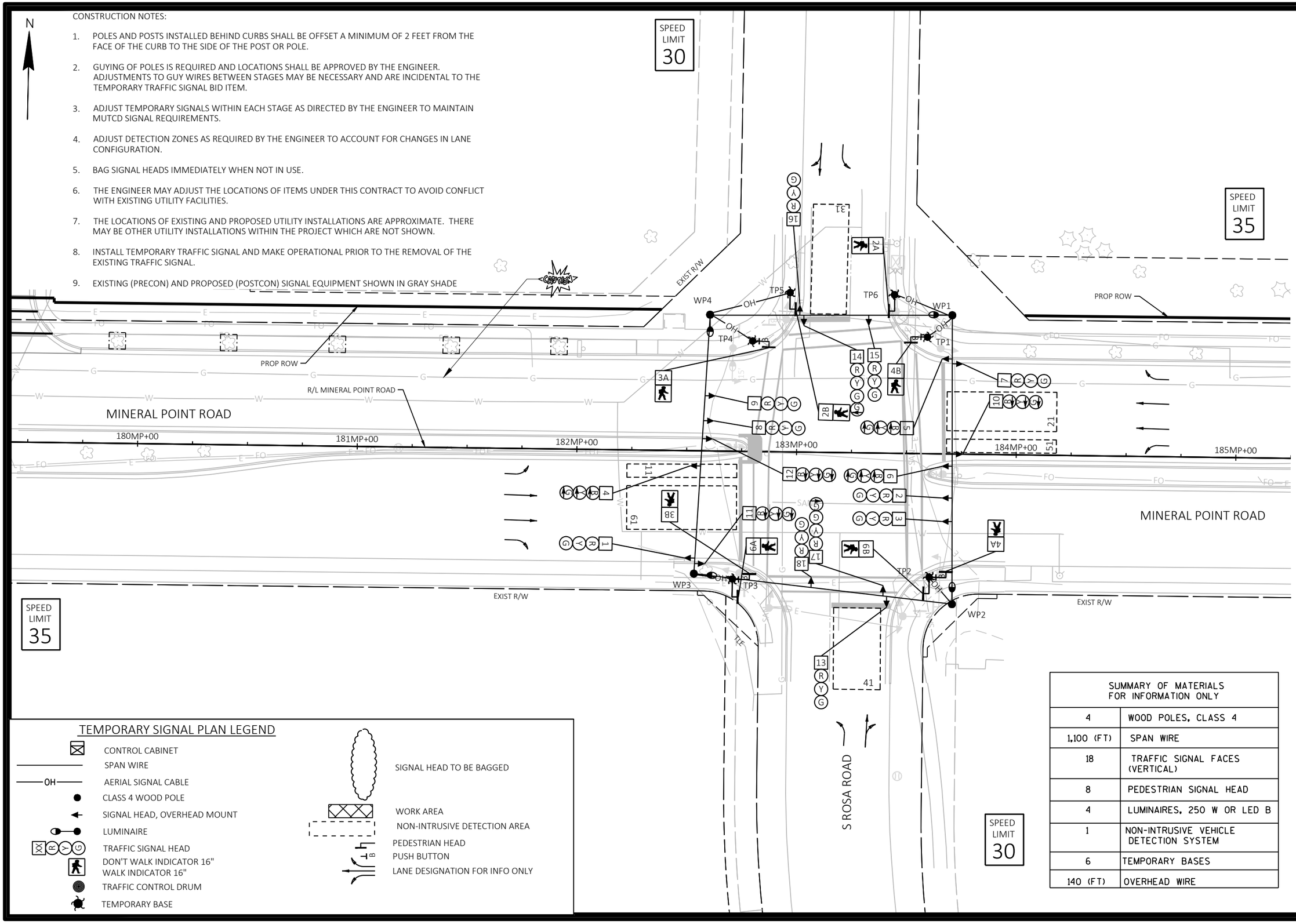
60631225P

S-8K

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE: - 9/20/2022

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAY SHADE



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA / NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD / PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
1,100 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
6	TEMPORARY BASES
140 (FT)	OVERHEAD WIRE

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
60631225P
Scale: 1 IN:40 FT

TEMP SIGNAL PLAN - PRECON: MINERAL POINT ROAD AT S ROSA ROAD 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-9A

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\024206-ST.DWG
LAYOUT NAME - Precon
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 30

SPEED LIMIT 35

S ROSA ROAD

MINERAL POINT ROAD

R/L MINERAL POINT ROAD

PROP ROW

EXIST R/W

CAUTION

VENT

WP1

WP2

WP3

WP4

TP1

TP2

TP3

TP4

TP5

TP6

OH

180MP+00

181MP+00

182MP+00

183MP+00

184MP+00

185MP+00

SPEED LIMIT 35

SPEED LIMIT 30

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - MEDIAN: MINERAL POINT ROAD AT S ROSA ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-9B

FILE NAME : C:\PW\WORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\D0586348\024206-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13

N

SPEED LIMIT 30

SPEED LIMIT 35

S ROSA ROAD

EXIST R/W

PROP ROW

R/L MINERAL POINT ROAD

MINERAL POINT ROAD

180MP+00

181MP+00

182MP+00

183MP+00

184MP+00

185MP+00

WP1

WP2

WP3

WP4

TP1

TP2

TP3

TP4

TP5

TP6

OH

CAUTION

SPEED LIMIT 35

SPEED LIMIT 30

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 3 OF 5

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - SIDEWALK: MINERAL POINT ROAD AT S ROSA ROAD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

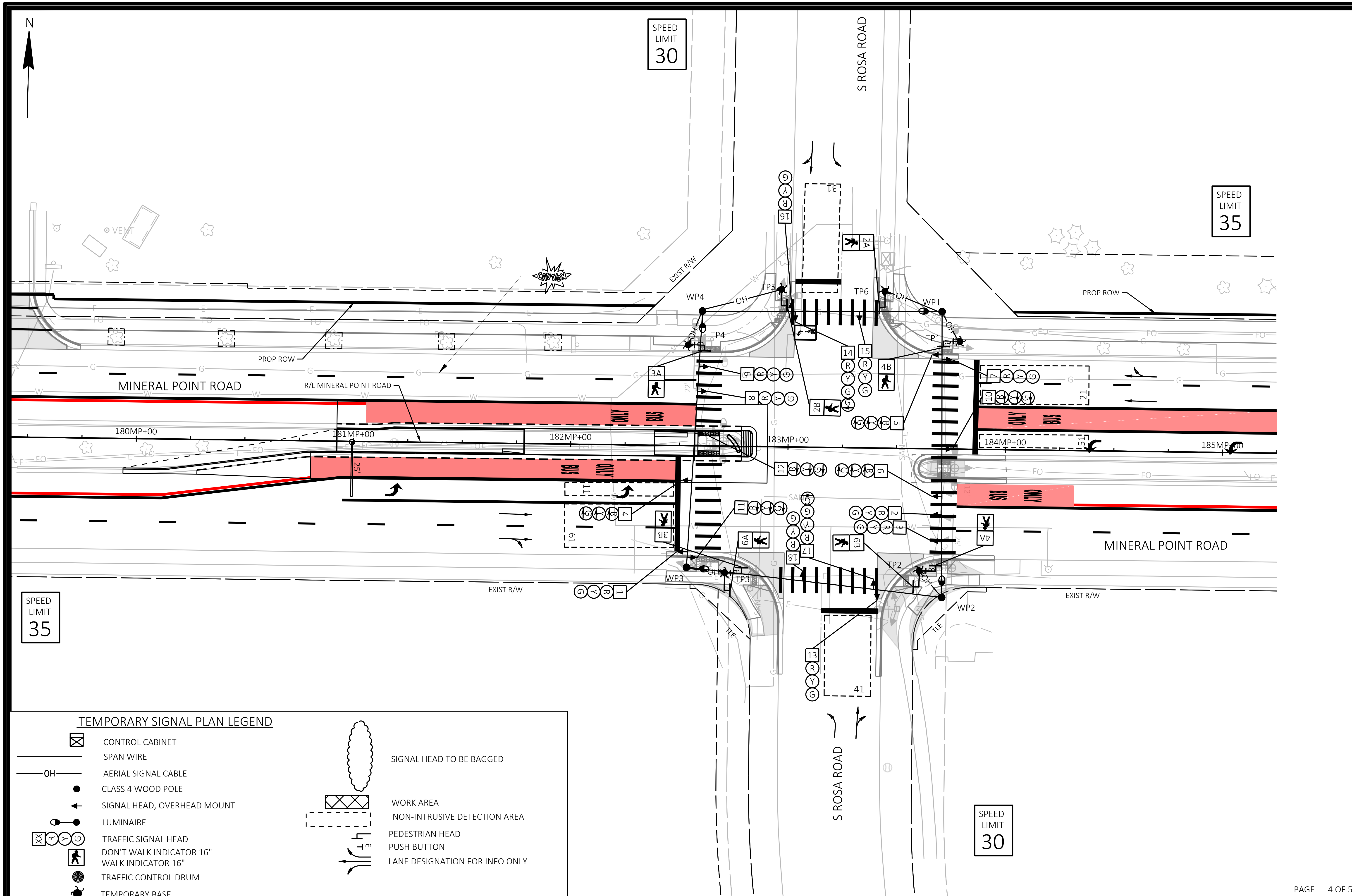
60631225P

S-9C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024206-ST.DWG

LAYOUT NAME - sidewalk

LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1 IN:40 FT
60631225P

60631225P

TEMP SIGNAL PLAN - POSTCON: MINERAL POINT ROAD AT S ROSA ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

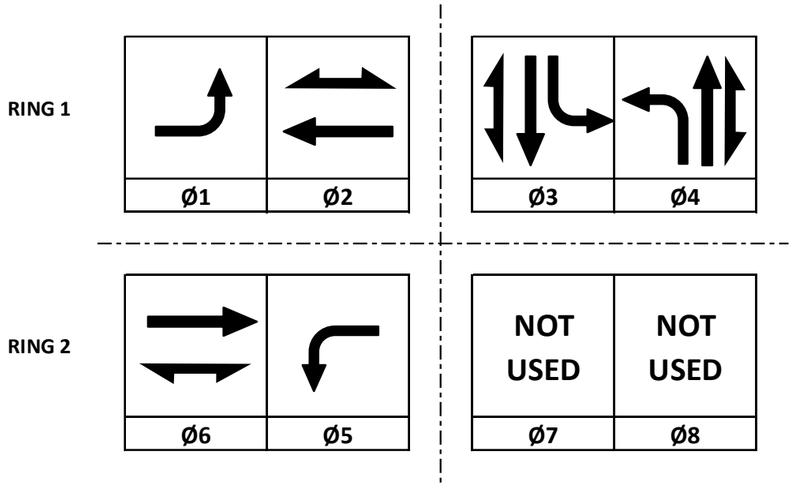
CONTRACT NO: 60631225C

60631225P

S-9D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024206-ST.DWG
LAYOUT NAME - postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		R
Ø2P	2A,2B	
Ø3P	3A,3B	
Ø4P	4A,4B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		



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		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)								
PHASE CALLED								
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
3. OMIT PHASES 1 AND 5 IN THE MEDIAN STAGE WHICH INCLUDES DETECTION ZONES 11 AND 51.
4.

Mark	Designed By: AECOM 60631225P	REVISION	Date: 10/13/2022	Scale: NTS	DATE	BY

TEMPORARY SEQUENCE OF OPERATION:MINERAL POINT ROAD AT S ROSA ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

MINERAL POINT ROAD AT S ROSA ROAD
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 5

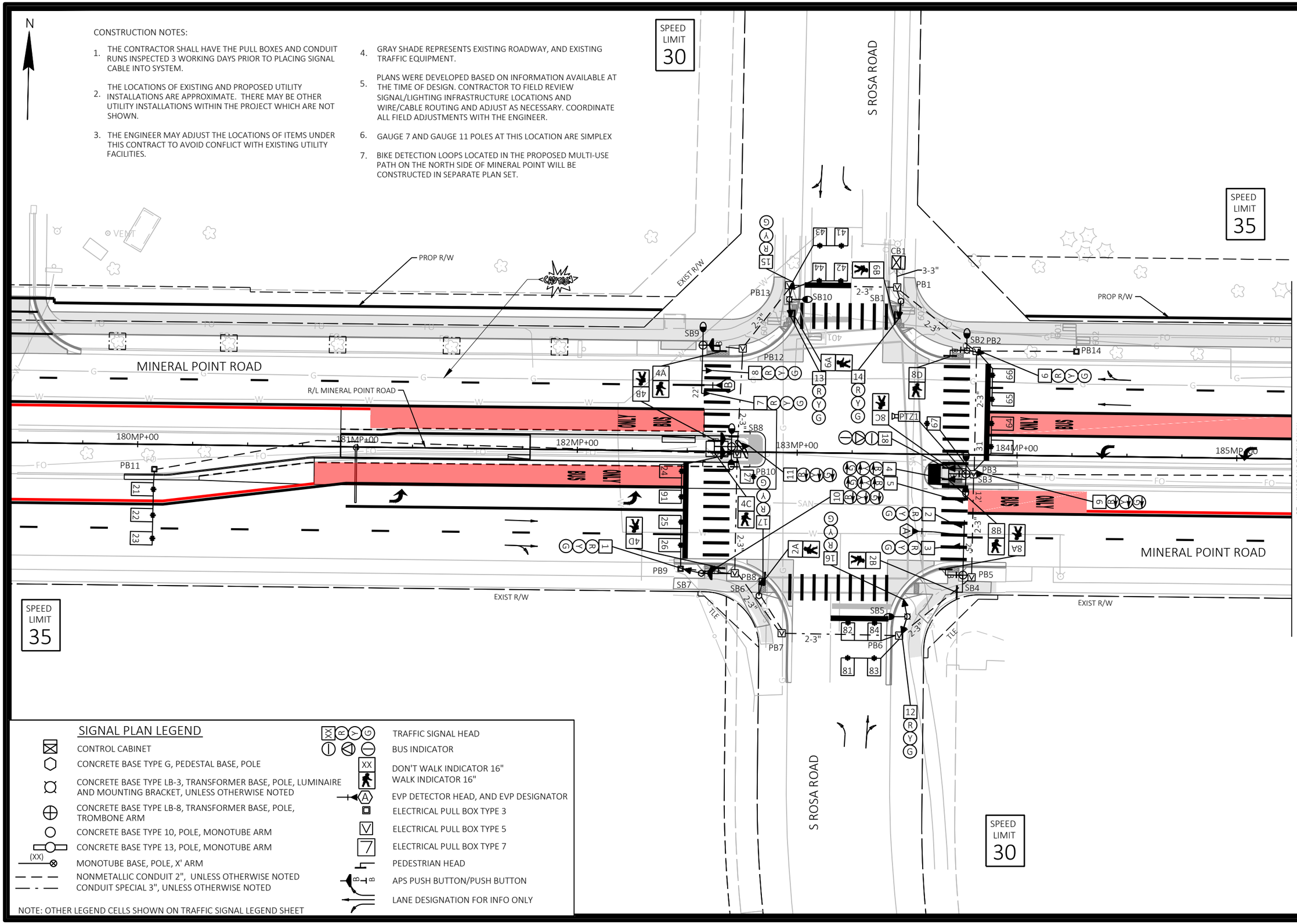
60631225P

S-9E

N

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
7. BIKE DETECTION LOOPS LOCATED IN THE PROPOSED MULTI-USE PATH ON THE NORTH SIDE OF MINERAL POINT WILL BE CONSTRUCTED IN SEPARATE PLAN SET.



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

PAGE 1 OF 3

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

60631225P

SIGNAL PLAN: MINERAL POINT ROAD AT S ROSA ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

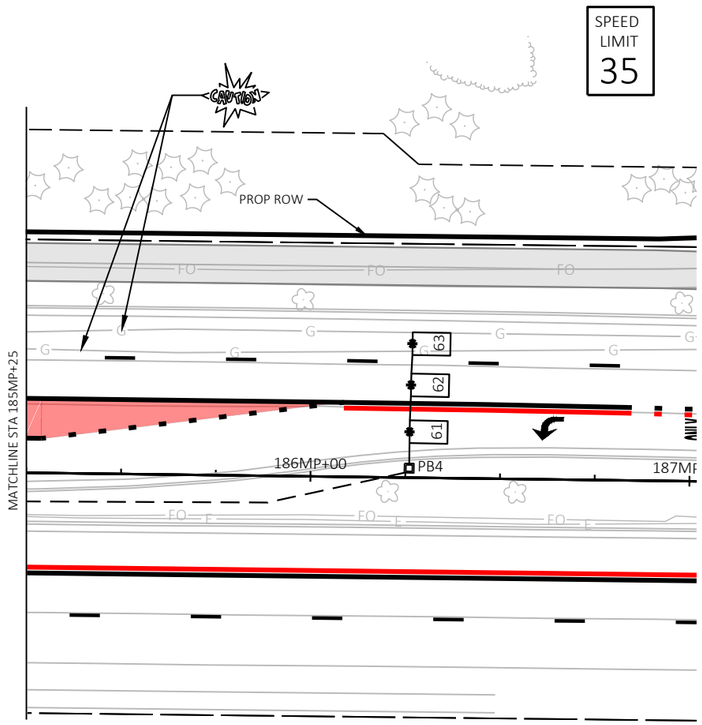
CITY OF MADISON

60631225P

S-9F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024209-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-19

N



PAGE 2 OF 3

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

SIGNAL PLAN: WB MINERAL POINT ROAD AT S ROSA ROAD

60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

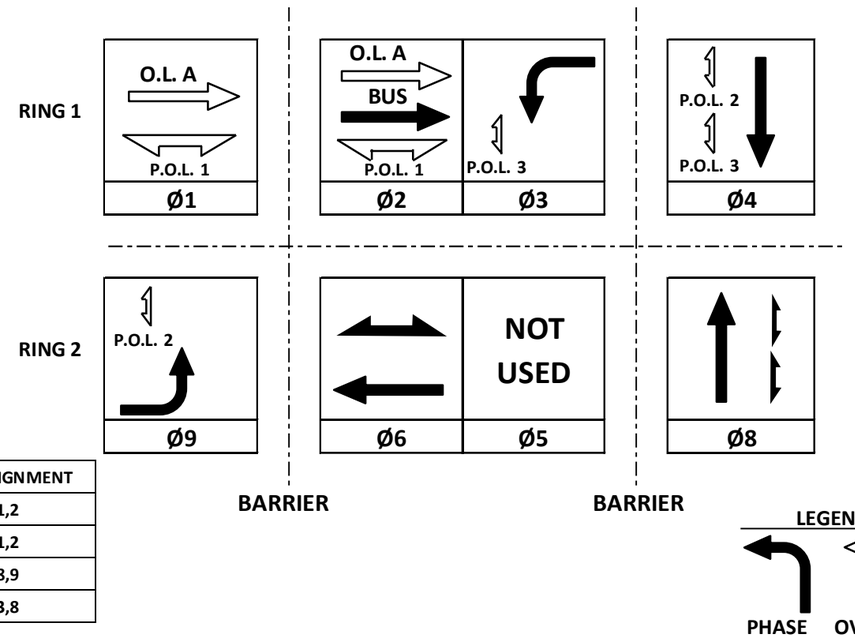
60631225P

S-9G

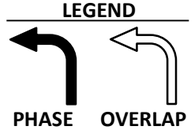
FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024209-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-10-19

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

			OL ASSIGNMENT
OLA	1,2,3		1,2
POL1	2A,2B		1,2
POL2	4A,4B		8,9
POL3	4C,4D		3,8



LEGEND



PHASE OVERLAP

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	X
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	21	23	25	27	31	41	43	401
PHASE CALLED	2	2	2		3	4	4	4
PHASE EXTENDED	2	2	2		3	4	4	4
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
61	63	65	67	602	604	82	84	DETECTOR #(S)
6	6	6			6	8	8	PHASE CALLED
6	6	6			6	8	8	PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
				SYS				LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	22	24	26			42	44	
PHASE CALLED	2	2	2			4	4	
PHASE EXTENDED	2	2	2			4	4	
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32	30	DETECTOR INPUT
62	64	66	601	603	81	83	91	DETECTOR #(S)
6	6	6		6	8	8	9	PHASE CALLED
6	6	6		6	8	8	9	PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
			SYS					LOOP FUNCTION

GENERAL NOTES:

1.

2.

3.

4.

REVISION	DATE	BY

Mark:
Designed By: AECOM
Date: 10/13/2022
Scale: NTS
60631225P

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

MINERAL POINT ROAD AT ROSA ROAD
CITY OF MADISON
DANE COUNTY

SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: ECONOLITE
DATE: SEPTEMBER 2022	PAGE NUMBER: 3 OF 3

60631225P

S-9H

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								RED/WHT	BLK/RED	GRN/WHT				
		8B											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:
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	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	Designed By: AECOM 60631225P	REVISION Date: 9/26/2022	DATE	BY
			Scale: NTS	

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CABLE ROUTING: MINERAL POINT AT ROSA ROAD

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-9I

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MO Plan Sheets.pptx
LAST PLOT DATE - 9/26/2022

WHITNEY WAY & MINERAL POINT INTERSECTION TRAFFIC SIGNAL & LIGHTING WORK INCLUDED IN SEPARATE CITY OF MADISON PROJECT (WIDENED SIDEWALK)

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

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-09-24
60631225P
Scale: ########

SIGNAL PLAN: WHITNEY WAY AT MINERAL POINT ROAD 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-10

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863348\024208-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT (2)
LAST PLOT DATE - 2022-09-24

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.

N

REGENT STREET

WHITNEY WAY

SPEED LIMIT 25

SPEED LIMIT 30

EXIST R/W

WP1 WP2 WP3 WP4

R/L WHITNEY WAY

58WW+00 59WW+00 60WW+00 61WW+00 62WW+00

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
1,100 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
8	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

MARK	REVISION	DATE	BY
	Designed By: AECOM Date: 2022-10-13	Scale: 1 IN:40 FT	
	60631225P		

TEMP SIGNAL PLAN - PRECON: WHITNEY WAY AT REGENT STREET 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON CONTRACT NO: 60631225C

60631225P

S-11A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\D#S86348\024209-ST.DWG
LAYOUT NAME - Precon
LAST PLOT DATE - 2022-10-13

N

REGENT STREET

SPEED LIMIT 25

SPEED LIMIT 25

WHITNEY WAY

EXIST R/W

WP1

WP2

WP3

WP4

TLE

CAUTION

58WW+00

59WW+00

60WW+00

61WW+00

62WW+00

R/L WHITNEY WAY

SPEED LIMIT 25

SPEED LIMIT 30

REGENT STREET

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 2 OF 6

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - MEDIAN: WHITNEY WAY AT REGENT STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-11B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024209-ST.DWG
LAYOUT NAME - Median

LAST PLOT DATE - 2022-10-13

N

REGENT STREET

SPEED LIMIT 25

SPEED LIMIT 25

EXIST R/W

WHITNEY WAY

WP1

WP2

WP3

WP4

TLE

CAUTION

R/L WHITNEY WAY

SPEED LIMIT 30

SPEED LIMIT 25

58WW+00

59WW+00

60WW+00

61WW+00

62WW+00

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 3 OF 6

TEMP SIGNAL PLAN - SIDEWALK: WHITNEY WAY AT REGENT STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-13	Scale: 1 IN:40 FT	

60631225P

S-11C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\0242209-ST.DWG
LAYOUT NAME - Sidewalk
LAST PLOT DATE - 2022-10-13

N

REGENT STREET

SPEED LIMIT 25

SPEED LIMIT 25

SPEED LIMIT 25

SPEED LIMIT 30

WHITNEY WAY

EXIST R/W

WP1

WP2

WP3

WP4

TLE

BUS ONLY

R/L WHITNEY WAY

58WW+00

59WW+00

60WW+00

61WW+00

62WW+00

81

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

PAGE 4 OF 6

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1 IN:40 FT	
60631225P			

TEMP SIGNAL PLAN - POSTCON: WHITNEY WAY AT REGENT STREET 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

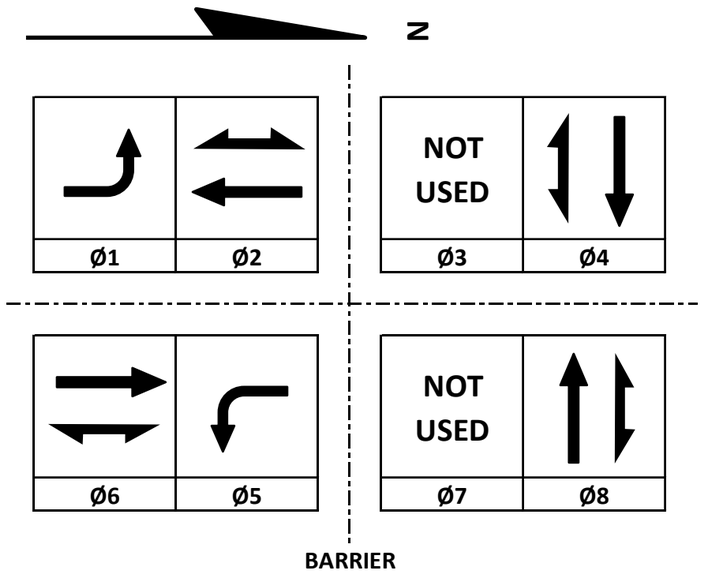
CITY OF MADISON

60631225P

S-11D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024209-ST.DWG
LAYOUT NAME - Postcon
LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R
Ø2	7,8,9	R
Ø3		
Ø4	16,17,18	R
Ø5	10,11,12	R
Ø6	1,2,3	R
Ø7		
Ø8	13,14,15	R
Ø2P	2A,2B	
Ø4P	4A,4B	
Ø6P	6A,6B	
Ø8P	8A,8B	
OLE		
OLF		
OLG		
OLH		



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	4	5	6	8		
PHASE EXTENDED	1	2	4	5	6	8		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

DETECTOR INPUT	19	17	23	21	27	25	31	29
DETECTOR #(S)								
PHASE CALLED								
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

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

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

GENERAL NOTES:

1. THIS SEQUENCE APPLIES TO PRECON, SIDEWALK, AND POSTCON STAGES.
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
3.
4.

REVISION	DATE	BY

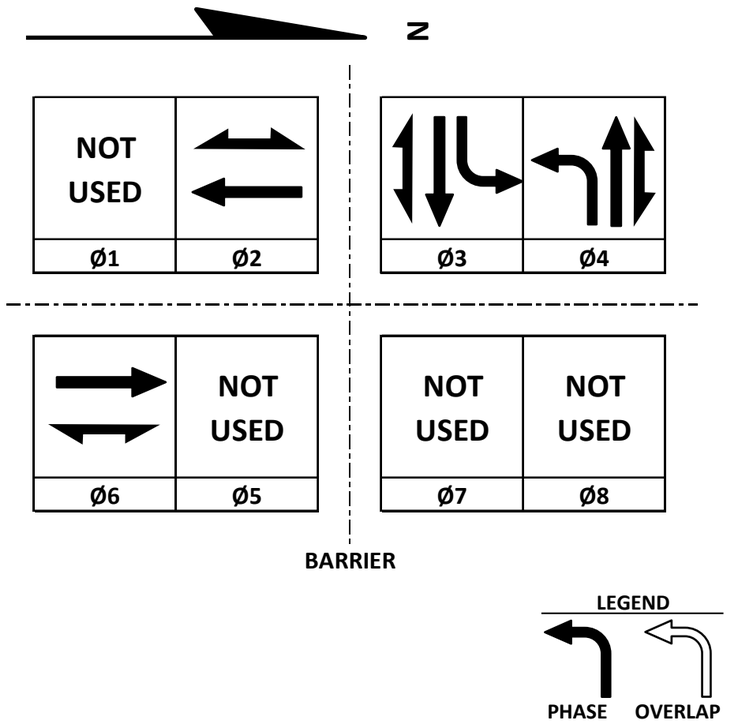
Scale: NTS
Date: 10/13/2022
Designed By: AECOM
Mark:
60631225P

TEMPORARY SEQUENCE OF OPERATION:WHITNEY WAY AT REGENT STREET
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

WHITNEY WAY AT REGENT STREET
CITY OF MADISON
DANE COUNTY
SIGNAL NO:
DATE: OCTOBER 2022 PAGE NUMBER: 5 OF 6

60631225P
S-11E

	HEAD NUMBERS	FLASH
Ø1	4,5,6	R ←
Ø2	7,8,9	R
Ø3	16,17,18	
Ø4	13,14,15	R
Ø5	10,11,12	R ←
Ø6	1,2,3	R
Ø7		
Ø8		R
Ø2P	2A,2B	
Ø3P	4A,4B	
Ø6P	6A,6B	
Ø4P	8A,8B	
OLE		
OLF		
OLG		
OLH		



LEGEND

PHASE OVERLAP

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
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				

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
CONFIRMATION LIGHTS	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	41	51	61	81		
PHASE CALLED	1	2	3	5	6	4		
PHASE EXTENDED	1	2	3	5	6	4		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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

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

GENERAL NOTES:

1. THIS SEQUENCE APPLIES TO THE MEDIAN STAGE.
2.
3.
4.

Mark	REVISION	DATE	BY

Designed By: AECOM
60631225P

Date: 10/13/2022

Scale: NTS

TEMPORARY SEQUENCE OF OPERATION:WHITNEY WAY AT REGENT STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

WHITNEY WAY AT REGENT STREET
CITY OF MADISON
DANE COUNTY

SIGNAL NO:

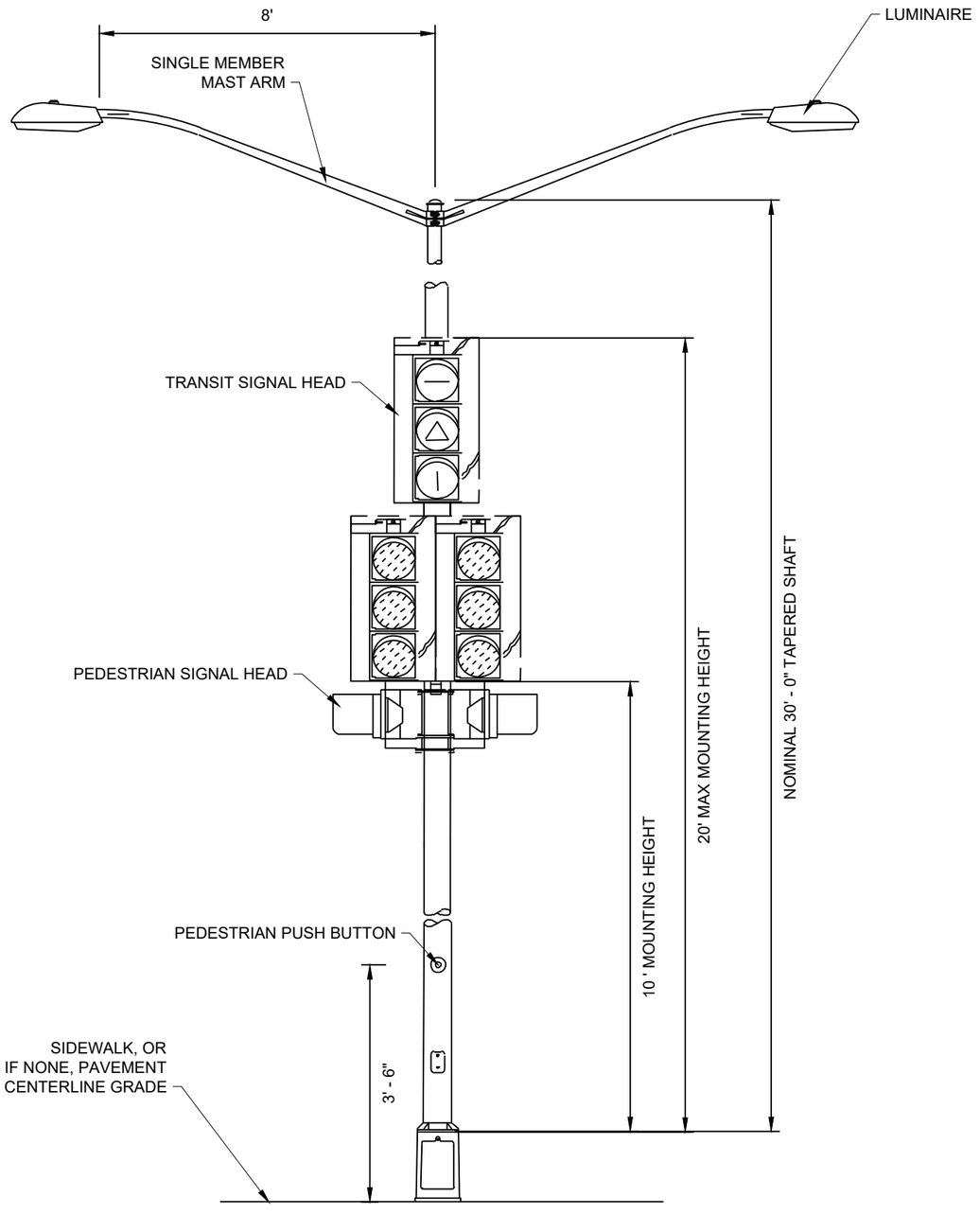
DATE: OCTOBER 2022 PAGE NUMBER: 6 OF 6

60631225P

S-11F

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT



POLE MOUNTING CONFIGURATION
-
SIGNAL POLE LAYOUT REGENT STREET (SB8)

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-09-30	Scale: N/A	

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

TRAFFIC SIGNAL DETAILS

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S11-G

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS863481\024000-SD.DWG
LAYOUT NAME - Traffic Signal Details
LAST PLOT DATE - 2022-09-30

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

N

REGENT STREET

SPEED LIMIT 25

WHITNEY WAY

R/L WHITNEY WAY

BUS ONLY

EXIST R/W

CAUTION

SPEED LIMIT 30

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

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

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

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SIGNAL PLAN: WHITNEY WAY AT REGENT STREET

BUS RAPID TRANSIT

CITY OF MADISON

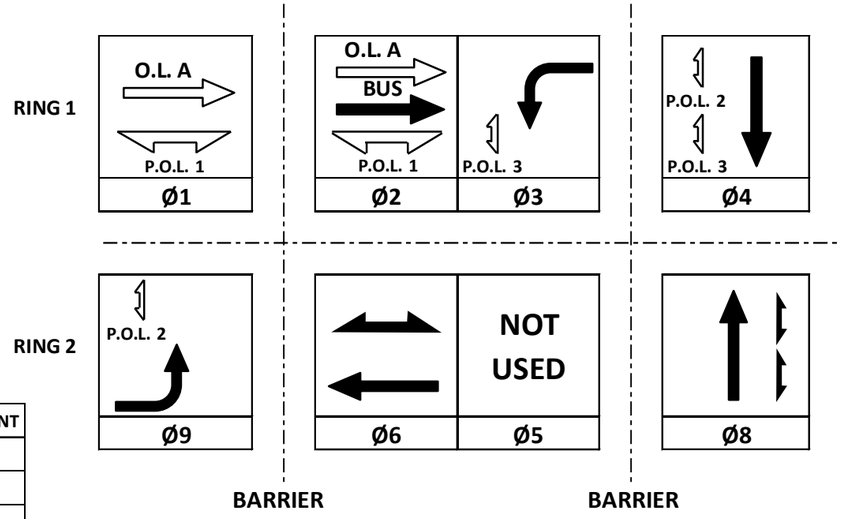
60631225P

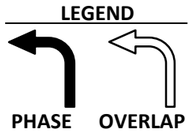
S-11H

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024209-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT
LAST PLOT DATE - 2022-10-17

	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		

	OL ASSIGNMENT
OLA	1,2,3
POL1	1,2
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	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
DETECTOR #(S)	21	23	25	201	31	41	43	61	63	65	601	81	83	91			DETECTOR #(S)
PHASE CALLED	2	2		2	3	4	4	6	6		6	8	8	9			PHASE CALLED
PHASE EXTENDED	2	2		2	3	4	4	6	6		6	8	8	9			PHASE EXTENDED
DISCONNECT TIME																	DISCONNECT TIME
CALLING DELAY																	CALLING DELAY
EXTENSION STRETCH																	EXTENSION STRETCH
LOOP FUNCTION																	LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
DETECTOR #(S)	22	24		202		42	44	62	64		602	82	84				DETECTOR #(S)
PHASE CALLED	2	2		2		4	4	6	6		6	8	8				PHASE CALLED
PHASE EXTENDED	2	2		2		4	4	6	6		6	8	8				PHASE EXTENDED
DISCONNECT TIME																	DISCONNECT TIME
CALLING DELAY																	CALLING DELAY
EXTENSION STRETCH																	EXTENSION STRETCH
LOOP FUNCTION																	LOOP FUNCTION

GENERAL NOTES:

1.
2.
3.
4.

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

REVISION	DATE	BY:
Date: 10/13/2022	Scale: NTS	
Designed By: AECOM 60631225P		
Mark		

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

S-11I

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

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

DATE: Sep-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	1	RED	ORG	GRN											
		4D											BLK	BLU		
		PB													WHT/BLK	
SB2	15	7	RED	ORG	GRN											
		11				RED/BLK	ORG/BLK		GRN/BLK							
		4B											BLK	BLU		
		4C											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
		PB													BLU/WHT	
SB3	12	8	RED	ORG	GRN											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB4	7	15	RED	ORG	GRN											
		6A											BLK	BLU		
SB5	7	13	RED	ORG	GRN											
SB6	7	14	RED	ORG	GRN											
		6B											BLK	BLU		
SB7	12	4				RED/BLK	ORG/BLK		GRN/BLK							
		6	RED	ORG	GRN											
		8D											BLK	BLU		
		PB													WHT/BLK	
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		
		PB													WHT/BLK	
SB9	12	3	RED	ORG	GRN											
		8A											BLK	BLU		
		PB													RED/BLK	
SB10	7	12	RED	ORG	GRN											
		2B											BLK	BLU		
SB11	7	16	RED	ORG	GRN											
SB12	12	10				RED/BLK	ORG/BLK		GRN/BLK							
		17	RED	ORG	GRN											
		2A											BLK	BLU		

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

60631225P

CABLE ROUTING: WHITNEY WAY AT REGENT STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

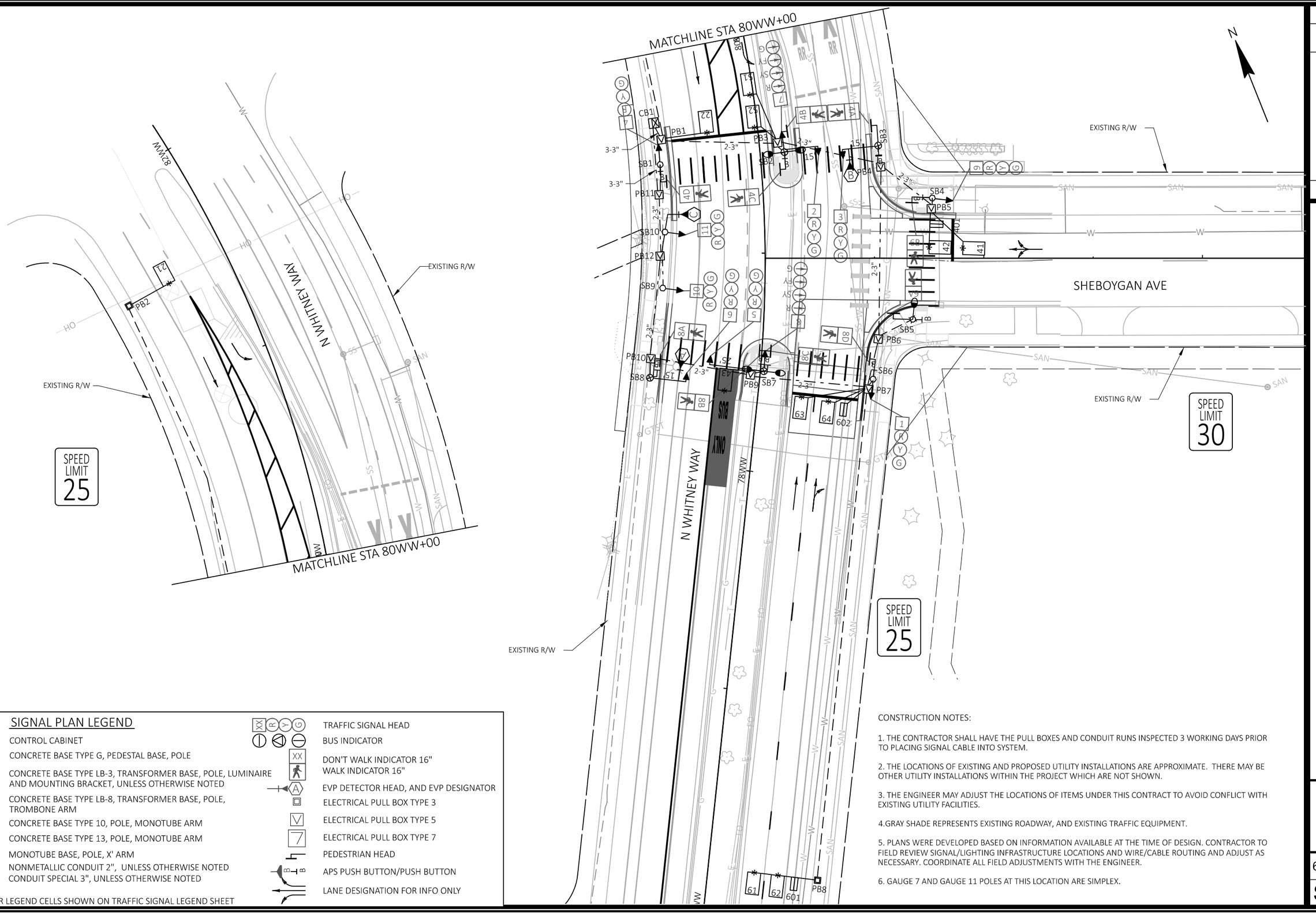
CITY OF MADISON

C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MQ Plan Sheets.pptx
LAST PLOT DATE - 9/26/2022

60631225P

FILE NAME:

S-11J



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. 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.

MARK	REVISION	DATE	BY
Designed By: TSI	Date: 2022-10-04	Scale: ##########	
60631225P			

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO:60631225C

SIGNAL PLAN: WHITNEY WAY AT SHEBOYGAN AVE

BUS RAPID TRANSIT

CITY OF MADISON

60631225P

S-12A

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS20_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/900 CAD GIS/West/Sheets/024218-sp.dwg

LAYOUT NAME - Plan 1 IN 40 FT

LAST PLOT DATE - 10/4/2022

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

RING 1

Ø1	Ø2
NOT USED	
Ø3	Ø4

RING 2

Ø5	Ø6 (O.L. G)
NOT USED	
Ø7	Ø8

BARRIER

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	
CALLED 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								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								PLAN LOOP DETECTOR*(S)
								CALLED PHASE
								CALL OPTION
								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	
CALLED 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								

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

N

Mark	Designed By: TSI 60631225P	REVISION Date: 9/22/2022	DATE	BY

Scale: NTS

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SEQUENCE OF OPERATION: WHITNEY WAT AT SHEBOYGAN AVE

BUS RAPID TRANSIT

WHITNEY WAY / SHEBOYGAN
CITY OF MADISON
COUNTY

SIGNAL NO:	CABINET TYPE: TS2
	CONTROLLER TYPE: COBALT
DATE: 10/22	PAGE NO. 2 of 3

60631225P

S-12B

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

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											
		4D											BLK	BLU		
		PB													WHT/BLK	
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											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB4	12	9	RED	ORG	GRN											
		6B											BLK	BLU		
		PB													WHT/BLK	
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

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

Scale: NTS

60631225P

CABEL ROUTING: WHITNEY WAY & SHEBOYGAN AVE

BUS RAPID TRANSIT

CITY OF MADISON

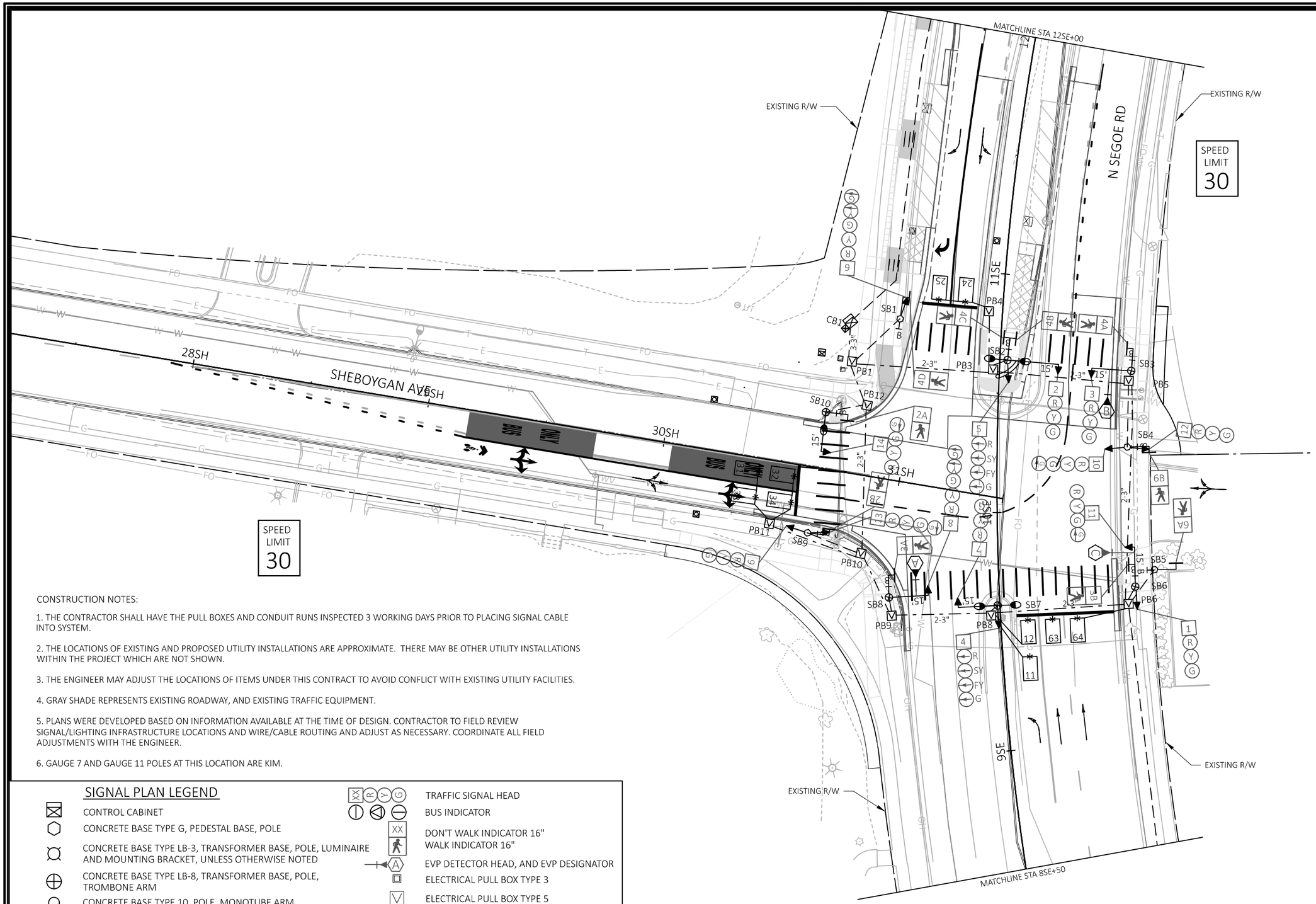
CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-12C

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



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.

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: TSI	Date: 2022-10-17	Scale: 1:40_XREF	
60631225P			

60631225P

SIGNAL PLAN: N SEGOE ROAD AT SHEBOYGAN AVENUE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO:60631225C

CITY OF MADISON

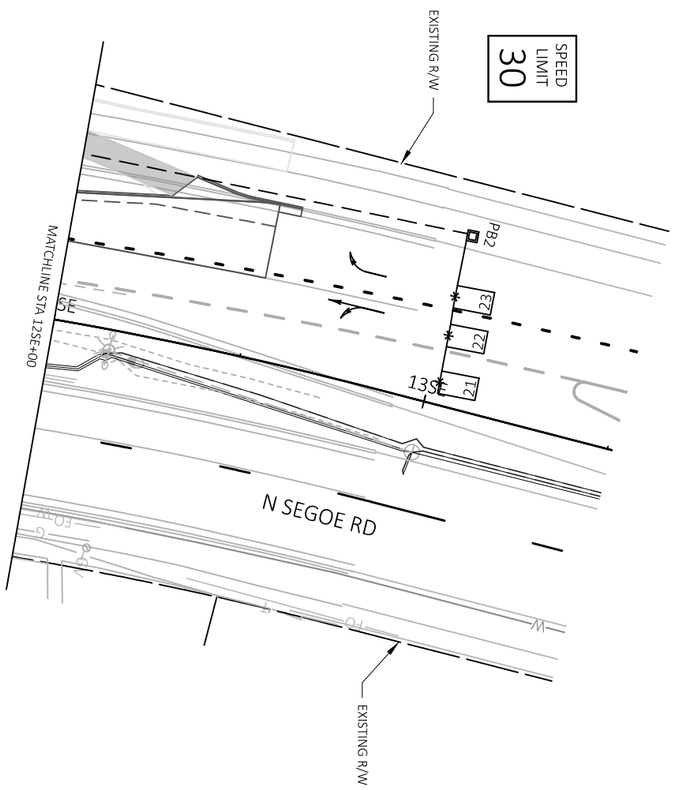
60631225P

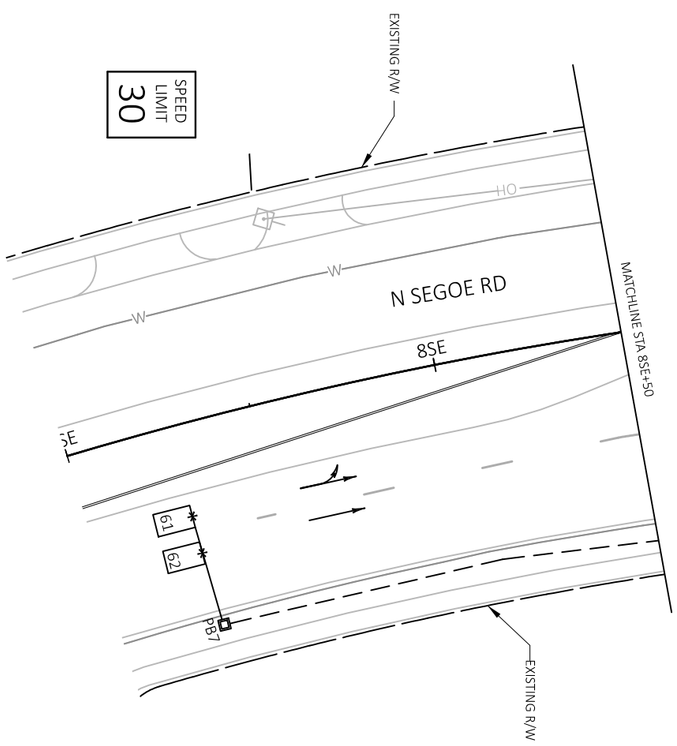
S-13A

FILE NAME : pw://aecom-na-pw.bentley.com:AECOM_DS20_NA_2019/Documents/60631225-Madison BRT Ph2 Pre-Design/900-CAD GIS/West/Sheets/024219-sp.dwg

LAYOUT NAME - Plan 1 IN 40 FT

LAST PLOT DATE: - 10/17/2022





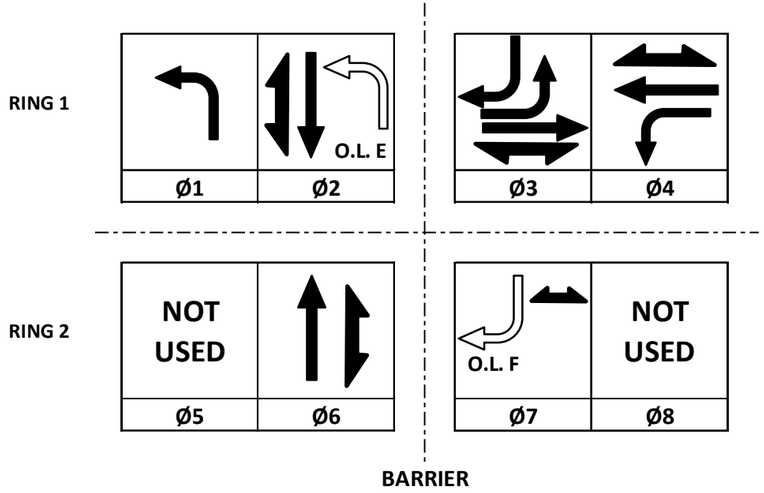
N

S-13B	60631225P	SIGNAL PLAN: N SEGOE ROAD AT SHEBOYGAN AVENUE	60631225P
		BUS RAPID TRANSIT	CITY OF MADISON, DANE COUNTY, WI
		CITY OF MADISON	CONTRACT NO:60631225C

MARK	REVISION	DATE	BY
Designed By: TSI 60631225P	Date: 2022-10-04	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/West/Sheets/024219-sp.dwg
LAYOUT NAME - Plan 1 IN 40 FT LAST PLOT DATE - 10/4/2022

	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.

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

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	12	22	24		32	34	62	64									PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	2	2		3	3	6	6									CALLED PHASE
CALL OPTION	1	2	2		3	3	6	6									CALL OPTION
DELAY TIME																	DELAY TIME
EXTENTION OPTION																	EXTENTION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

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

60631225P

SEQUENCE OF OPERATION: SEGOE ROAD AT SHEBOYGAN AVENUE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SEGOE / SHEBOYGAN
CITY OF MADISON
COUNTY

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

60631225P

S-13C

:CT ID:	60631225P
INTERSECTION:	SHEBOYGAN AVE & SEGOE 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	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		
		PB													WHT/BLK	
SB3	12	3	RED	ORG	GRN											
		4A											BLK	BLU		
		PB													WHT/BLK	
SB4	19	10	RED	ORG	GRN				BLU/BLK							
		12	RED/BLK	ORG/BLK	GRN/BLK				BLK/WHT							
		6B											BLK	BLU		
		PB													WHT/BLK	
SB5	7	6A											BLK	BLU		
		PB													WHT/BLK	
SB6	15	1	RED	ORG	GRN											
		11	RED/BLK	ORG/BLK	GRN/BLK				BLU/BLK							
		8B											BLK	BLU		
		PB													WHT/BLK	
SB7	12	4				RED/BLK	ORG/BLK	BLU/BLK	GRN/BLK							
		7	RED	ORG	GRN											
SB8	12	8	RED	ORG	GRN											
		8A											BLK	BLU		
		PB													WHT/BLK	
SB9	19	9	RED	ORG	GRN				BLU/BLK							
		13	RED/BLK	ORG/BLK	GRN/BLK				BLK/WHT							
		2B											BLK	BLU		
		PB													WHT/BLK	
SB10	12	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	Designed By: 60631225P	TSI	REVISION Date: 10/4/2022	DATE	BY

Scale: NTS

60631225P

CABEL ROUTING: SEGOE RD AT SHEBOYGAN AVE

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

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

FILE NAME:

60631225P

S-13D

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16"
  WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 30

ROSE PLACE

UNIVERSITY AVENUE

MIDVALE BOULEVARD

N MEADOW LANE

US BANK

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

314UC+00 315UC+00 316UC+00 317UC+00 318UC+00

EXIST R/W

TLE

WP1 WP2 WP3 WP4 WP5

TP1 TP2 TP3

CAUTION

CONSTRUCTION NOTES:

1. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE SIDE OF THE POST OR POLE.
2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. ADJUSTMENTS TO GUY WIRES BETWEEN STAGES MAY BE NECESSARY AND ARE INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
3. ADJUST TEMPORARY SIGNALS WITHIN EACH STAGE AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS.
4. ADJUST DETECTION ZONES AS REQUIRED BY THE ENGINEER TO ACCOUNT FOR CHANGES IN LANE CONFIGURATION.
5. BAG SIGNAL HEADS IMMEDIATELY WHEN NOT IN USE.
6. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
7. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
8. INSTALL TEMPORARY TRAFFIC SIGNAL AND MAKE OPERATIONAL PRIOR TO THE REMOVAL OF THE EXISTING TRAFFIC SIGNAL.
9. TEMPORARY TRAFFIC SIGNAL WILL USE EXISTING TRAFFIC SIGNAL CABINET IN COMBINATION WITH EXISTING SIGNAL EQUIPMENT AS SHOWN ON PLANS.
10. EXISTING (PRECON) AND PROPOSED (POSTCON) SIGNAL EQUIPMENT SHOWN IN GRAYSHADE.

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
1,300 (FT)	SPAN WIRE
23	TRAFFIC SIGNAL FACES (VERTICAL)
10	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
1	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
1	EVP DETECTION SYSTEM
3	TEMPORARY BASES
126 (FT)	OVERHEAD WIRE

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-13	Scale: 1" = 0011'	

TEMP SIGNAL PLAN - PRECON: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-14A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\0242212-ST.DWG

LAYOUT NAME - Precon

LAST PLOT DATE - 2022-10-13

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

N

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 30

ROSE PLACE

UNIVERSITY AVENUE

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

MIDVALE BOULEVARD

N MEADOW LANE

US BANK

BLEACHERS

CAUTION

TLE

EXIST R/W

WP1 WP2 WP3 WP4 WP5

TP1 TP2 TP3

314UC+00 315UC+00 316UC+00 317UC+00 318UC+00

PAGE 2 OF 7

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1" = .0011'	
60631225P			

TEMP SIGNAL PLAN - MEDIAN: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-14B

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\D\M586348\024212-ST.DWG
LAYOUT NAME - Median
LAST PLOT DATE - 2022-10-13

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

N

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 35

SPEED LIMIT 30

ROSE PLACE

UNIVERSITY AVENUE

UNIVERSITY AVENUE

MIDVALE BOULEVARD

N MEADOW LANE

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

EXIST R/W

TLE

WP1 WP2 WP3 WP4 WP5

TP1 TP2 TP3

314UC+00 315UC+00 316UC+00 317UC+00 318UC+00

US BANK

CAUTION

BLEACHERS

PAGE 3 OF 7

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1" = .0011'	
60631225P			

TEMP SIGNAL PLAN - SIDEWALK 1: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

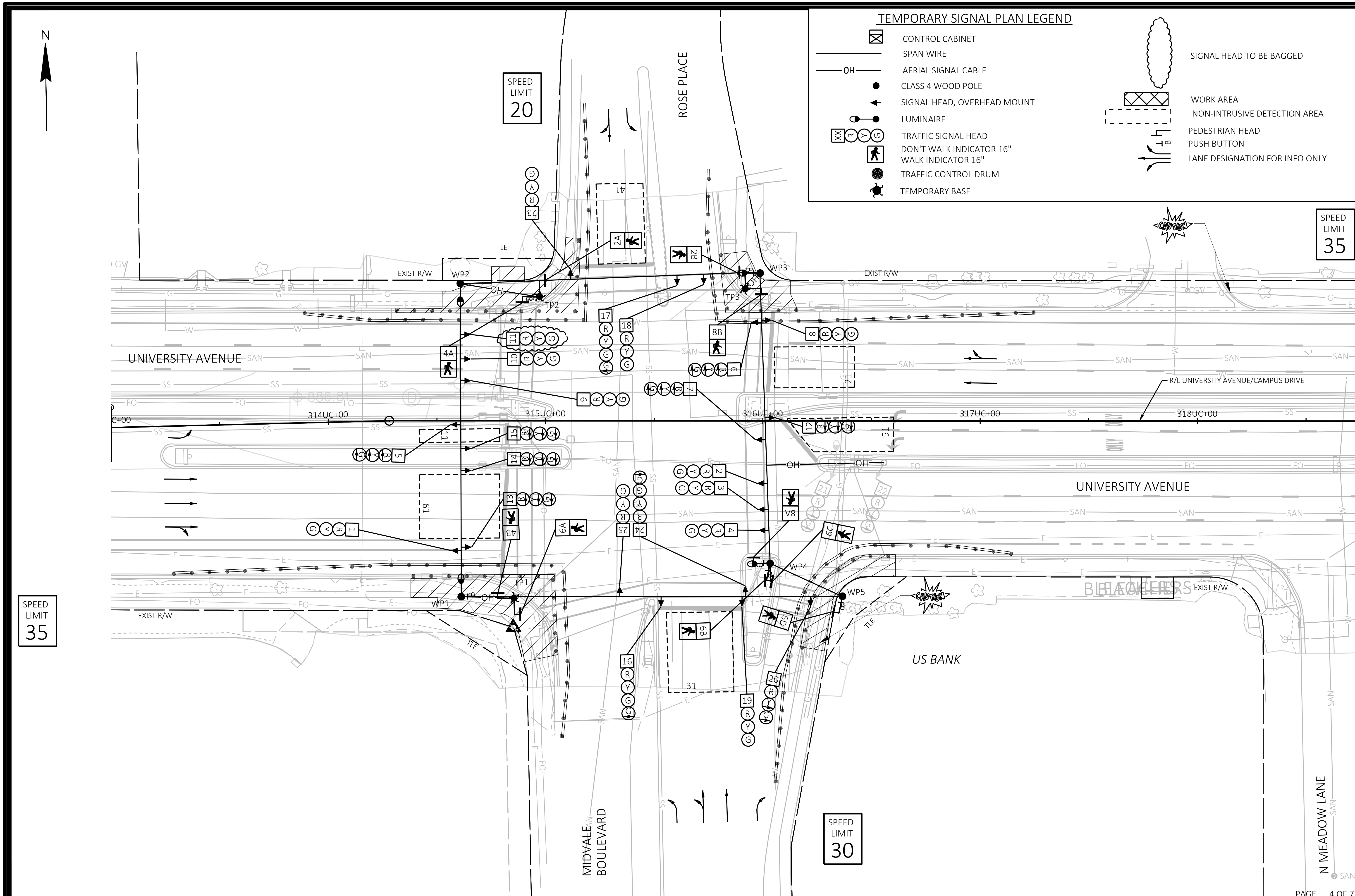
CITY OF MADISON

60631225P

S-14C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024212-ST.DWG
LAYOUT NAME - porkcop

LAST PLOT DATE - 2022-10-13



TEMPORARY SIGNAL PLAN LEGEND
CONTROL CABINET
SPAN WIRE
AERIAL SIGNAL CABLE
CLASS 4 WOOD POLE
SIGNAL HEAD, OVERHEAD MOUNT
LUMINAIRE
TRAFFIC SIGNAL HEAD
DON'T WALK INDICATOR 16"
WALK INDICATOR 16"
TRAFFIC CONTROL DRUM
TEMPORARY BASE
SIGNAL HEAD TO BE BAGGED
WORK AREA
NON-INTRUSIVE DETECTION AREA
PEDESTRIAN HEAD
PUSH BUTTON
LANE DESIGNATION FOR INFO ONLY
N
SPEED LIMIT 20
SPEED LIMIT 35
SPEED LIMIT 35
SPEED LIMIT 30
ROSE PLACE
UNIVERSITY AVENUE
UNIVERSITY AVENUE
MIDVALE BOULEVARD
N MEADOW LANE
US BANK
EXIST R/W
TLE
WP1
WP2
WP3
WP4
WP5
TP1
TP2
TP3
OH
314UC+00
315UC+00
316UC+00
317UC+00
318UC+00
R/L UNIVERSITY AVENUE/CAMPUS DRIVE
CAUTION
PAGE 4 OF 7

TEMP SIGNAL PLAN - SIDEWALK 2: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

CITY OF MADISON

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-13
Scale: 1" = .0011'
60631225P

60631225P

S-14D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024212-ST.DWG
LAYOUT NAME - sidewalk
LAST PLOT DATE - 2022-10-13

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

N

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 30

SPEED LIMIT 35

ROSE PLACE

UNIVERSITY AVENUE

UNIVERSITY AVENUE

MIDVALE BOULEVARD

N MEADOW LANE

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

314UC+00 315UC+00 316UC+00 317UC+00 318UC+00

TLE

EXIST R/W

WP1 WP2 WP3 WP4 WP5

TP1 TP2 TP3

OH

CAUTION

US BANK

BLEACHERS

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1" = 0011'	
60631225P			

TEMP SIGNAL PLAN - CENTERLANE: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-14E

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024212-ST.DWG
LAYOUT NAME - centerlane (2)
LAST PLOT DATE - 2022-10-13

TEMPORARY SIGNAL PLAN LEGEND

- CONTROL CABINET
- SPAN WIRE
- OH — AERIAL SIGNAL CABLE
- CLASS 4 WOOD POLE
- SIGNAL HEAD, OVERHEAD MOUNT
- LUMINAIRE
- TRAFFIC SIGNAL HEAD
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- TRAFFIC CONTROL DRUM
- TEMPORARY BASE
- SIGNAL HEAD TO BE BAGGED
- WORK AREA
- NON-INTRUSIVE DETECTION AREA
- PEDESTRIAN HEAD
- PUSH BUTTON
- LANE DESIGNATION FOR INFO ONLY

N

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 35

SPEED LIMIT 30

ROSE PLACE

UNIVERSITY AVENUE

UNIVERSITY AVENUE

MIDVALE BOULEVARD

N MEADOW LANE

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

US BANK

BUS ONLY

BUS ONLY

CAUTION

CAUTION

EXIST R/W

EXIST R/W

EXIST R/W

TLE

TLE

WP1

WP2

WP3

WP4

WP5

TP1

TP2

TP3

314UC+00

315UC+00

316UC+00

317UC+00

318UC+00

PAGE 6 OF 7

MARK	REVISION	DATE	BY
Designed By: AECOM	Date: 2022-10-13	Scale: 1" = .0011'	
60631225P			

TEMP SIGNAL PLAN - POSTON: UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-14F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863481\024212-ST.DWG

LAYOUT NAME - Poston

LAST PLOT DATE - 2022-10-13

	HEAD NUMBERS	FLASH
Ø1	5,6,7	R ←
Ø2	8,9,10,11	R
Ø3	16,17,18,19	-
Ø4	23,24,25	R
Ø5	12,13,14,15	R ←
Ø6	1,2,3,4	R
Ø7		-
Ø8		R
Ø2P	2A,2B	
Ø4P	4A,4B	
Ø6P	6A,6B,6C,6D	
Ø8P	8A,8B	
OLC	20,21,22	
OLF		
OLG		
OLH		

RING 1

Ø1	Ø2

Ø3	Ø4
O.L. C	

RING 2

Ø6	Ø5
	O.L. C

Ø7	Ø8
NOT USED	NOT USED

BARRIER

N

LEGEND

PHASE OVERLAP

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		1		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	←	↗	↑	
PHASE	2+5	1+6	8	

AFTER PREEMPTION SEQUENCE 2+5OR 1+6, CONTROLLER SHALL RETURN TO PHASES 1+6.
AFTER PREEMPTION SEQUENCE 8, CONTROLLER SHALL RETURN TO PHASES 8+4.

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

TYPE OF COORDINATION	
NONE	X
TBC	
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	X

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	11	21	31	41	51	61		
PHASE CALLED	1	2	3	4	5	6		
PHASE EXTENDED	1	2	3	4	5	6		
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

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

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

GENERAL NOTES:

1. THIS SEQUENCE OF OPERATIONS APPLIES TO ALL STAGES.
2. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
3. OMIT PHASE 1 DURING THE MEDIAN STAGE WHICH INCLUDES DETECTOR ZONE 11.
4.

REVISION	DATE	BY
Mark:		
Designed By: AECOM 60631225P	Date: 10/13/2022	Scale: NTS

TEMPORARY SEQUENCE OF OPERATION:UNIVERSITY AVE AT MIDVALE BLVD
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

UNIVERSITY AVE AT MIDVALE BLVD
CITY OF MADISON
DANE COUNTY
SIGNAL NO:
DATE: OCTOBER 2022 PAGE NUMBER: 7 OF 7

60631225P
S-14G

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

N

SPEED LIMIT 20

SPEED LIMIT 35

SPEED LIMIT 30

ROSE PLACE

UNIVERSITY AVENUE

MIDVALE BOULEVARD

N MEADOW LANE

INSTALL INTO EXISTING ITEM

TLE

EXIST R/W

CAUTION

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

US BANK

BLEACHERS

MATCHLINE STA 313UC+00

314UC+00

316UC+00

317UC+00

318UC+00

PI: 314+28.01

ONLY

BUS

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12 SB13 SB14

PB1 PB2 PB3 PB5 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17 PB18

PTZ1 MD1 MD2 V1 V2 V3 EXV1 EXV2

CB1

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

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-10-13 Scale: 1" = .0011'
60631225P

60631225P

SIGNAL PLAN: UNIVERSITY AVENUE AT MIDVALE BOULEVARD

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

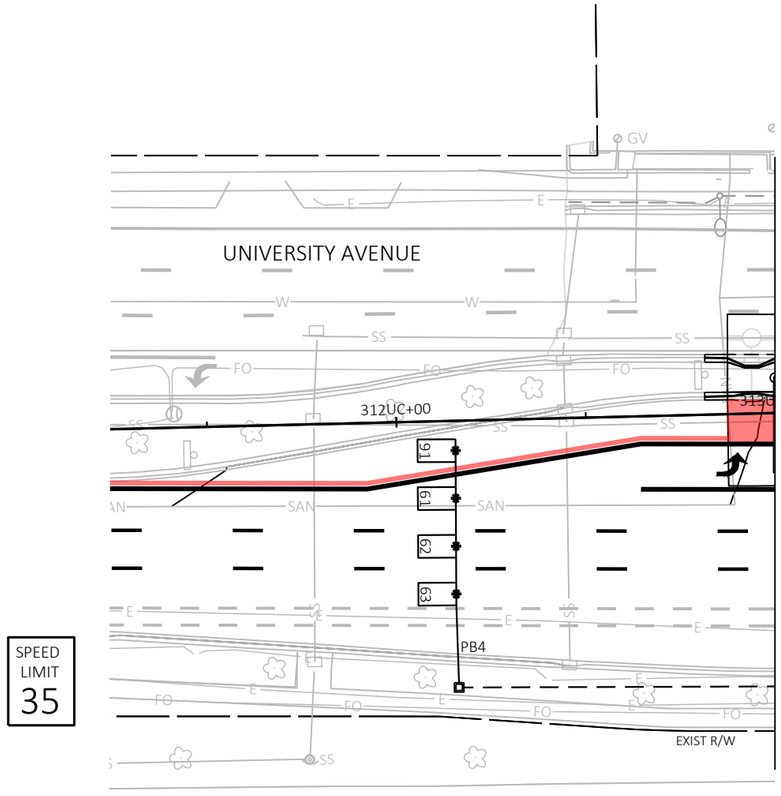
CONTRACT NO: 60631225C

60631225P

S-14H

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863480\D24212-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 01
LAST PLOT DATE - 2022-10-13

N



SPEED LIMIT 35

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

SIGNAL PLAN: EB UNIVERSITY AVENUE AT MIDVALE BOULEVARD 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

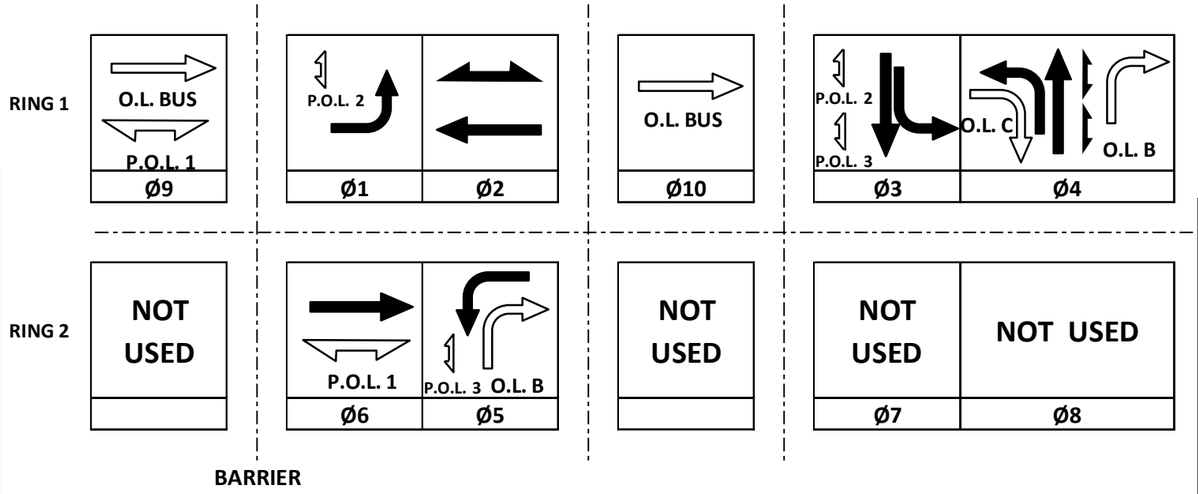
CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-14I

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024212-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT 02
LAST PLOT DATE - 2022-10-11



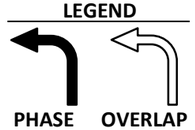
	HEAD NUMBERS	FLASH
Ø1	6,7,8	-
Ø2	9,10,11	R
Ø3	23,24,25	-
Ø4	16,17,18,19	R
Ø5	12,13,14,15	R ←
Ø6	1,2,3,4	R
Ø7		-
Ø8		
Ø9	5	R
Ø2P	2A,2B	
Ø4P	4A,4B,4C,4D	
Ø6P		
Ø8P		

OL ASSIGNMENT			
OLBUS	5		9,10
OLB	20,21,22		5
OLC	1,2		4
POL1	1A,1B,1C,1D		6,9
POL2	3A,3B		1,3
POL3	3C,3D		3,5

N

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



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

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	

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.

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

DETECTOR LOGIC

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								

19	17	23	21	27	25	31	29	DETECTOR INPUT
61	63	65	91	93				DETECTOR #(S)
6	6	6	9	9				PHASE CALLED
6	6	6	9	9				PHASE EXTENDED
								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								

20	18	24	22	28	26	32	30	DETECTOR INPUT
62	64	66	92					DETECTOR #(S)
6	6	6	9					PHASE CALLED
6	6	6	9					PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

GENERAL NOTES:

1. PHASE 1 AND PHASE 5 SHALL NOT TIME CONCURRENTLY.
2.
3.
4.

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

Mark | Designed By: AECOM 60631225P | REVISION Date: 10/13/2022 | DATE | BY: | Scale: NTS

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

60631225P

S-14J

PROJECT ID:	60631225P
INTERSECTION:	MINERAL POINT RD & MIDVALE BLVD

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	EXISTING	25	EXISTING													
SB2	15	1	RED	ORG	GRN		RED/WHT		GRN/WHT							
		13				RED/BLK	ORG/BLK		GRN/BLK							
		1D											BLK	BLU		
		3D											BLK/WHT	BLU/BLK		
		PB													WHT/BLK	
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

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

Scale: NTS

60631225P

CABLE ROUTING: UNIVERSITY AVENUE AT MIDVALE BOULEVARD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-14K

FILE NAME: C:\OneDrive\AECOM\City of Madison BRT Quantities - Cost_Quantities\Madison BRT MQ Plan Sheets.pptx
LAST PLOT DATE - 9/26/2022

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. INSTALL PTZ CAMERA. COORDINATE FINAL LOCATION WITH CITY OF MADISON.
2. INSTALL APS SYSTEM.

N

SHOREWOOD BOULEVARD

THE BOULEVARD

UNIVERSITY AVENUE

EXIST ROW

SPEED LIMIT 25

SPEED LIMIT 35

CONTRACTOR TO INSTALL PTZ CAMERA.

COORDINATION WITH UNIVERSITY AVENUE PROJECT REQUIRED FOR UNIVERSITY AVENUE PROJECT TO INSTALL SIGNALS

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

HILL STREET

332UC+00 333UC+00 334UC+00 335UC+00 336UC+00 337UC+00

PTZ1

PAGE 1 OF 1

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-09-30	Scale: 1" = 0011'	

SIGNAL PLAN: UNIVERSITY AVENUE AT SHOREWOOD BOULEVARD (EB) 60631225P

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

60631225P

S-15

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863480\24213A-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT
LAST PLOT DATE - 2022-09-30

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

UNIVERSITY AVENUE

EXIST ROW

360UC+00

361UC+00

362UC+00

363UC+00

SPEED LIMIT 35

SPEED LIMIT 25

UNIVERSITY BAY DRIVE

FARLEY AVENUE

R/L UNIVERSITY AVENUE/CAMPUS DRIVE

COORDINATION WITH UNIVERSITY AVENUE PROJECT REQUIRED FOR UNIVERSITY AVENUE PROJECT TO INSTALL SIGNALS

PTZ1

N

CONSTRUCTION NOTES:

1. REMOVE AND SALVAGE EXISTING SIGNAL HEADS 10 AND 13 AND RETURN TO THE CITY.
2. INSTALL PROPOSED TRANSIT SIGNAL HEADS 10 AND 13.
3. REMOVE AND REINSTALL SIGNAL HEAD 14 AND RELOCATE IN EXISTING SIGNAL HEAD 10 LOCATION (MAST ARM).
4. INSTALL PTZ CAMERA.
5. INSTALL APS SYSTEM.

.

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-09-30	Scale: 1" = .0011'	

SIGNAL PLAN: UNIVERSITY AVENUE AT UNIVERSITY BAY DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

60631225P

S-16

PAGE 1 OF 1

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024213B-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT
LAST PLOT DATE - 2022-09-30

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

UNIVERSITY AVENUE

N. RANDALL AVENUE

CAMPUS DRIVE

R/L JOHNSON STREET

W. JOHNSON STREET

WISCONSIN AND SOUTHERN RAILROAD

EXIST R/W

INSTALL CONDUIT INTO EXISTING ITEM

INSTALL NEW SB11 BASE PRIOR TO REMOVAL OF EXISTING SIGNAL BASE (SEE SITE PLAN REMOVAL SHEET) AND PULL BACK EXISTING ELECTRICAL WIRE AND INSTALL IN NEW SB11 SIGNAL POLE.

INTERCEPT EXISTING CONDUIT

SPEED LIMIT 25

807+00 808+00 809+00 203+00 204+00 205+00 206+00 207+00 208+00

P.: 807+62.90

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12 SB13 SB14 SB15

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9

N

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 WORK IS REPLACING EXISTING EQUIPMENT IN THE SAME CONFIGURATION. THERE IS NO CHANGE IN SEQUENCE OR HEAD CONFIGURATION.
6. ONLY ONE SIGNAL HEAD MAY BE OUT OF COMMISSION AT A TIME AND ONLY WHEN WORK IS BEING ACTIVELY PERFORMED.
7. 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.

MARK	REVISION	DATE	BY

Designed By: AECOM Date: 2022-09-23
60631225P
Scale: 1 IN 40 FT

SIGNAL PLAN: W. JOHNSON ST. AND N. RANDALL AVE. RECONSTRUCTION 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

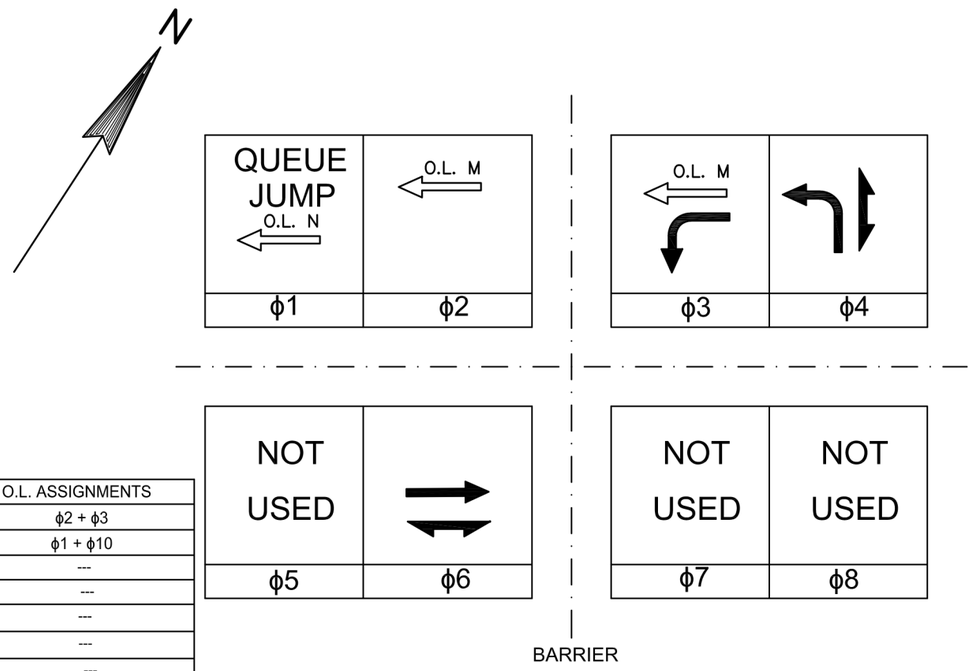
S-17A

PAGE 1 OF 1

FILE NAME : C:\PWWORKING\AECOM_D520_NA_2019\JAMES.JENINGA@AECOM.COM\DMS863480\24239-SP.DWG
LAYOUT NAME - Plan 1 IN 50 FT
LAST PLOT DATE - 2022-09-23

	HEAD NUMBERS	FLASH
ϕ1	---	---
ϕ2	---	Y
ϕ3	---	---
ϕ4	NB SIG HEADS	R
ϕ5	---	---
ϕ6	EB SIG HEADS	Y
ϕ7	---	---
ϕ8	---	---
ϕ2 PED	---	---
ϕ4 PED	PED, E LEG	
ϕ6 PED	PED, S LEG	
ϕ8 PED	---	---

O.L. ASSIGNMENTS			
OLM	WB SIG HEADS	Y	ϕ2 + ϕ3
OLN	QUEUE JUMP	---	ϕ1 + ϕ10
OLO	---	---	---
OLP	---	---	---
POL1	---	---	---
POL2	---	---	---
POL3	---	---	---
POL4	---	---	---



CONTROLLER LOGIC

PREEMPTION ASSIGNMENTS			
PREEMPTION DESIGNATION	PREEMPTION TYPE	EVP CHANNEL	PHASE(S) CALLED
1	EMERGENCY		2
2	EMERGENCY		4
3	NOT USED		
4	NOT USED		
5	NOT USED		
6	NOT USED		
7	NOT USED		
8	NOT USED		
9	NOT USED		
10	NOT USED		

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

NOTES:
1. LAND EB BIKE SIGNAL AND PED CROSSING RANDALL TO OUTPUT 6 AND ASSIGN THEM TO PHASE 6.
2. JERRY SCHIPPA TO ADD LEADING PEDESTRIAN INTERVALS TO PHASE 2 IN ORDER TO HOLD OFF WB GREEN, AND THEREFORE PERMITTED WBLT ACROSS PROTECTED BIKE LANE FOR A DURATION OF THE BIKE GREEN/WALK INTERVAL.

TYPE OF INTERCONNECT	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR	
CLOSED LOOP FIBER OPTIC	X
RADIO	

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

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

TYPE OF REMOTE COMMUNICATION	
NONE	
FIBER	X
CELL MODEM	
PHONE	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)		1						
PHASE CALLED		SYS						
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION		SYS						

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)		2						
PHASE CALLED		SYS						
PHASE EXTENDED								
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION		SYS						

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

DETECTOR NOTES:

- TWO 6X6 LOOP DETECTORS TO BE ADDED IN WB BUS LANE TO OPERATE QUEUE JUMP.
- QUEUE JUMP TO USE LOGIC TO ALLOW ONE OF TWO QUEUE JUMP PHASES TO BE CALLED DEPENDING ON WHEN BUS ARRIVES.

DETECTOR NOTES:

- QUEUE JUMP LOGIC:
  -- IF DET 1 AND DET 2 ON; THEN CALL PHASE 1

MARK	DATE	BY
REVISION	Scale: ##########	
Designed By: AECOM	Date: 2022-09-30	
60631225P		

SEQUENCE OF OPERATIONS: UNIVERSITY AND N. RANDALL AVE. 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

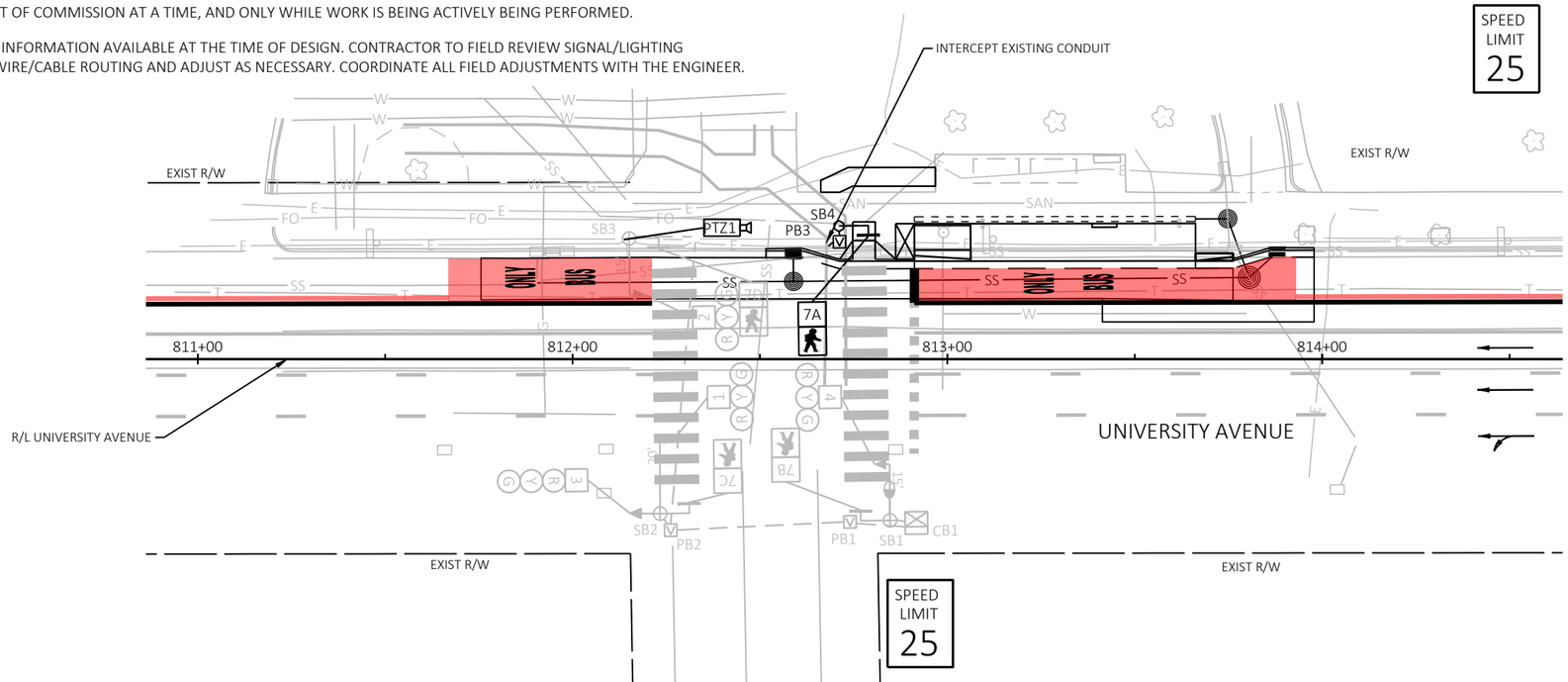
60631225P

S-17B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\TYLER.TKACHUK@AECOM.COM\DMS86348\024239-SP.DWG
LAYOUT NAME - Plan 1 IN 50 FT
LAST PLOT DATE - 2022-09-30

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 WORK IS REPLACING EXISTING EQUIPMENT IN THE SAME CONFIGURATION EXCEPT FOR REMOVING THE NEAR RIGHT SIGNAL. THERE IS NO CHANGE TO THE SIGNAL SEQUENCE OR OTHER SIGNAL HEAD CONFIGURATION.
6. ONLY ONE SIGNAL HEAD MAY BE OUT OF COMMISSION AT A TIME, AND ONLY WHILE WORK IS BEING ACTIVELY BEING PERFORMED.
7. 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.



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
- 7 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

N

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-11	Scale: 1 IN 40 FT	

SIGNAL PLAN: WB UNIVERSITY AVENUE AT N. ORCHARD STREET 60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

CITY OF MADISON

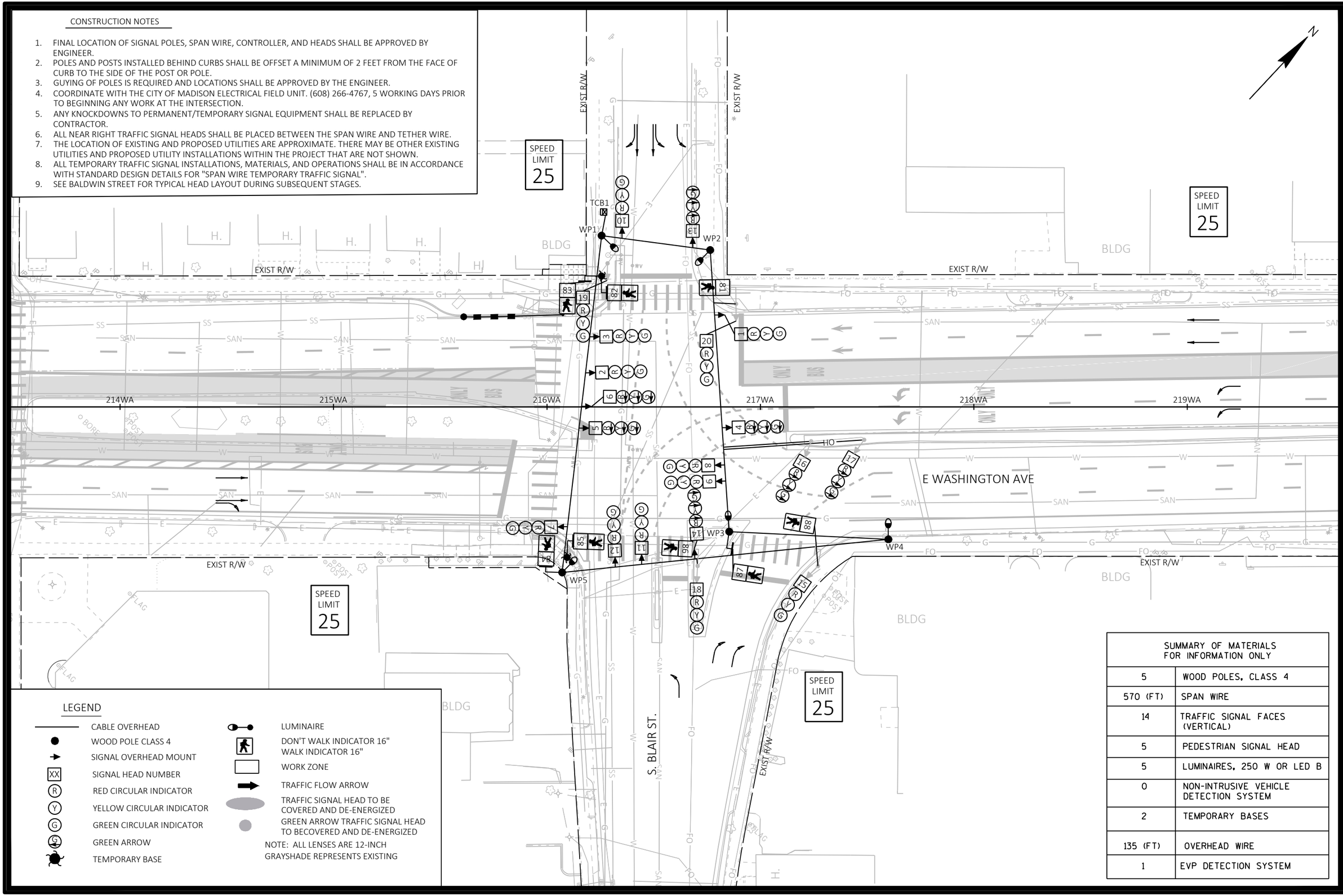
60631225P

S-18A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\JAMES.JENINGA@AECOM.COM\DMS86348\024215B-SP.DWG
LAYOUT NAME - Plan 1 IN 40 FT
LAST PLOT DATE - 2022-10-11

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY

5	WOOD POLES, CLASS 4
570 (FT)	SPAN WIRE
14	TRAFFIC SIGNAL FACES (VERTICAL)
5	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
2	TEMPORARY BASES
135 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

MARK	REVISION	DATE	BY

Designed By: STRAND
Date: 2022-10-14
60631225P
Scale: 1 IN:40 FT

60631225P

TEMPORARY SIGNAL PLAN: E WASHINGTON AVENUE AT BLAIR STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

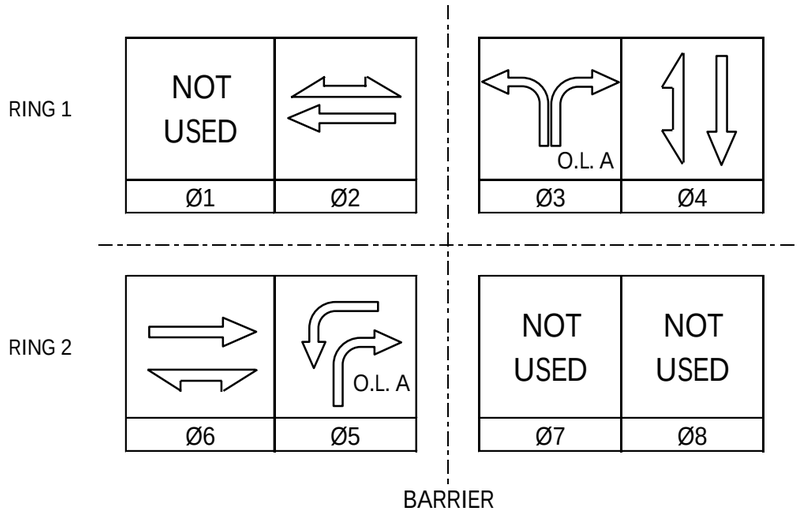
CITY OF MADISON

60631225P

S-19A

FILE NAME: C:\PWWORKING\AECOM_DS20_NA_2019\CAR2801S\D0107215\024201-ST.DWG
LAYOUT NAME - 024201-st
LAST PLOT DATE - 2022-10-14

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
3.
4.

East Washington Avenue and Blair 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: 10/17/2022	DATE	Scale: NTS	BY

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

60631225P

S-19B

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.

SALVAGE AND REINSTALL PTZ CAMERA
SALVAGE AND REINSTALL EVP DETECTOR
INSTALL CONDUIT INTO EXISTING ITEM
SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA
EXIST R/W
SPEED LIMIT 25
BLDG
E WASHINGTON AVE
S. BLAIR ST.
PTZ1
PTZ2
EXCB1
EXPB1
EXPB2
EXPB3
EXPB4
EXPB6
EXPB8
EXPB10
EXPB11
EXPB12
EXPB13
EXPB14
EXPB15
EXPB16
EXPB17
EXPB18
EXPB19
EXPB20
EXSB1
EXSB2
EXSB3
EXSB4
EXSB5
EXSB6
EXSB7
EXSB8
EXSB9
EXSB11
PB5
PB7
PB9
SB10
2-3"
** NO TRANSFORMER BASES USED AT THIS INTERSECTION.

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: STRAN	Date: 2022-10-20	Scale: 1 IN:40 FT	
60631225P			

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SIGNAL PLAN: E WASHINGTON AVENUE AT BLAIR STREET

BUS RAPID TRANSIT

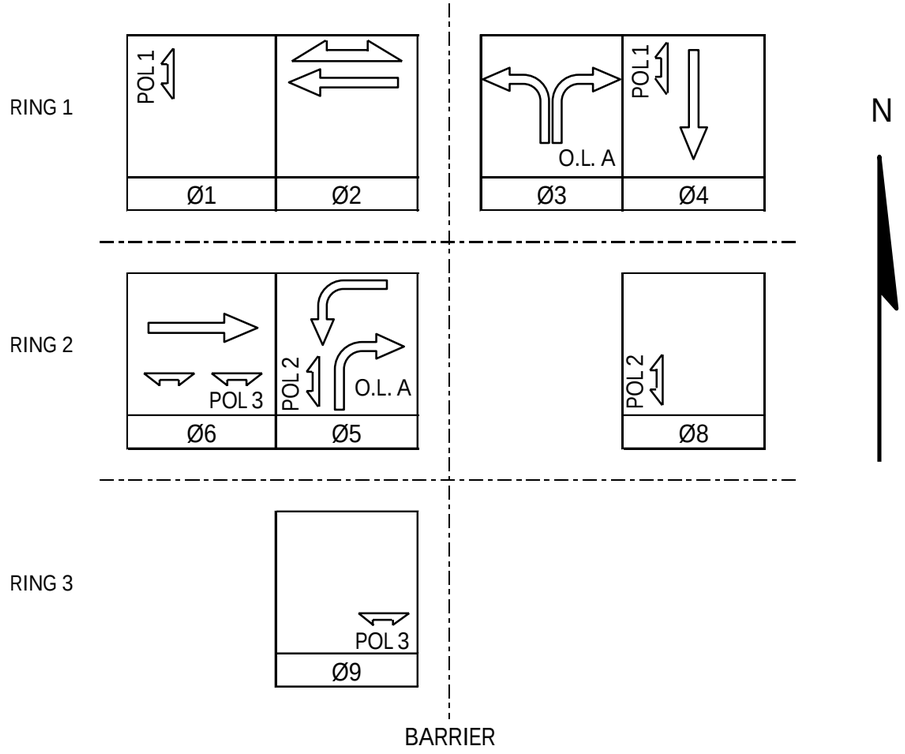
CITY OF MADISON

60631225P

S-19C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024201-SP.DWG
LAYOUT NAME - 024201-sp
LAST PLOT DATE - 2022-10-20

	HEAD NUMBERS	FLASH
Ø1	0	R
Ø2	1,2,3	R
Ø3	17,18,19	R
Ø4	11,12,13	R
Ø5	4,5,6	R
Ø6	7,8,9,10	R
Ø7		
Ø8	14,15,16	R
Ø2P	81,82	
Ø4P		
Ø6P	87,88,89,90	
Ø8P		



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

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.

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	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	21	23	25	27	32	41	43	45	51	53	61	63	65	67	82	
CALLED PHASE	2	2	2		3	4	4	4	5	5	6	6	6		3	
CALL OPTION																
DELAY TIME																
EXTENSION 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)	22	24	26	31	33	42	44	46	52	54	62	64	66	81		
CALLED PHASE	2	2	2	3	3	4	4	4	5	5	6	6	6	3		
CALL OPTION																
DELAY TIME																
EXTENSION OPTION																
EXTEND TIME																
USE ADDED INITIAL																
CROSS SWITCH PHASE																

GENERAL NOTES:

1. PEDESTRIAN OVERLAP 1 CROSSES INBOUND EAST WASHINGTON AVENUE ON THE WEST SIDE OF THE INTERSECTION.
2. PEDESTRIAN OVERLAP 2 CROSSES OUTBOUND EAST WASHINGTON AVENUE ON THE WEST SIDE OF THE INTERSECTION.
3. PEDESTRIAN OVERLAP 3 CROSSES NORTHBOUND RIGHT TURN LANES ON BLAIR STREET.
4.

East Washington Avenue and Blair 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 BLAIR STREET
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
60631225P

60631225P
S-19D

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								
		81	EXISTING													
EXSB3	5	4				RED	ORG	GRN								
		8	EXISTING													
		15	EXISTING													
EXSB4	EXISTING	16	EXISTING													
EXSB5	EXISTING	14	EXISTING													
		90	EXISTING													
EXSB6	15	9	RED	ORG	GRN											
		10	RED/BLK	ORG/BLK	GRN/BLK											
		12	RED/WHT	BLU/WHT	GRN/WHT			BLU/BLK								
		89											BLK	BLU		
EXSB7	5	17	RED				ORG	GRN								
		88	EXISTING													
EXSB8	EXISTING	13	EXISTING													
EXSB9	12	7	RED	ORG	GRN											
		86											BLK	BLU		
		B													WHT/BLK	
		87											BLU/BLK	BLK/WHT		
		B													GRN/BLK	
SB10	15	5				RED	ORG	GRN								
		6				RED/BLK	ORG/BLK	GRN/BLK								
		84											BLK	BLU		
		B													WHT/BLK	
		85											RED/WHT	GRN/WHT		
		B													BLK/WHT	
EXSB11	15	2	RED	ORG	GRN											
		3	RED/BLK	ORG/BLK	GRN/BLK											
		82											BLK	BLU		
		B													WHT/BLK	
		83											RED/WHT	GRN/WHT		
		B													BLK/WHT	

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

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT BLAIR STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

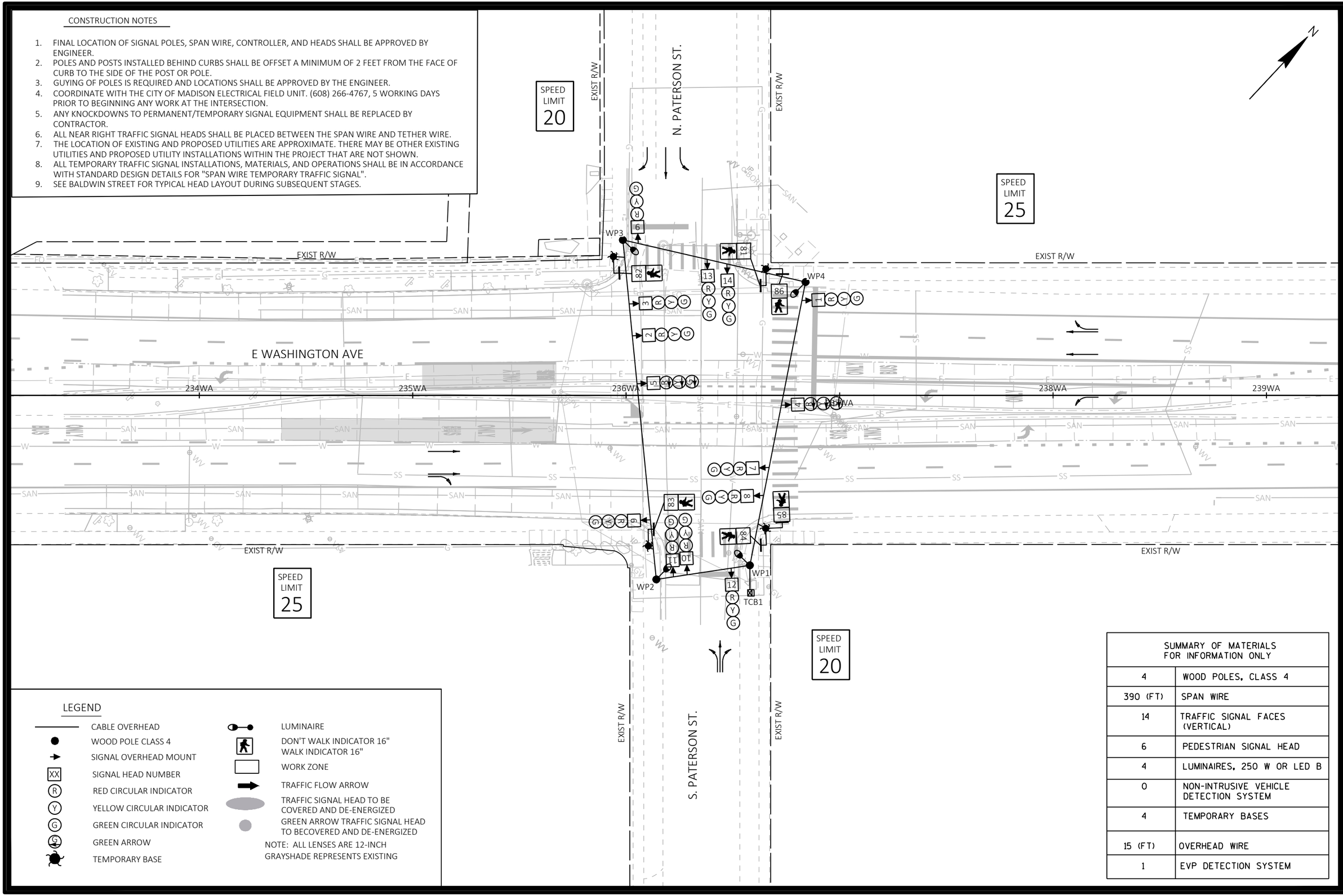
CITY OF MADISON

60631225P

S-19E

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
390 (FT)	SPAN WIRE
14	TRAFFIC SIGNAL FACES (VERTICAL)
6	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
15 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVENUE AT PATERSON STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

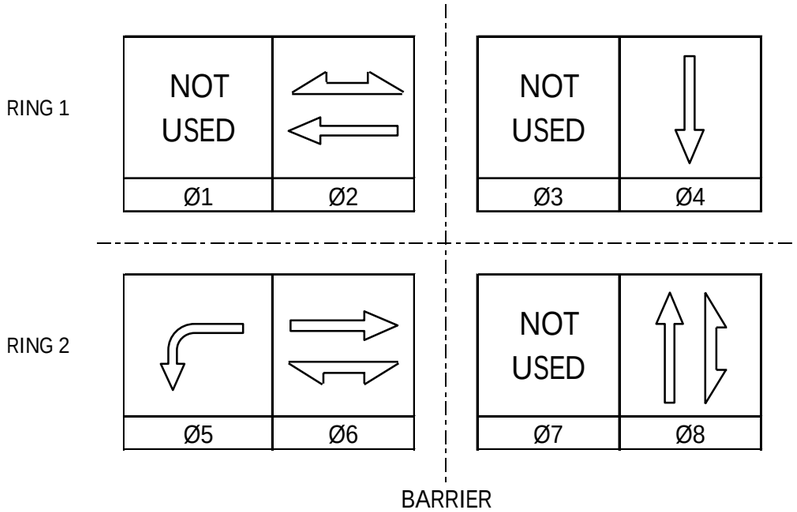
CITY OF MADISON

60631225P

S-20A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024203-ST.DWG
LAYOUT NAME - 024203-st
LAST PLOT DATE - 2022-10-12

	HEAD NUMBERS	FLASH
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		
Ø6P	83,84	
Ø8P	85,86	



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		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)								
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. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
3.
4.

East Washington Avenue and Paterson 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: 10/17/2022	Scale: NTS	DATE	BY

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

60631225P

S-20B

SPEED LIMIT 20

SPEED LIMIT 25

SPEED LIMIT 25

SPEED LIMIT 20

N. PATERSON ST.

S. PATERSON ST.

E WASHINGTON AVE

EXIST R/W

SALVAGE AND REINSTALL EVP DETECTOR

SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA

INSTALL CONDUIT INTO EXISTING ITEM (2)

INSTALL CONDUIT INTO EXISTING ITEM

234WA 235WA 236WA 237WA 238WA 239WA

234 235 236 237 238

PB1 PB2 PB3 PB4 PB5 PB7

SB3 SB4 SB5 SB9

EXPB5 EXPB6 EXPB8 EXPB9 EXPB10

EXSB1 EXSB2 EXSB6 EXSB7 EXSB8 EXSB10

EXCB1

PTZ1

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

* 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.

MARK	REVISION	DATE	BY

Designed By: STRAND
Date: 2022-10-17
60631225P

Scale: 1 IN:40 FT

60631225P

SIGNAL PLAN: E WASHINGTON AVENUE AT PATERSON STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

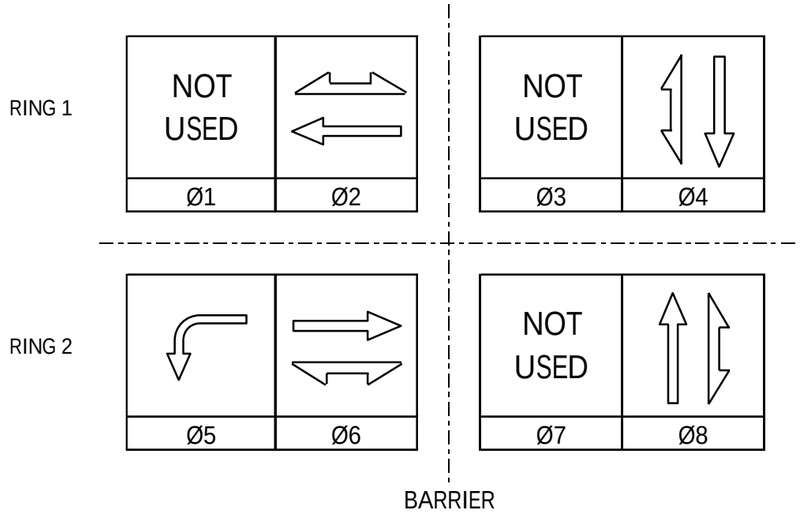
CITY OF MADISON

60631225P

S-20C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024203-SP.DWG
LAYOUT NAME - 024203-sp
LAST PLOT DATE - 2022-10-17

	HEAD NUMBERS	FLASH
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	



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		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	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	21	23	25	27	29	42	51	61	63	65	67	69	82				PLAN LOOP DETECTOR*(S)
CALLED PHASE	2	2	2	2		4	5	6	6	6	6		8				CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	22	24	26	28	41	43	52	62	64	66	68	81					PLAN LOOP DETECTOR*(S)
CALLED PHASE	2	2	2	2	4	4	5	6	6	6	6	8					CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1.
2.
3.
4.

East Washington Avenue and Paterson Street
CITY OF MADISON
DANE COUNTY

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

Mark	REVISION	Date:	DATE	BY
			Scale: NTS	

Designed By: STRAND
60631225P

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

60631225P

S-20D

PROJECT ID:	60631225
INTERSECTION:	EAST WASHINGTON AVENUE & PATERSON 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	10	EXISTING												
		12	RED	ORG	GRN										
		88											BLK	BLU	
		B													WHT/BLK
EXSB2	5	11	EXISTING												
		87											RED	GRN	
		B													BLK
SB3	7	6	RED	ORG	GRN										
		86											BLK	BLU	
		B													WHT/BLK
SB4	15	2	RED	ORG	GRN										
		5				RED/BLK	ORG/BLK	GRN/BLK							
		84											BLK	BLU	
		B													WHT/BLK
		85											RED/WHT	GRN/WHT	
		B													BLK/WHT
SB5	7	3	RED	ORG	GRN										
		83											BLK	BLU	
		B													WHT/BLK
EXSB6	7	9	RED	ORG	GRN										
		13	EXISTING												
		82											RED	GRN	
		B													BLK
EXSB7	5	14	EXISTING												
		81											RED	GRN	
		B													BLK
EXSB8	5	1	EXISTING												
		90											RED	GRN	
		B													BLK
SB9	12	4				RED	ORG	GRN							
		7	RED/BLK	ORG/BLK	GRN/BLK										
		B													BLK
EXSB10	5	8	EXISTING												
		89											RED	GRN	
		B													BLK

EQUIPMENT GROUNDING CONDUCTORS 10 AWG GRN XLP	
From	TO
EXCB1	EXSB1
EXCB1	EXSB2
EXSB2	SB3
SB3	SB4
SB4	SB5
SB5	EXSB6
EXSB6	EXSB7
EXSB7	EXSB8
EXSB8	SB9
SB9	EXCB1
EXCB1	EXSB10

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

PTZ CAMERA		
HEAD	FROM	TO
PTZ1	EXCB1	SB9

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 PATERSON STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

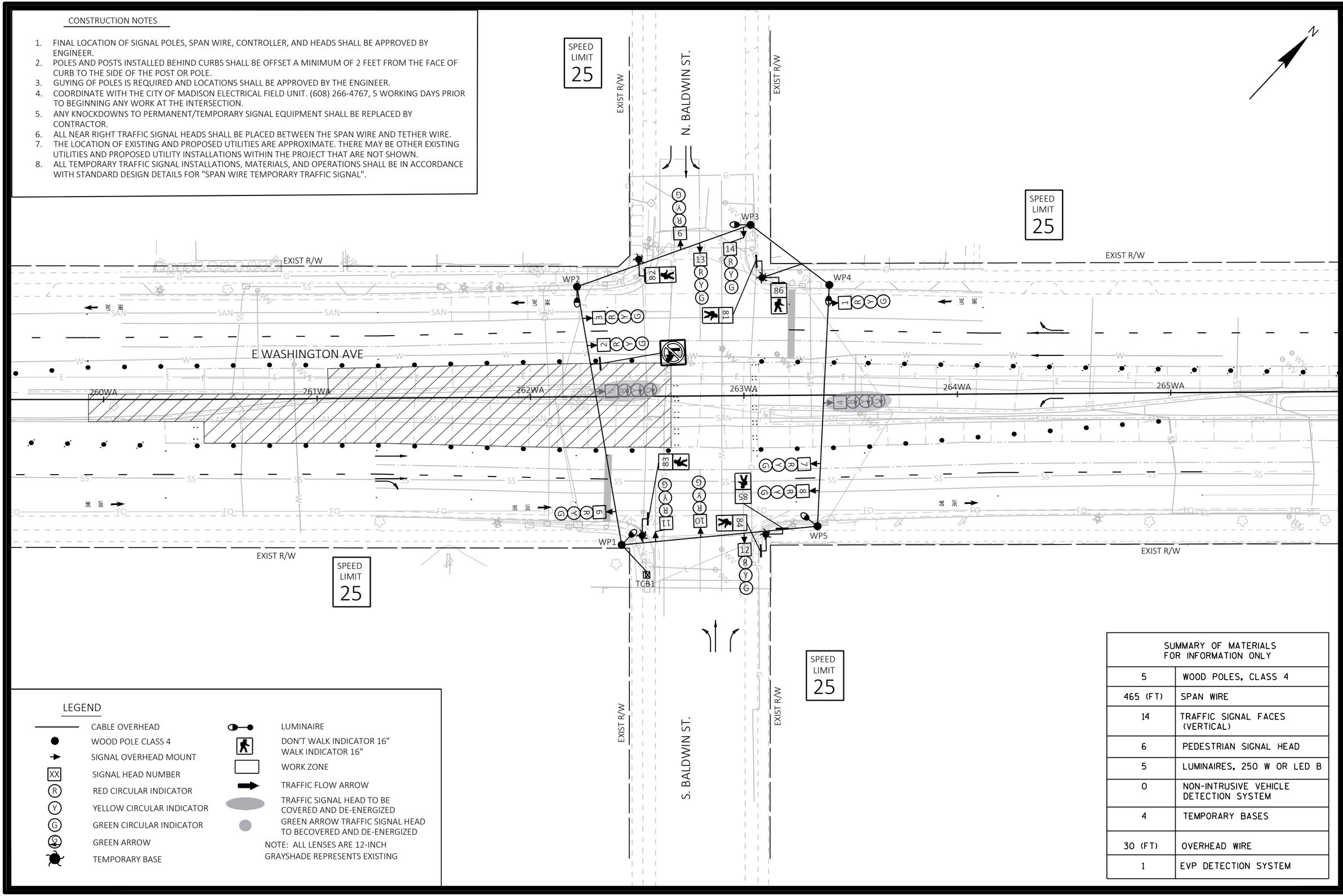
CITY OF MADISON

60631225P

S-20E

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
465 (FT)	SPAN WIRE
14	TRAFFIC SIGNAL FACES (VERTICAL)
6	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
30 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

MARK	REVISION	DATE	BY

Designed By: AECOM
Date: 2022-10-12
Scale: 1 IN:40 FT
60631225P

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT BALDWIN STREET STAGE 1 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CONTRACT NO: 60631225C

CITY OF MADISON

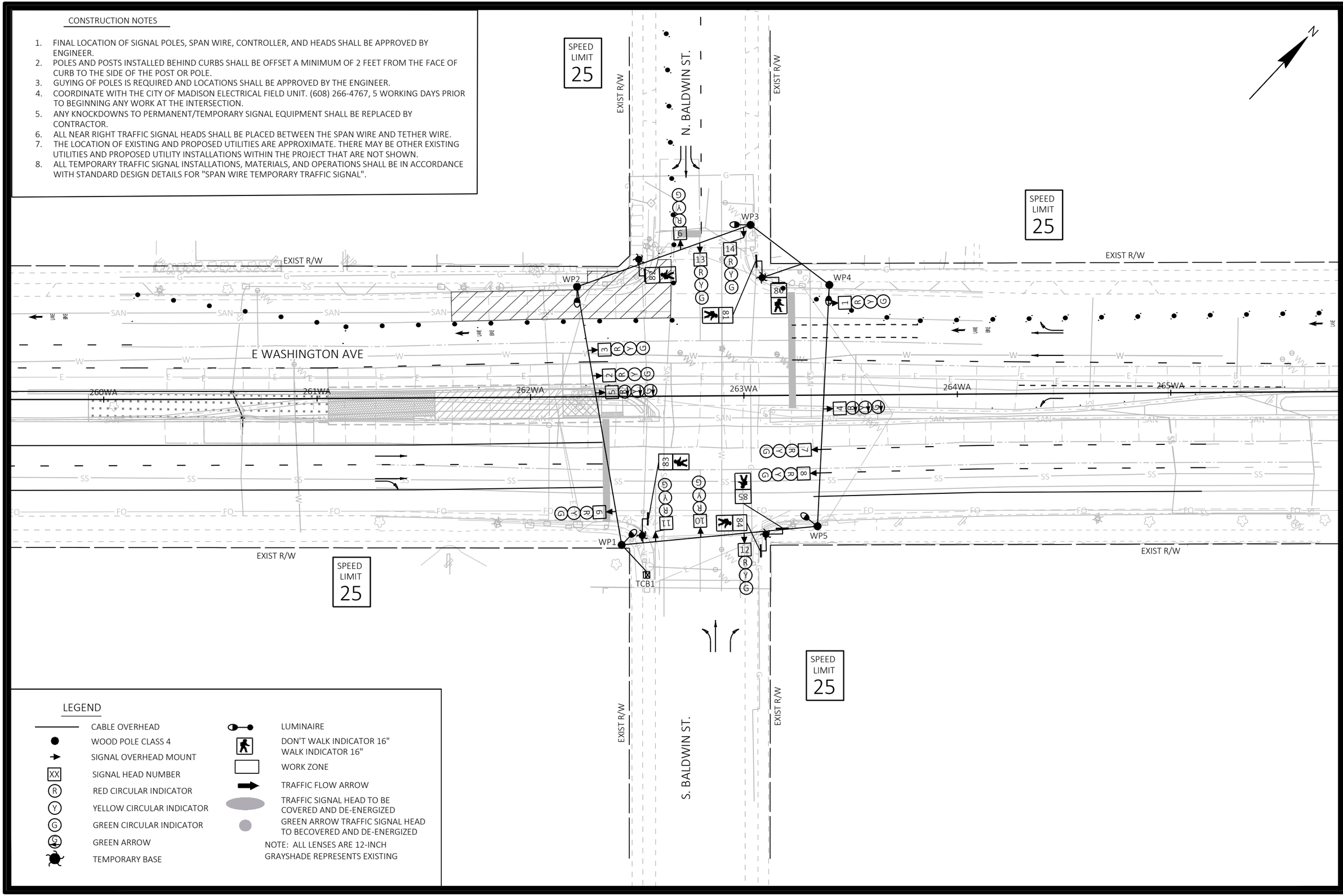
60631225P

S-21A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024204-ST.DWG
LAYOUT NAME - 024204a-st
LAST PLOT DATE - 2022-10-12

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT BALDWIN STREET STAGE 2 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

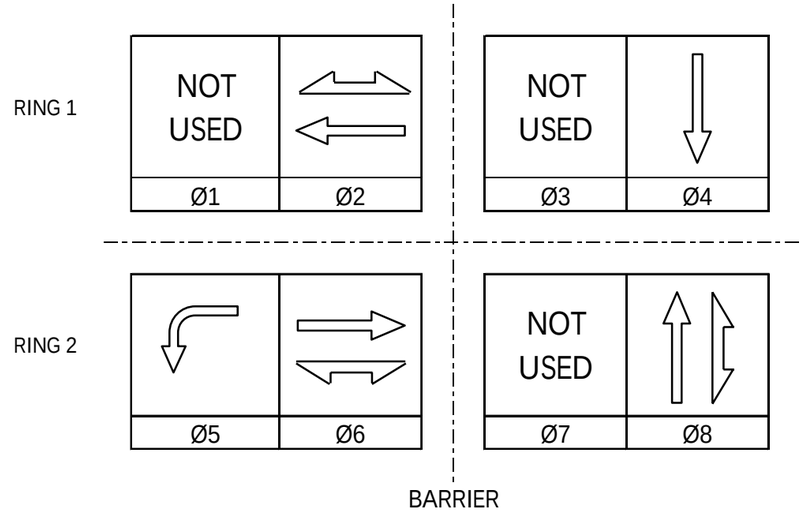
CONTRACT NO: 60631225C

60631225P

S-21B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\DD107215\024204-ST.DWG
LAYOUT NAME - 024204b-st
LAST PLOT DATE - 2022-10-12

	HEAD NUMBERS	FLASH
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	0	
Ø6P	83,84	
Ø8P	85,86	



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

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. PHASE 5 INACTIVE DURING STAGE 1.
3.
4.

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

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

East Washington Avenue and Baldwin Street
CITY OF MADISON
DANE COUNTY

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

60631225P

S-21C

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.

N. BALDWIN ST.

S. BALDWIN ST.

E WASHINGTON AVE

EXIST R/W

SPEED LIMIT 25

SALVAGE AND REINSTALL EVP DETECTOR

INSTALL CONDUIT INTO EXISTING ITEM (2)

INSTALL CONDUIT INTO EXISTING ITEM

INSTALL CONDUIT INTO EXISTING ITEM (2)

INSTALL CONDUIT INTO EXISTING ITEM

SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA
SALVAGE AND REINSTALL EVP DETECTOR

260WA 261WA 262WA 263WA 264WA 265WA

260 261 262 263 264 265

PB4 PB5 PB6 PB9 PB12

SB2 SB3 SB4 SB8

EXPB1 EXPB2 EXPB3 EXPB7 EXPB8 EXPB10 EXPB11 EXPB13

EXSB1 EXSB6 EXSB7 EXSB9 EXSB10

EXCB1

PTZ1

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: STRAN	Date: 2022-10-20	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT BALDWIN STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

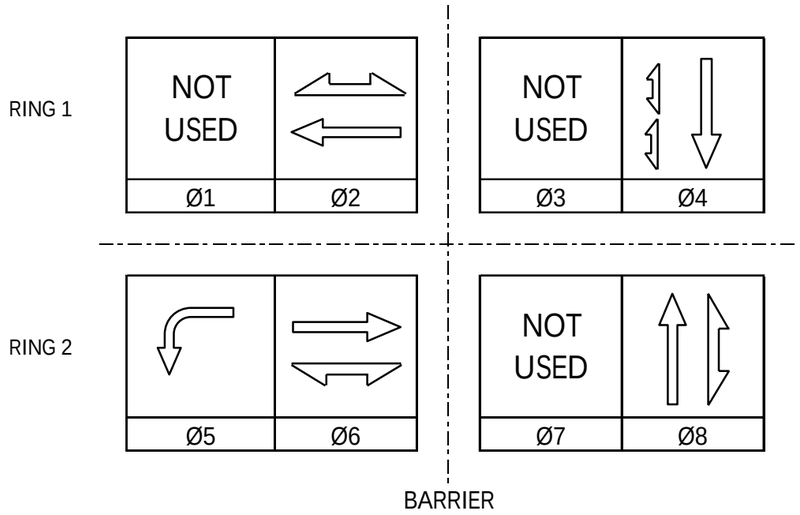
60631225P

S-21D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024204-SP.DWG
LAYOUT NAME - 024204-sp

LAST PLOT DATE - 2022-10-20

	HEAD NUMBERS	FLASH
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	



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		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	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	21	23	25	27	41	51	61	63	65	67	69	82	84			
CALLED PHASE	2	2	2	2	4	5	6	6	6	6		8	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	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	22	24	26	28	42	52	62	64	66	68	81	83				
CALLED PHASE	2	2	2		4	5	6	6	6	6	8	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 Baldwin 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: E WASHINGTON AVENUE AT BALDWIN STREET
BUS RAPID TRANSIT
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

60631225P

S-21E

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

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.

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

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT BALDWIN STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

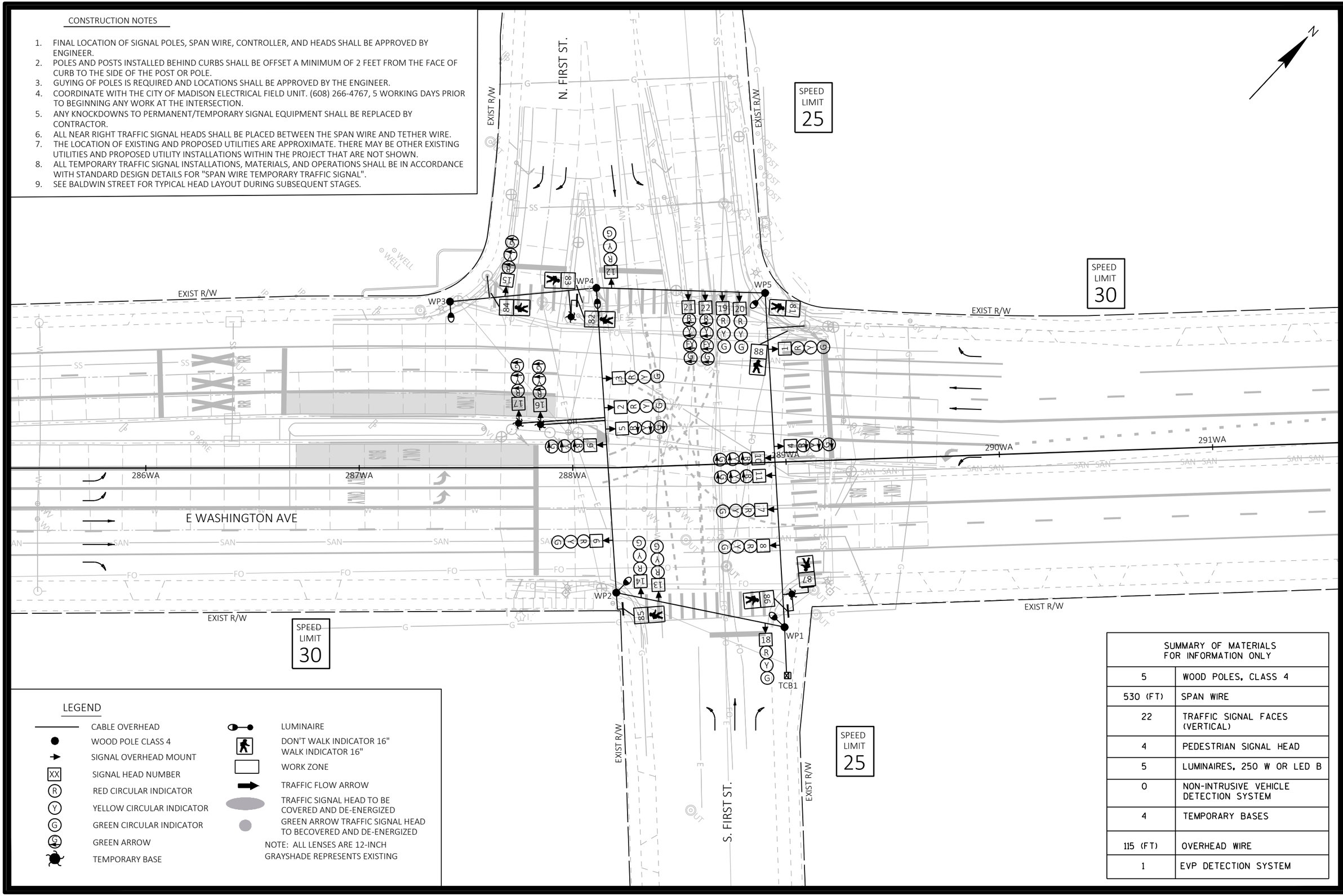
CITY OF MADISON

60631225P

S-21F

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
530 (FT)	SPAN WIRE
22	TRAFFIC SIGNAL FACES (VERTICAL)
4	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
115 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVENUE AT FIRST STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

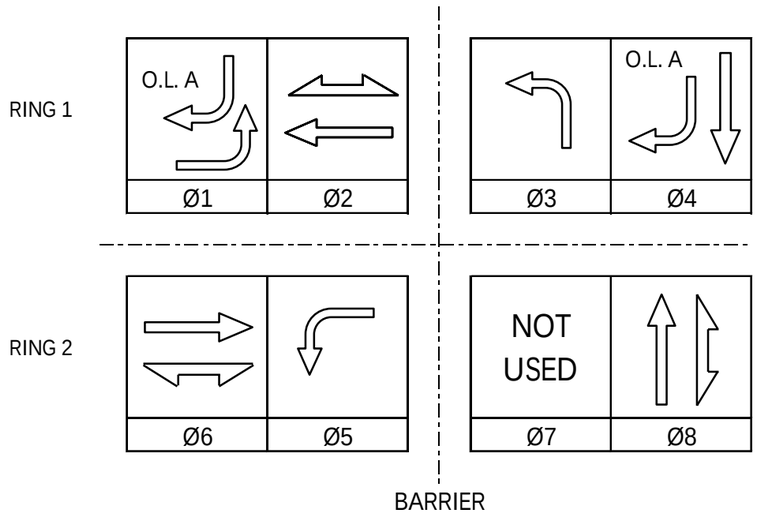
CITY OF MADISON

60631225P

S-22A

FILE NAME: C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D01072\5\024205-ST.DWG
LAYOUT NAME - 024205-st
LAST PLOT DATE - 2022-10-19

	HEAD NUMBERS	FLASH
Ø1	9,10,11	R
Ø2	1,2,3	R
Ø3	21,22	R
Ø4	12,13,14,15,16,17	R
Ø5	4,5	R
Ø6	6,7,8	R
Ø7		
Ø8	18,19,20	R
Ø2P	81,82,83,84	
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+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)								
CALLED PHASE								
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)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	35	33	39	37	43	41	47	45
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								

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

DETECTOR INPUT	36	34	40	38	44	42	48	46
PLAN LOOP DETECTOR*(S)								
CALLED PHASE								
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
3.
4.

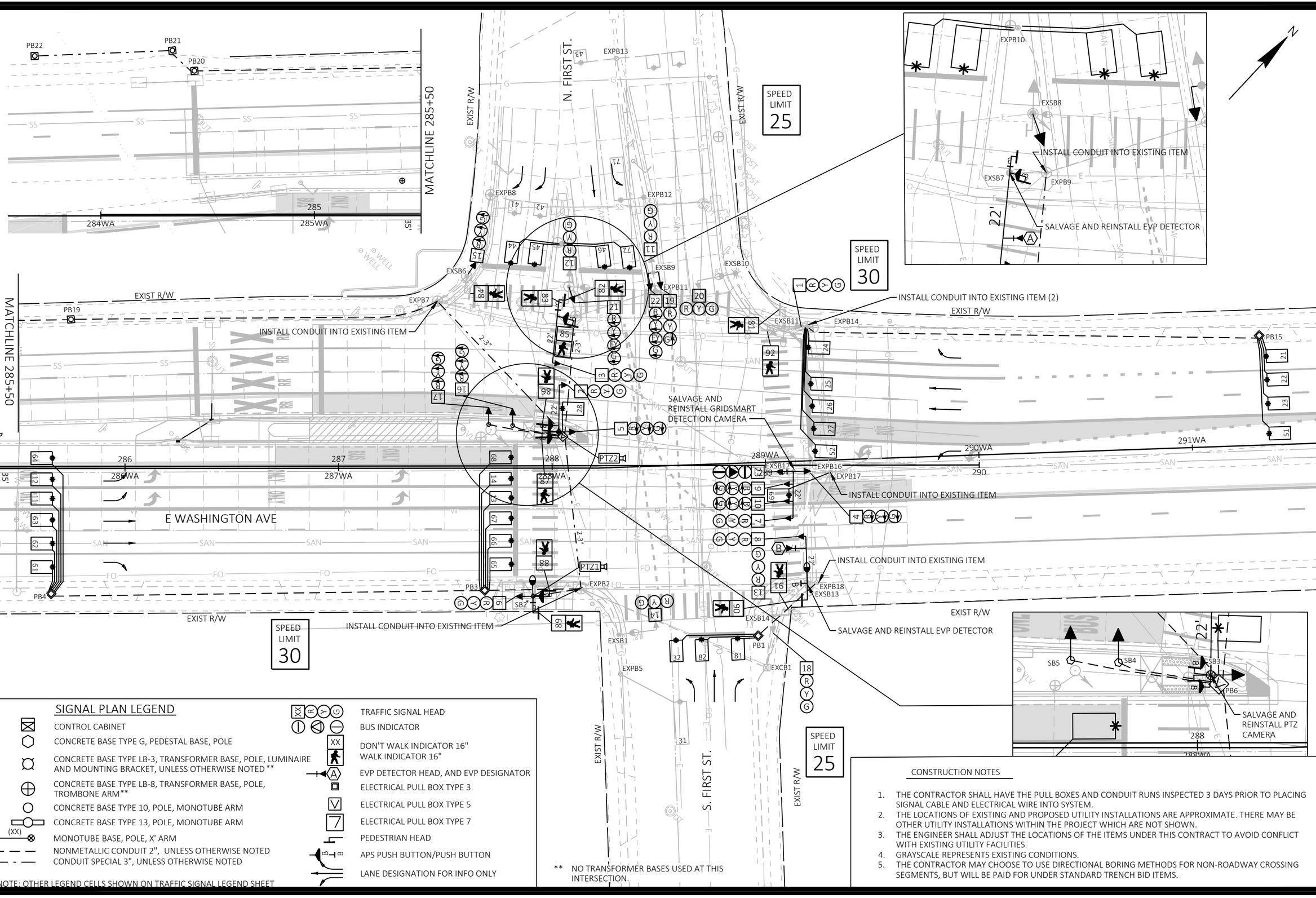
East Washington Avenue and First Street
CITY OF MADISON
DANE COUNTY

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

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

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

60631225P
S-22B



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

** 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.

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

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

SIGNAL PLAN: E WASHINGTON AVENUE AT FIRST STREET

BUS RAPID TRANSIT

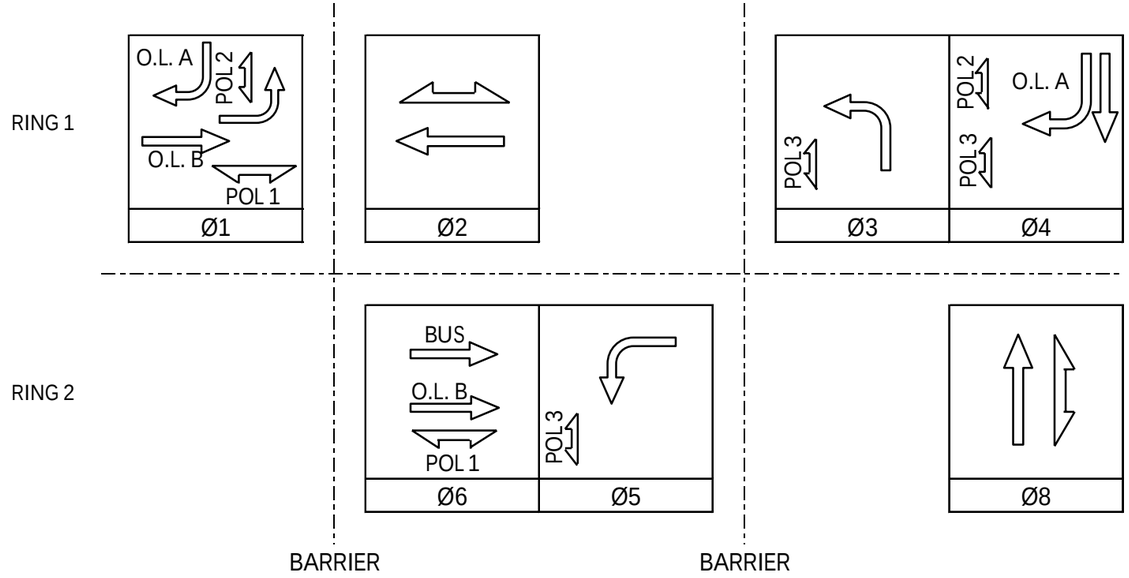
CITY OF MADISON

60631225P

S-22C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072115\024205-SP.DWG
LAYOUT NAME - 024205-sp
LAST PLOT DATE - 2022-10-20

	HEAD NUMBERS	FLASH
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	



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	13	21	23	25	27	31	41
CALLED PHASE	1	1	2	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	

	35	33	39	37	43	41	47	45
	72	82						
	4	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	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	12	14	22	24	26	28	32	42
CALLED PHASE	1	1	2	2	2		3	4
CALL OPTION								
DELAY TIME								
EXTENSION OPTION								
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

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

	36	34	40	38	44	42	48	46
	81							
	8							

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 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

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

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

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												PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	" - "	" Δ "	" | "	D/WALK	WALK		
EXSB1	EXISTING	14	EXISTING													
SB2	12	6	RED	ORG	GRN											
		88											BLK	BLU		
		B													WHT/BLK	
		89											BLU/BLK	BLK/WHT		
		B													GRN/BLK	
SB3	15	2	RED	ORG	GRN											
		5				RED/BLK	ORG/BLK	GRN/BLK								
		86											BLK	BLU		
		B													WHT/BLK	
		87											RED/WHT	GRN/WHT		
		B													BLK/WHT	
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											
		82											BLK	BLU		
		B													WHT/BLK	
		85											BLU/BLK	BLK/WHT		
		B													GRN/BLK	
EXSB8	5	12	EXISTING													
		21				RED	ORG	GRN	BLU							
		83	EXISTING													
		B	EXISTING													
EXSB9	12	11	EXISTING													
		19	RED	ORG				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				
		B													WHT/BLK	
EXSB13	7	8	RED	ORG	GRN											
		90											BLK	BLU		
		B													WHT/BLK	
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.
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
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

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

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT FIRST STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-22E

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.

N. FOURTH ST.

S. FOURTH ST.

E WASHINGTON AVE

EXIST R/W

SPEED LIMIT 25

SPEED LIMIT 30

WP1 WP2 WP3 WP4 WP5

TCB1

306WA 307WA 308WA 309WA 310WA 311WA

LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
405 (FT)	SPAN WIRE
14	TRAFFIC SIGNAL FACES (VERTICAL)
2	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
2	TEMPORARY BASES
25 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVENUE AT FOURTH STREET 60631225P

BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI

CITY OF MADISON

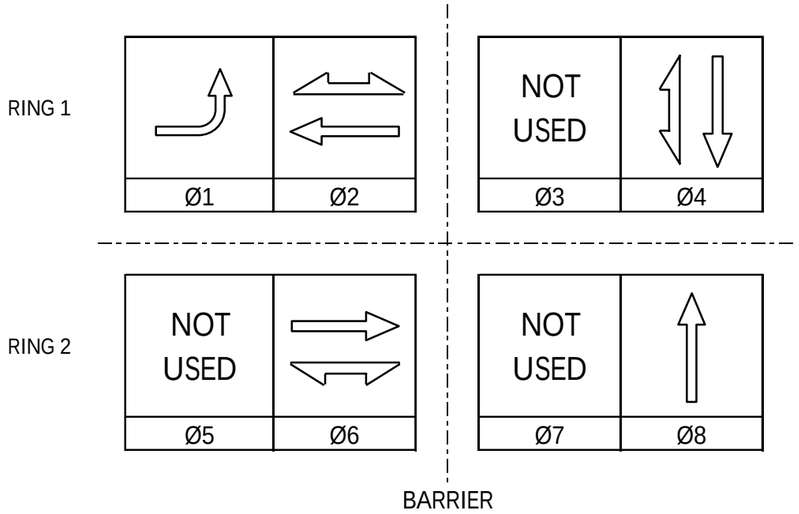
CONTRACT NO: 60631225C

60631225P

S-23A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072151\024206-ST.DWG
LAYOUT NAME - 024206-st
LAST PLOT DATE - 2022-10-12

	HEAD NUMBERS	FLASH
Ø1	7,8	R ←
Ø2	1,2,3	R
Ø3		
Ø4	9,10,11	R
Ø5		
Ø6	4,5,6	R
Ø7		
Ø8	12,13,14	R
Ø2P	81,82	
Ø4P	83,84	
Ø6P	85,86	
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+6	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				
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)								
PHASE CALLED								
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)
								PHASE CALLED
								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)								
PHASE CALLED								
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)
								PHASE CALLED
								CALL OPTION
								DELAY TIME
								EXTENSION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
3.
4.

East Washington Avenue and Fourth 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: 10/17/2022	Scale: NTS	DATE	BY

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

60631225P
S-23B

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.

N. FOURTH ST.

EXIST R/W

SPEED LIMIT 25

SPEED LIMIT 30

EXPB8 41 EXPB7 42 EXSB6 EXSB5 EXPB6 EXSB7 EXSB8 EXPB9 PB10

INSTALL CONDUIT INTO EXISTING ITEM (2)

INSTALL CONDUIT INTO EXISTING ITEM

INSTALL CONDUIT INTO EXISTING ITEM (3)

306WA 307WA 308WA 309WA 310WA 311WA

EXPB5 SB4 PTZ1 EXPB3 EXSB3 EXSB2 EXPB2 EXSB10 EXSB1 PB1 EXCB1 PB4

E WASHINGTON AVE

307 308 309 310 311

S. FOURTH ST.

SPEED LIMIT 25

SPEED LIMIT 30

INSTALL CONDUIT INTO EXISTING ITEM (2)

309WA PB11 SB9 25'

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: 2022-10-17	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT FOURTH STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

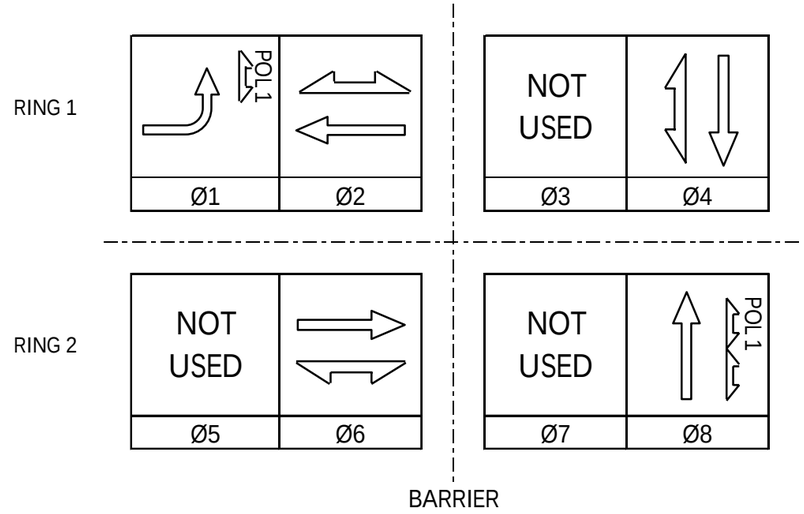
CITY OF MADISON

60631225P

S-23C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024206-SP.DWG
LAYOUT NAME - 024206-sp
LAST PLOT DATE - 2022-10-17

	HEAD NUMBERS	FLASH
Ø1	7,8	R ←
Ø2	1,2,3	R
Ø3		
Ø4	9,10,11	R
Ø5		
Ø6	4,5,6	R
Ø7		
Ø8	12,13,14	R
Ø2P	81,82	
Ø4P	83,84	
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+6	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				
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	27	29	42	62
PHASE CALLED	1	2	2	2	2		4	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
64	66	68	82					PLAN LOOP DETECTOR*(S)
6	6		8					PHASE CALLED
								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	28	41	61	63
PHASE CALLED	1	2	2	2	2	4	6	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
65	67	81						PLAN LOOP DETECTOR*(S)
6	6	8						PHASE CALLED
								CALL OPTION
								DELAY TIME
								EXTENSION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

GENERAL NOTES:

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

East Washington Avenue and Fourth Street
CITY OF MADISON
DANE COUNTY

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

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

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

60631225P
S-23D

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
60631225P
Date: 10/20/2022
Scale: NTS

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT FOURTH STREET

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-23E

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
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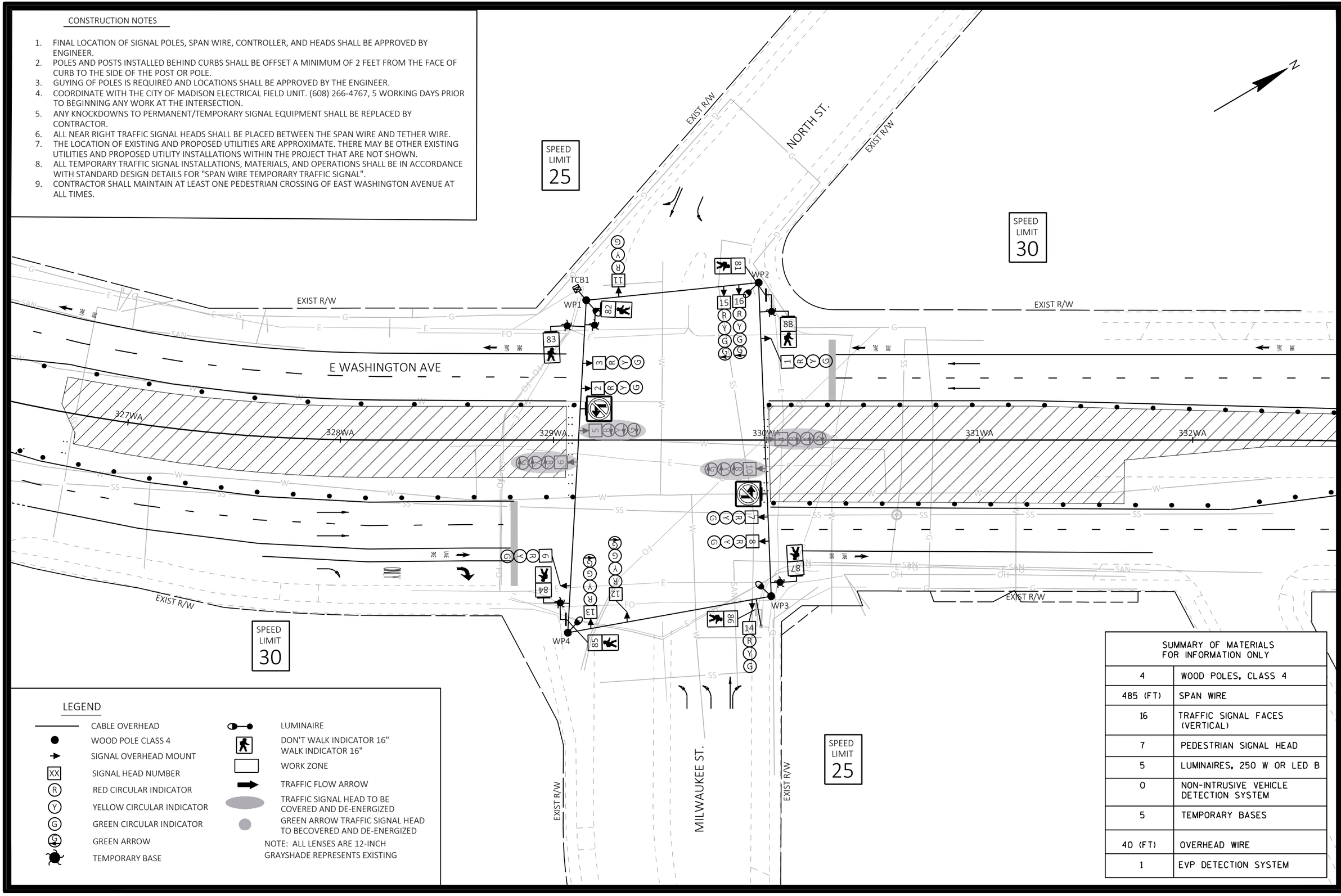

LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
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NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
485 (FT)	SPAN WIRE
16	TRAFFIC SIGNAL FACES (VERTICAL)
7	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
5	TEMPORARY BASES
40 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 1 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-24A

FILE NAME: C:\PW\WORKING\AECOM_D520_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207a-st
LAST PLOT DATE - 2022-10-12

CONSTRUCTION NOTES

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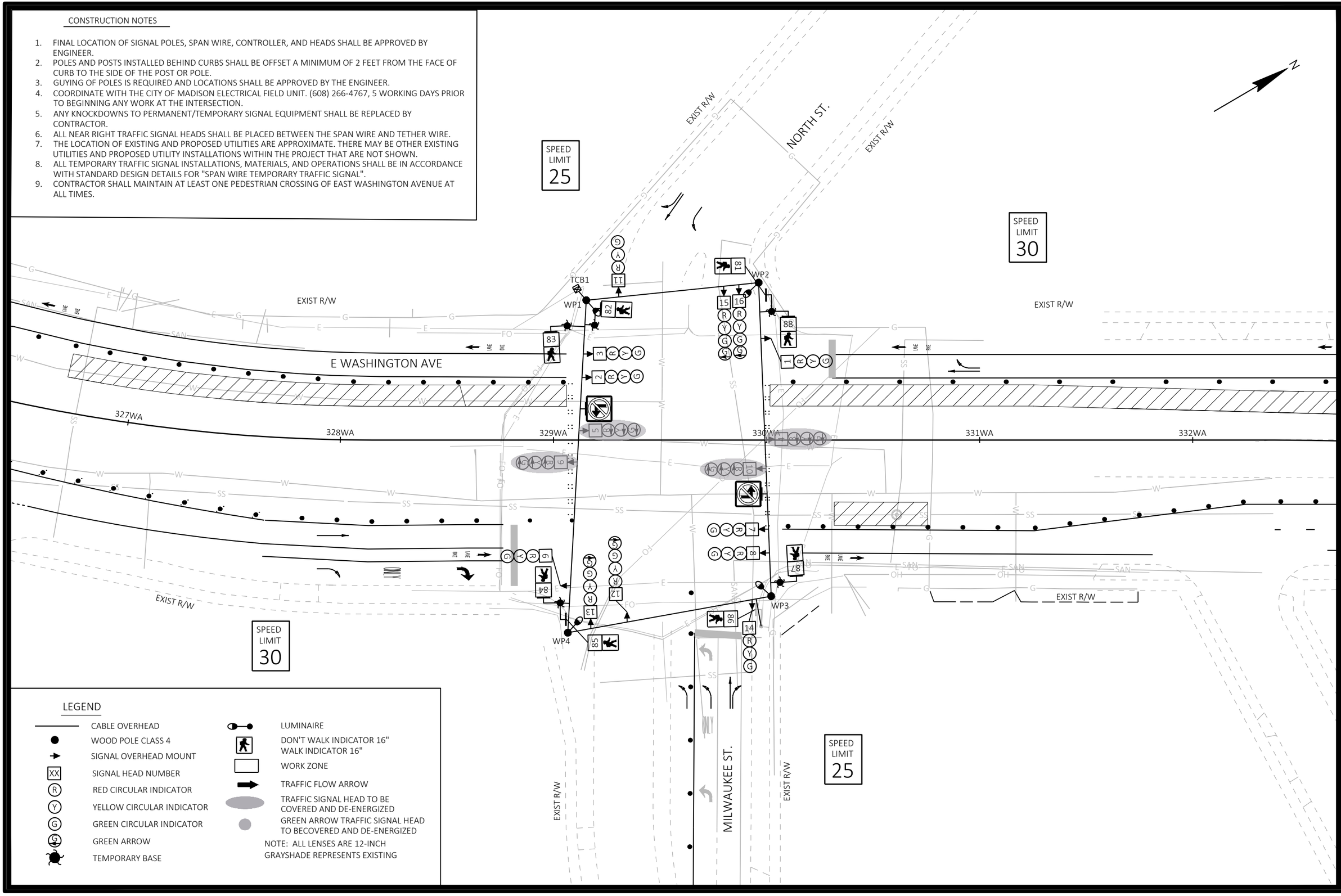

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GRAYSHADE REPRESENTS EXISTING

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 2 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON WISCONSIN

60631225P

S-24B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207b-st
LAST PLOT DATE - 2022-10-12

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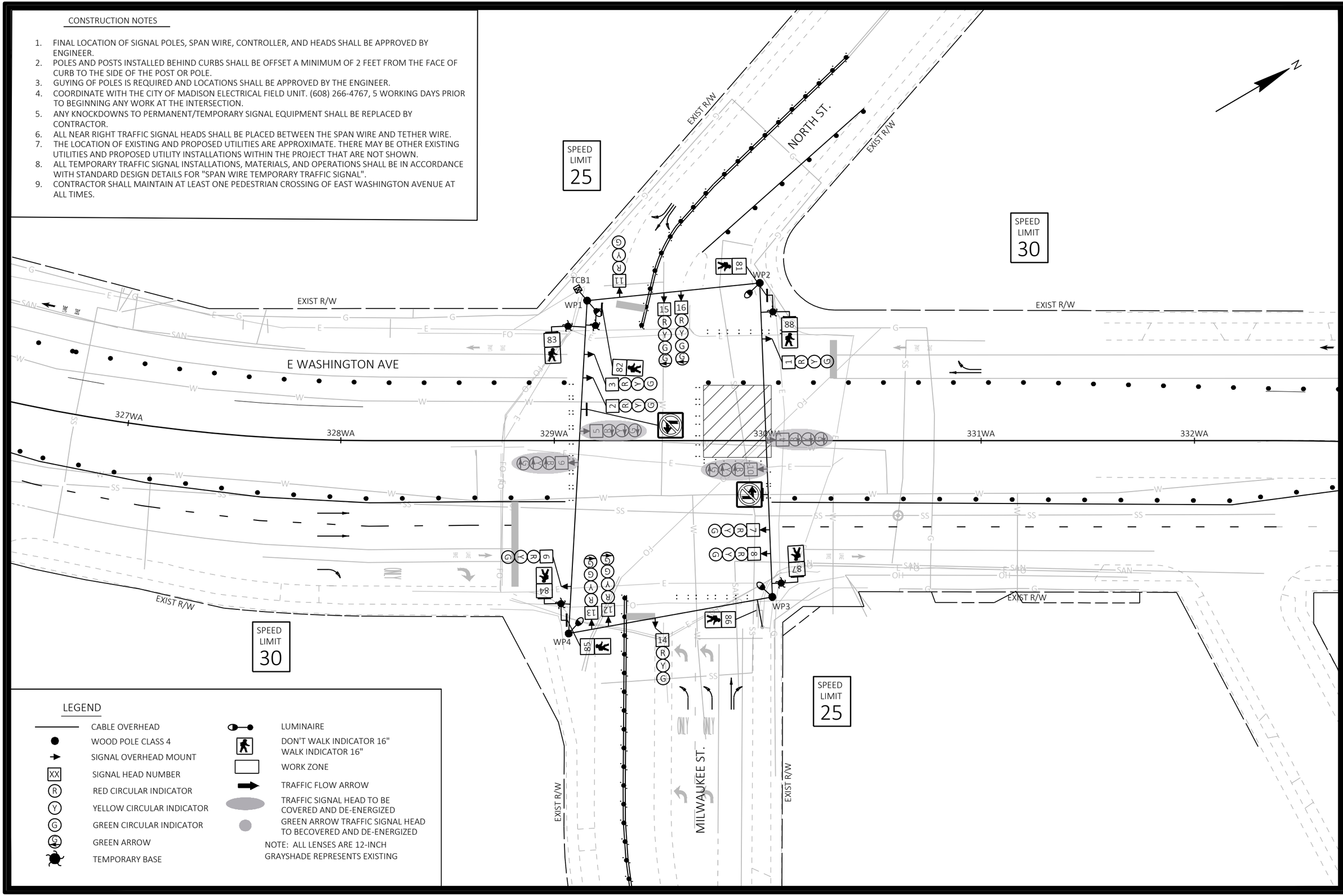

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MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-12	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 2A 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-24C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207c-st
LAST PLOT DATE - 2022-10-12

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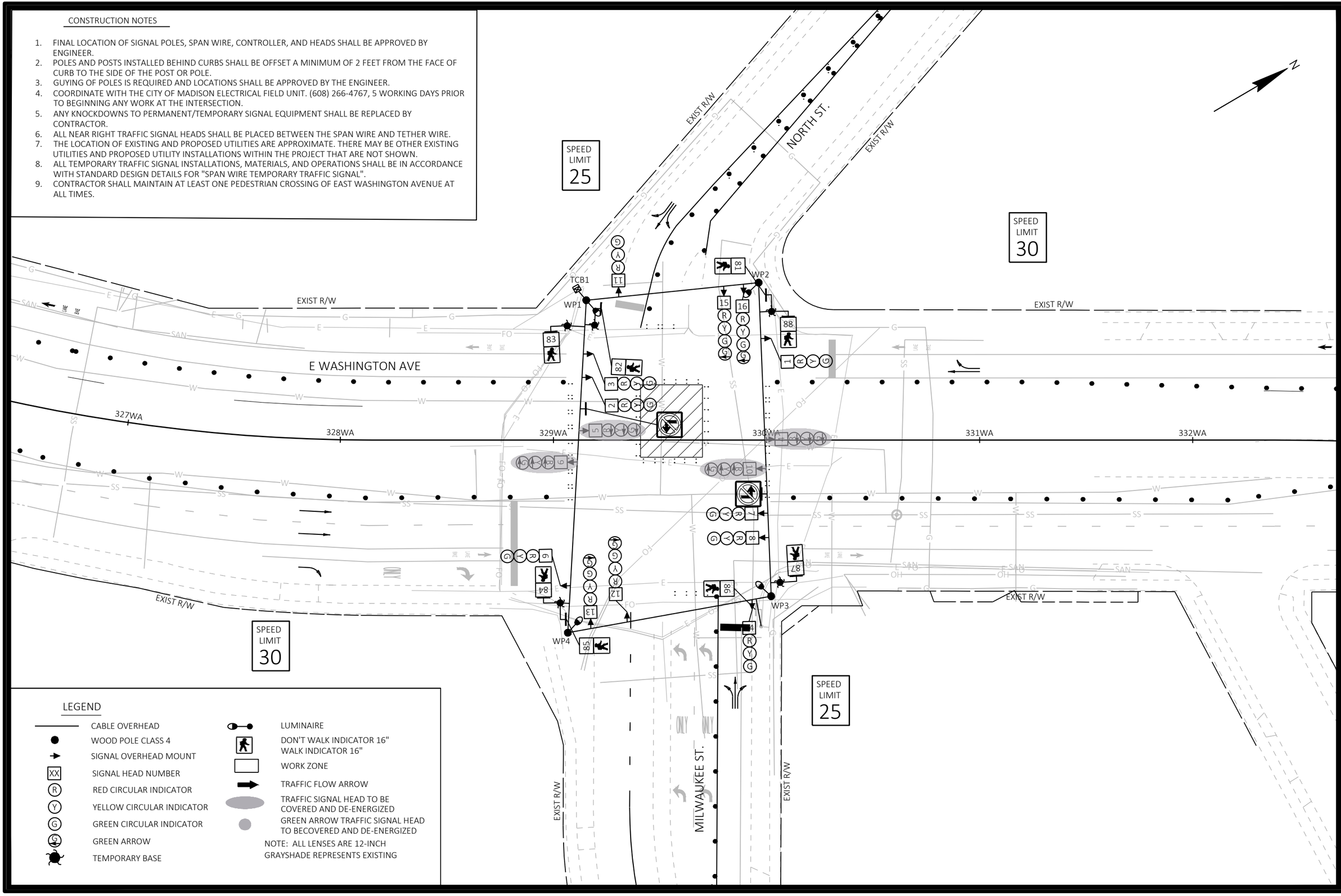

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MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-12	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 2B 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-24D

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207d-st
LAST PLOT DATE - 2022-10-12

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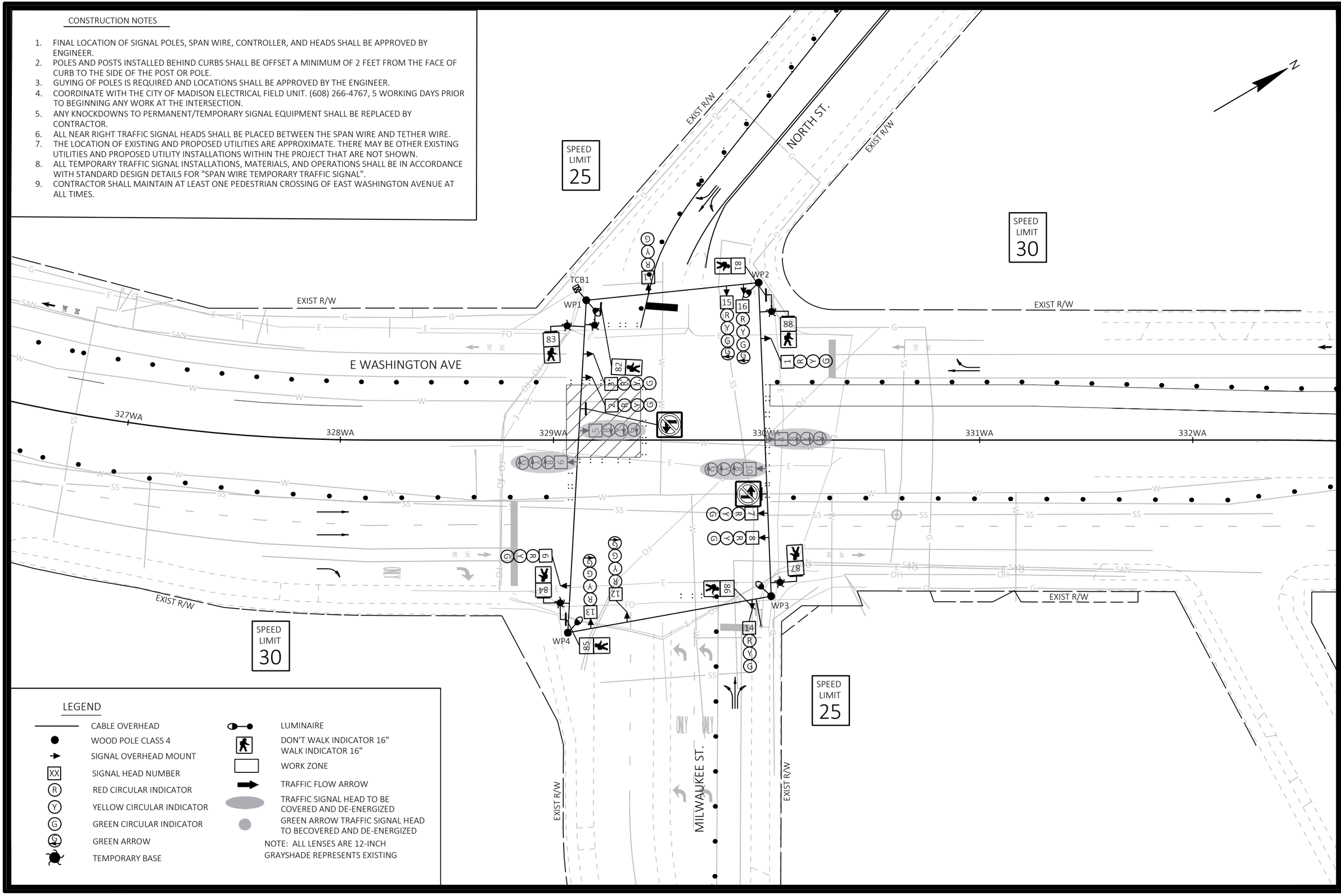

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Designed By: AECOM 60631225P	Date: 2022-10-12	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 2C 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

CONTRACT NO: 60631225C

60631225P

S-24E

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072I5\024207-ST.DWG
LAYOUT NAME - 024207e-st
LAST PLOT DATE - 2022-10-12

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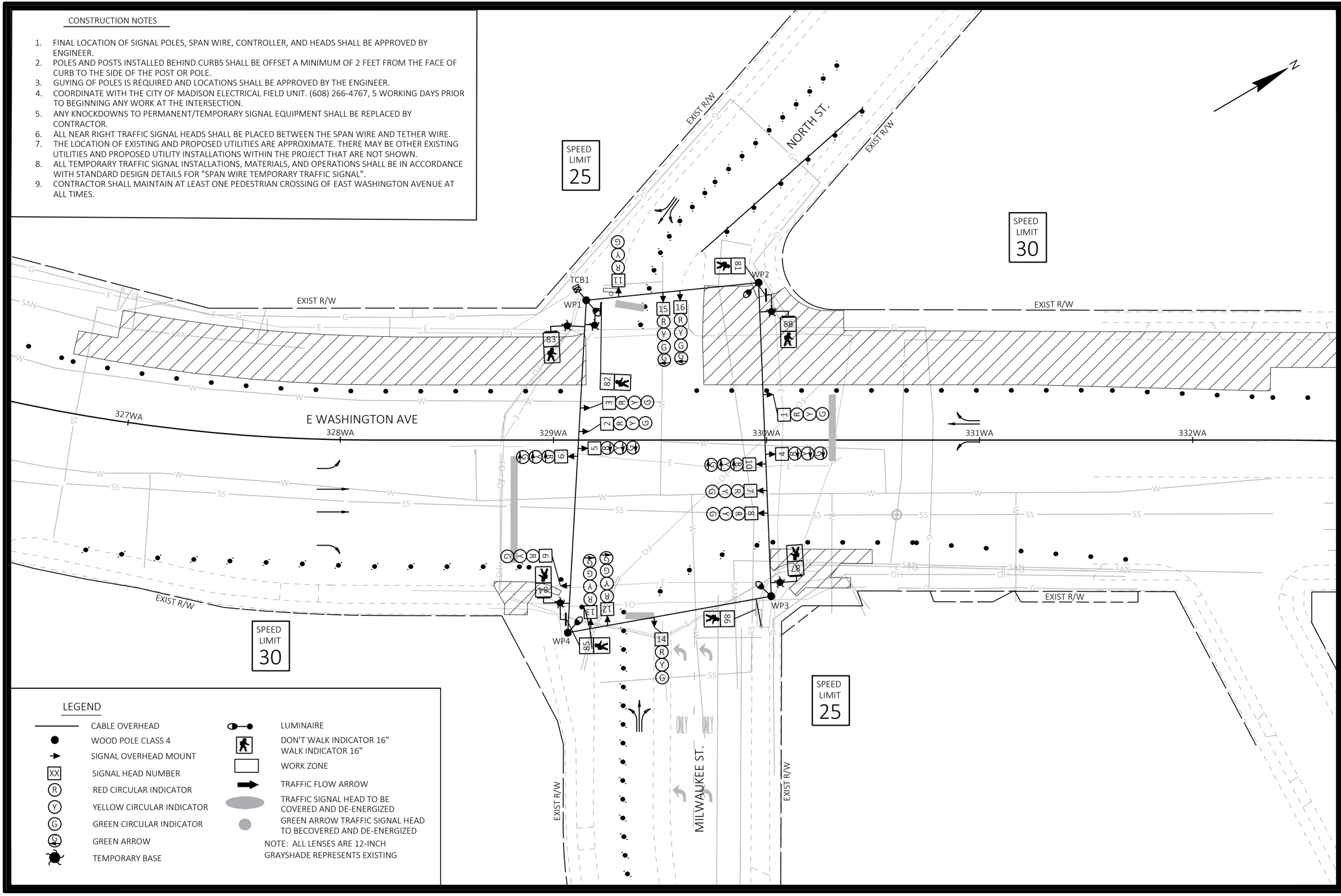

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MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-12	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 3 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

S-24F

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207f-st
LAST PLOT DATE - 2022-10-12

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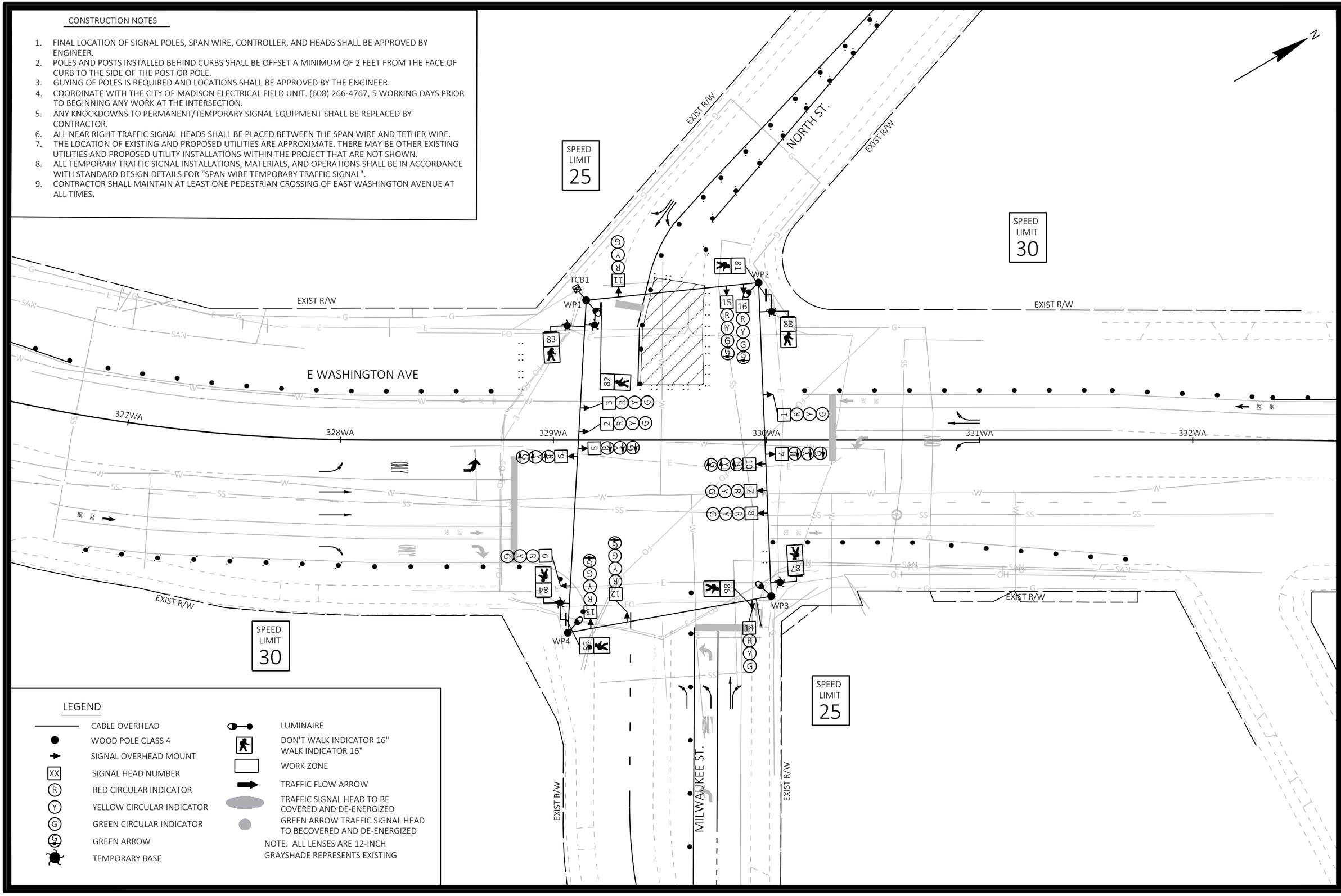

MARK	REVISION	DATE	BY
Designed By: AECOM 60631225P	Date: 2022-10-12	Scale: 1 IN:40 FT	

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 3A 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON WISCONSIN

60631225P

S-24G

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072I5\024207-ST.DWG
LAYOUT NAME - 024207g-st
LAST PLOT DATE - 2022-10-12

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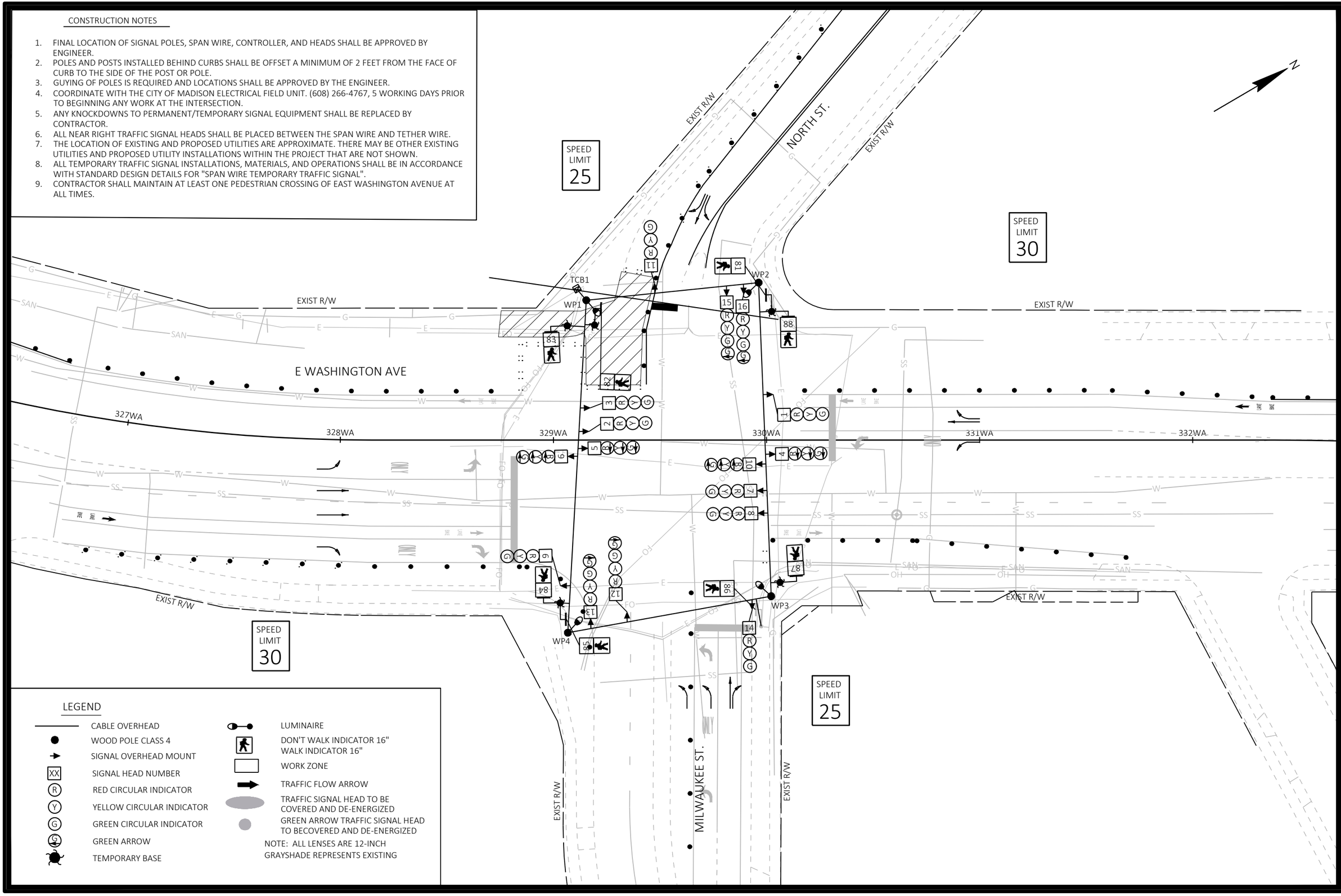

LEGEND

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET STAGE 3B 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

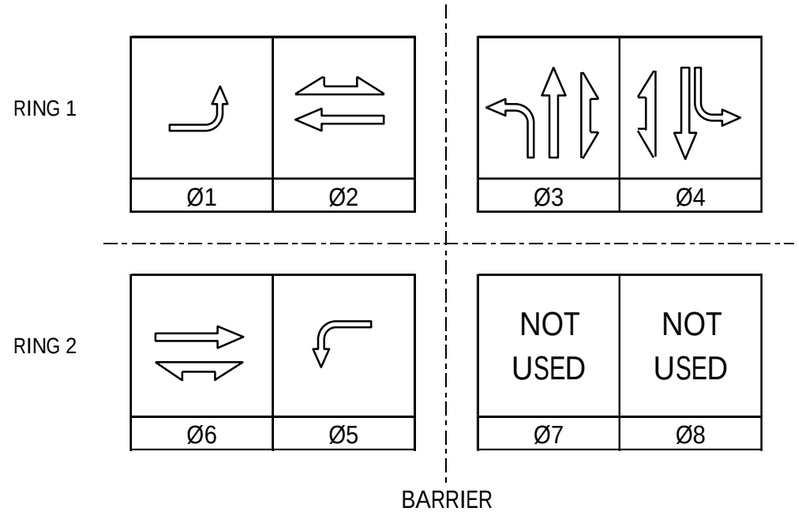
CITY OF MADISON

60631225P

S-24H

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024207-ST.DWG
LAYOUT NAME - 024207h-st
LAST PLOT DATE - 2022-10-12

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. PHASE 1 AND PHASE 5 ARE INACTIVE DURING STAGE 1, STAGE 2, STAGE 2A, STAGE 2B, AND STAGE 2C.
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 | Designed By: STRAND 60631225P | REVISION | Date: 10/17/2022 | Scale: NTS | DATE | BY

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

60631225P
S-24I

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.

E WASHINGTON AVE

NORTH ST.

MILWAUKEE ST.

MATCHLINE 327+00

MATCHLINE 332+50

EXIST R/W

SPEED LIMIT 25

SPEED LIMIT 30

SPEED LIMIT 30

SPEED LIMIT 25

INSTALL CONDUIT INTO EXISTING ITEM

SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA

SALVAGE AND REINSTALL EVP DETECTOR

INSTALL CONDUIT INTO EXISTING ITEM (3)

SALVAGE AND REINSTALL EVP DETECTOR

SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA

INSTALL CONDUIT INTO EXISTING ITEM

2-3"

22'

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: STRAN	Date: 2022-10-12	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT MILWAUKEE STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

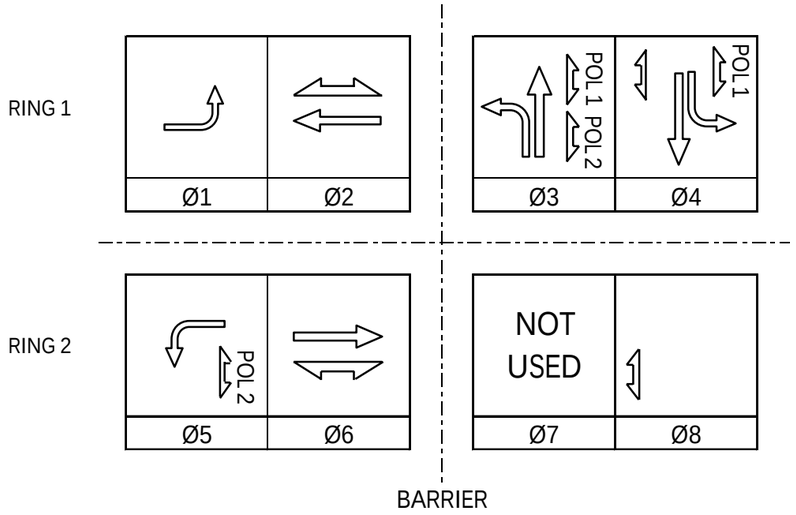
CITY OF MADISON

60631225P

S-24J

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072115\024207-SP.DWG
LAYOUT NAME - 024207-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
CONTRACT NO: 60631225C
CITY OF MADISON

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											
		83											BLK	BLU		
		B													WHT/BLK	

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

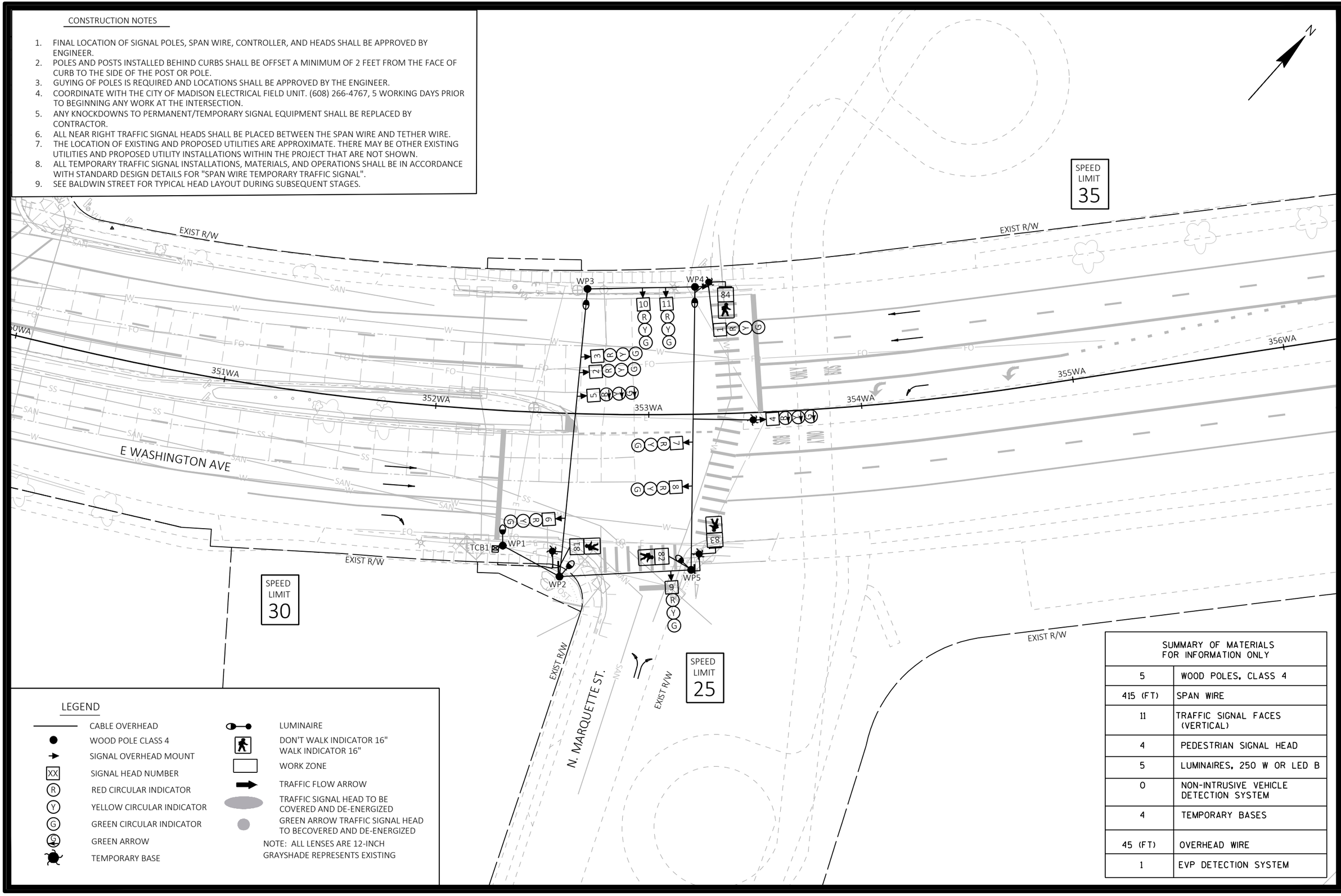
CITY OF MADISON

60631225P

S-24L

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
415 (FT)	SPAN WIRE
11	TRAFFIC SIGNAL FACES (VERTICAL)
4	PEDESTRIAN SIGNAL HEAD
5	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
45 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

MARK	REVISION	DATE	BY

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

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

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CITY OF MADISON

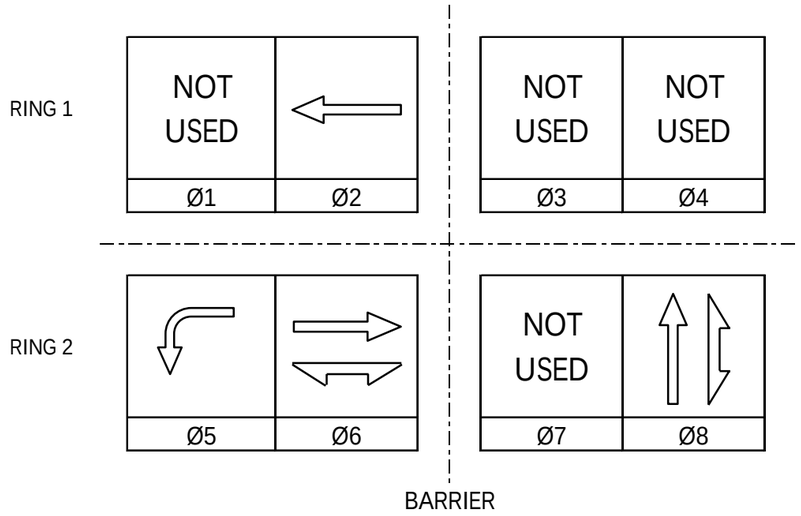
CONTRACT NO: 60631225C

60631225P

S-25A

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024208-ST.DWG
LAYOUT NAME - 024208-st
LAST PLOT DATE - 2022-10-12

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



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

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
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 | Designed By: STRAND 60631225P | REVISION | Date: 10/17/2022 | Scale: NTS | DATE | BY

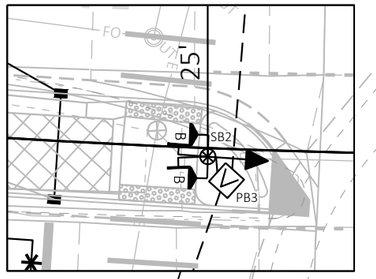
TEMP SEQ OF OPERATION: E WASHINGTON AVENUE AT MARQUETTE STREET 60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C
CITY OF MADISON

60631225P

S-25B

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.



INSTALL CONDUIT INTO EXISTING ITEM

SALVAGE AND REINSTALL GRIDSMART DETECTION CAMERA
SALVAGE AND REINSTALL EVP DETECTOR

INSTALL CONDUIT INTO EXISTING ITEM (2)

INSTALL CONDUIT INTO EXISTING ITEM (2)

SPEED LIMIT 35

SPEED LIMIT 30

SPEED LIMIT 25

EXIST R/W

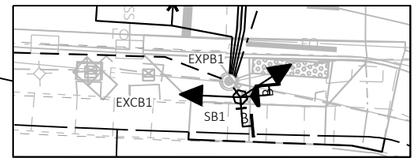
E WASHINGTON AVE

N. MARQUETTE ST.

EXPB4 EXSB4 EXPB5 EXSB5 EXPB6 SB6 EXPB7 EXPB8 PTZ1 SB3 EXSB7 EXSB8 EXPB10 EXPB11 EXPB12 PB2 PB9

351WA 352WA 353WA 354WA 355WA 356WA

351 352 353 354



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

** 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

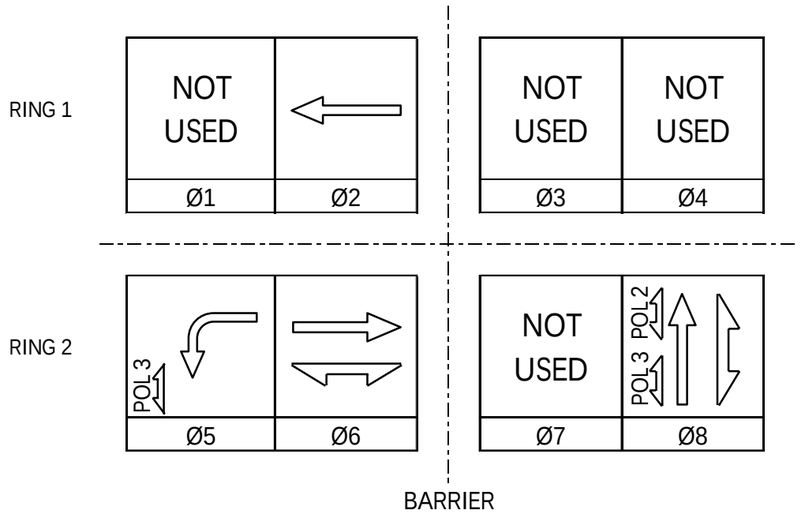
CITY OF MADISON

60631225P

S-25C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D01072115\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	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	21	23	25	27	52	62	64	66	68	82							PLAN LOOP DETECTOR*(S)
CALLED PHASE	2	2	2	2	5	6	6	6	6	8							CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	22	24	26	51	61	63	65	67	81								PLAN LOOP DETECTOR*(S)
CALLED PHASE	2	2	2	5	6	6	6	6	8								CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	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	Designed By: STRAND 60631225P	REVISION Date: 10/24/2022	Scale: NTS	DATE	BY

SEQUENCE OF OPERATION: E WASHINGTON AVENUE AT MARQUETTE STREET 60631225P
BUS RAPID TRANSIT
CITY OF MADISON, DANE COUNTY, WI
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											
		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

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.

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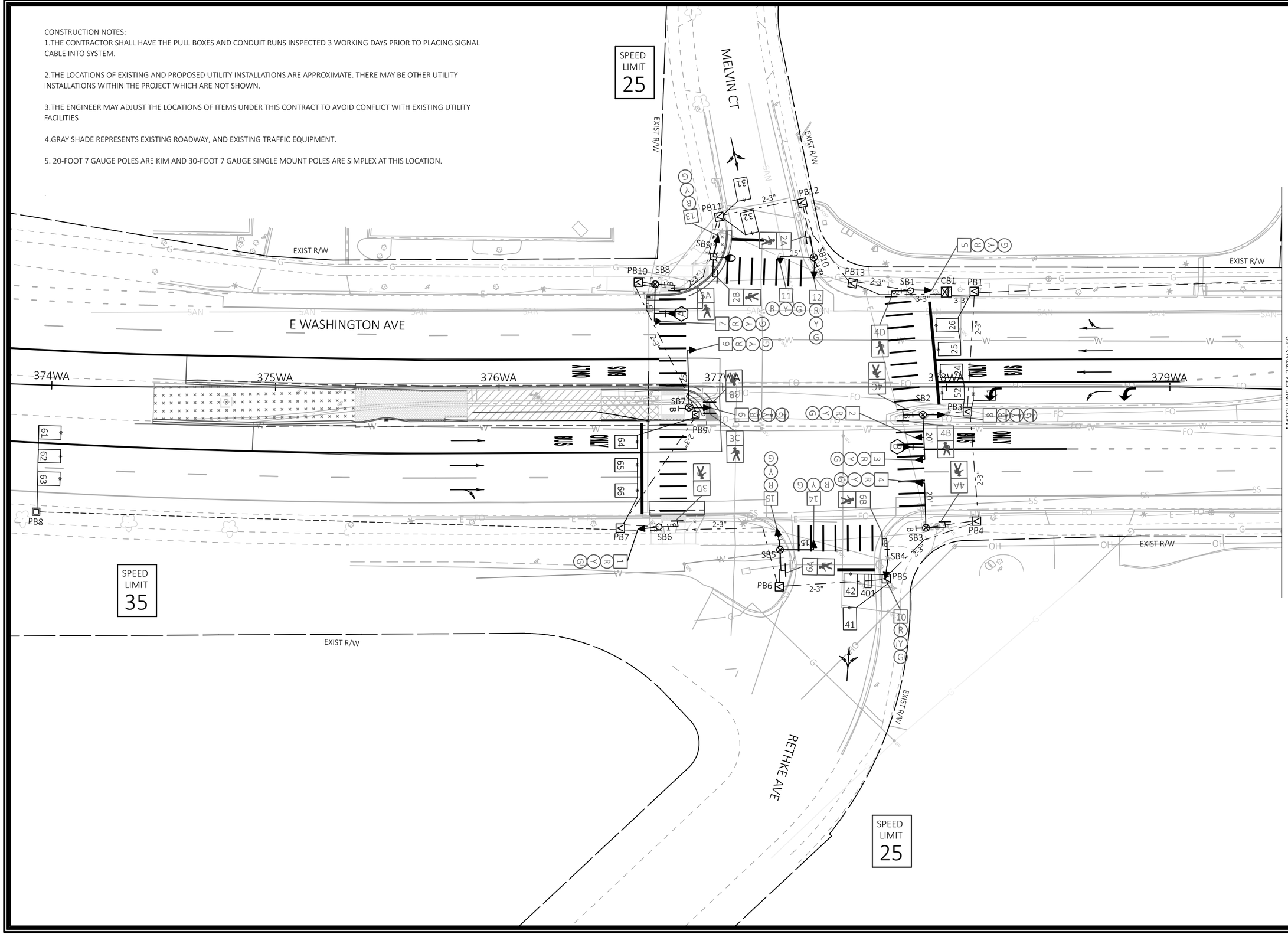


MARK	REVISION	DATE	BY
Designed By:TSI	Date: 2022-09-27	Scale: 1:40_XREF	
60631225P			

60631225P

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

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

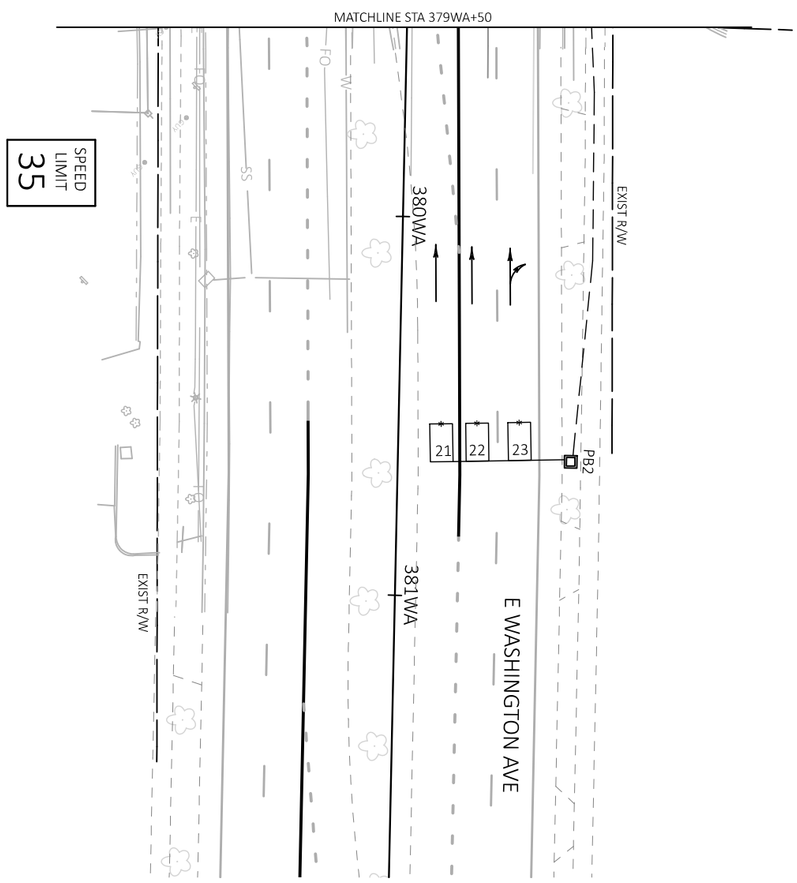
CONTRACT NO:60631225C

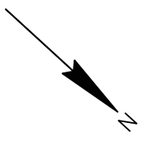
CITY OF MADISON

60631225P

S-26A

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: 10/17/2022





S-26B | 60631225P

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

BUS RAPID TRANSIT — CITY OF MADISON, DANE COUNTY, WI

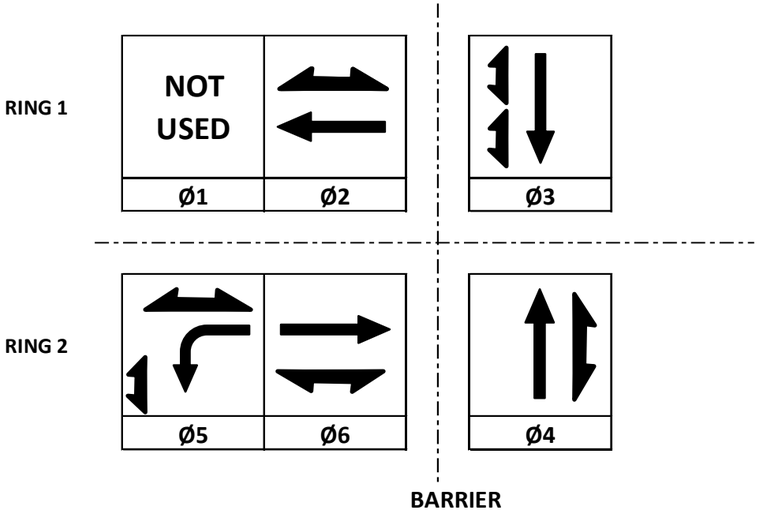
CITY OF MADISON — CONTRACT NO:60631225C

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-	

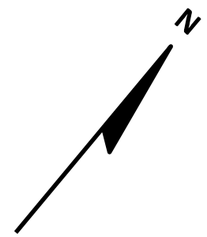
TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

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	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)	21	23	25	31	41	401	51	61	63	65						
CALLED PHASE	2	2	2	3	4	4	5	6	6	6						
CALL OPTION	2	2	2	3	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	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)	22	24	26	32	42		52	62	64	66						
CALLED PHASE	2	2	2	3	4		5	6	6	6						
CALL OPTION	2	2	2	3	4		5	6	6	6						
DELAY TIME																
EXTENTION OPTION																
EXTEND TIME																
USE ADDED INITIAL																
CROSS SWITCH PHASE																



REVISION	DATE	BY
Mark		

Designed By: TSI
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

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

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

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

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

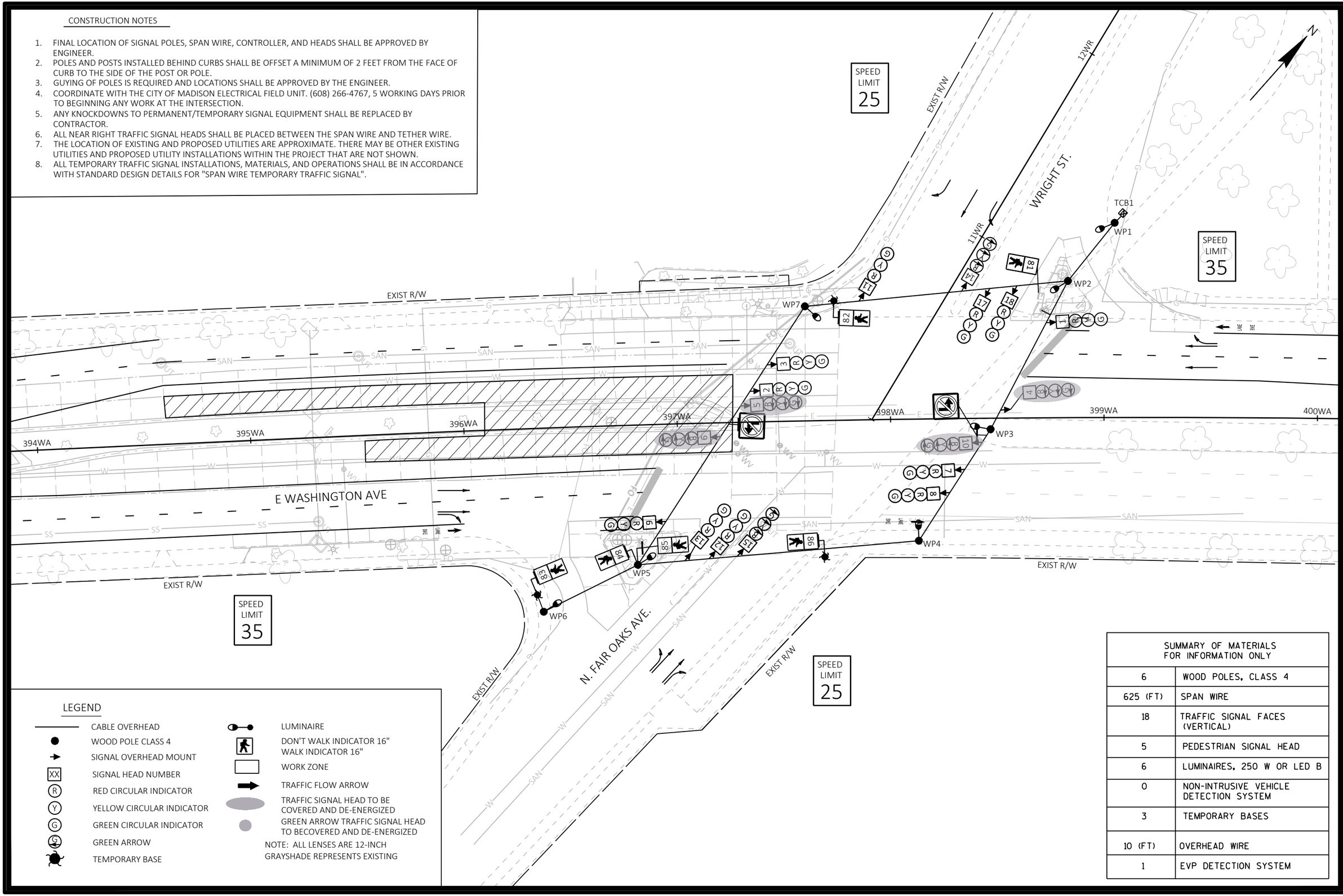
60631225P

S-26D

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. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
6	WOOD POLES, CLASS 4
625 (FT)	SPAN WIRE
18	TRAFFIC SIGNAL FACES (VERTICAL)
5	PEDESTRIAN SIGNAL HEAD
6	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
3	TEMPORARY BASES
10 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE STAGE 1 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

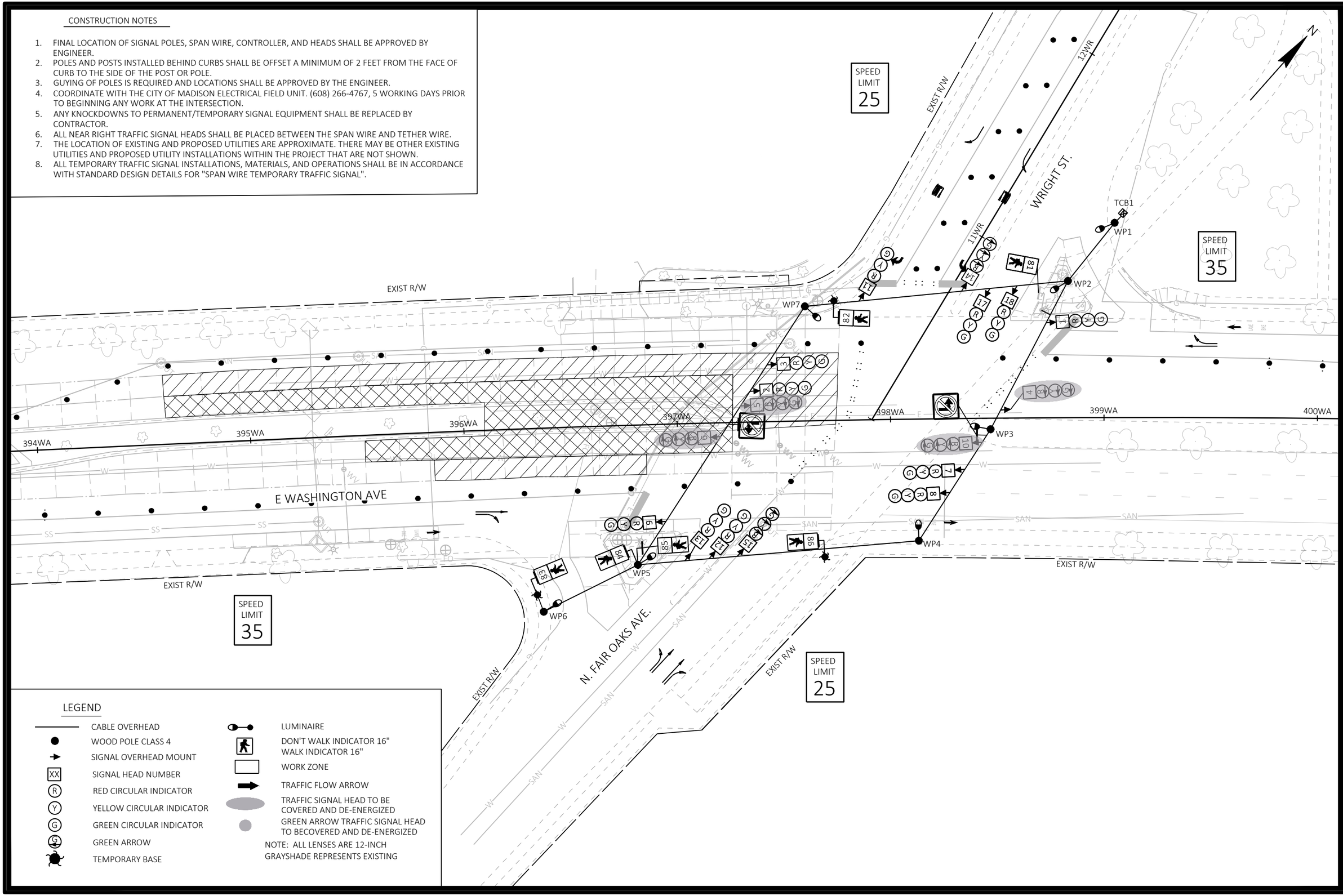
60631225P

S-27A

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\02A209-ST.DWG
LAYOUT NAME - 02A209a-st
LAST PLOT DATE - 2022-10-12

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

MARK	REVISION	DATE	BY

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVE AT N. FAIR OAKS AVE STAGE 2 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

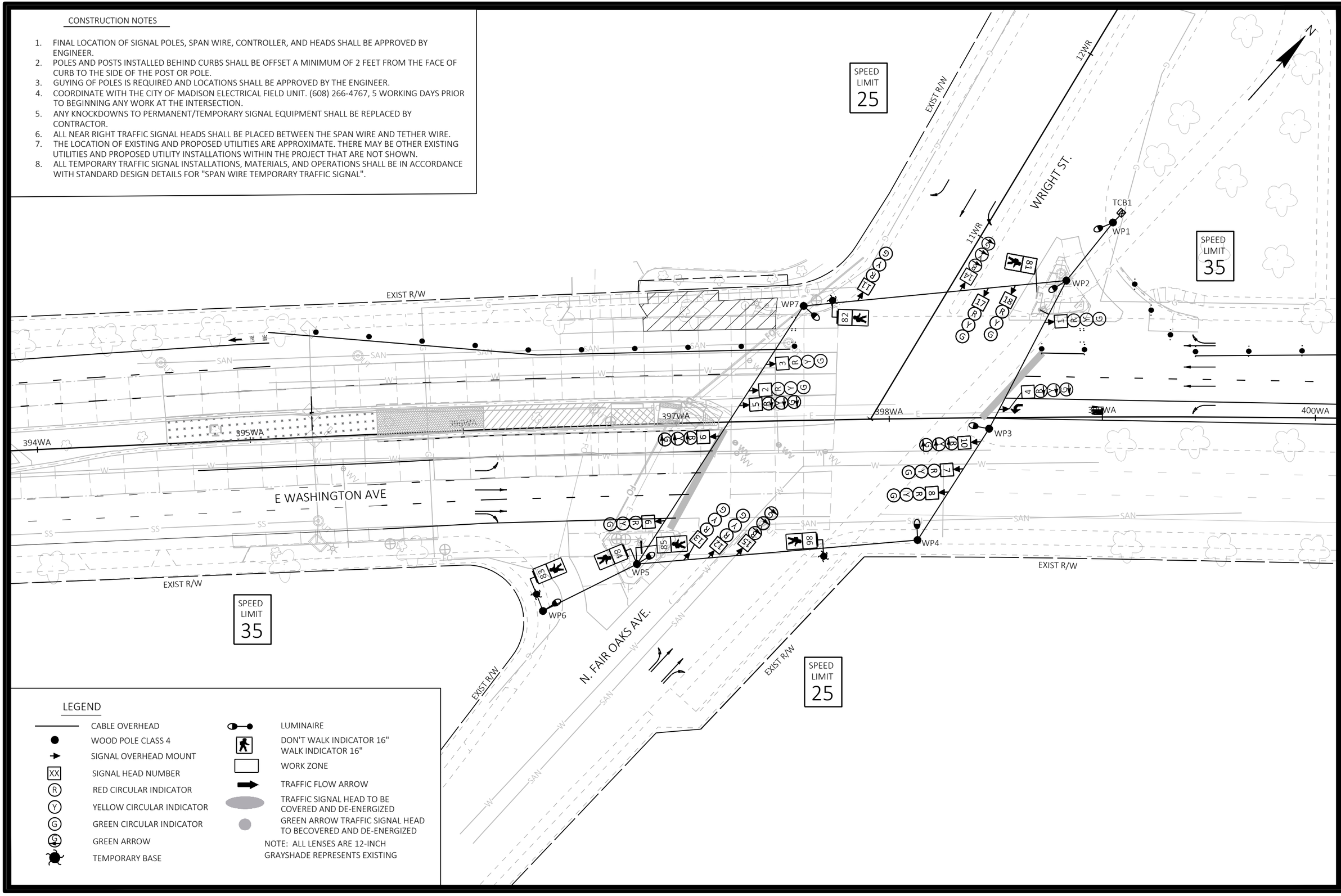
60631225P

S-27B

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024209-ST.DWG
LAYOUT NAME - 024209b-st
LAST PLOT DATE - 2022-10-12

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

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

TEMP SIGNAL PLAN: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE STAGE 3 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

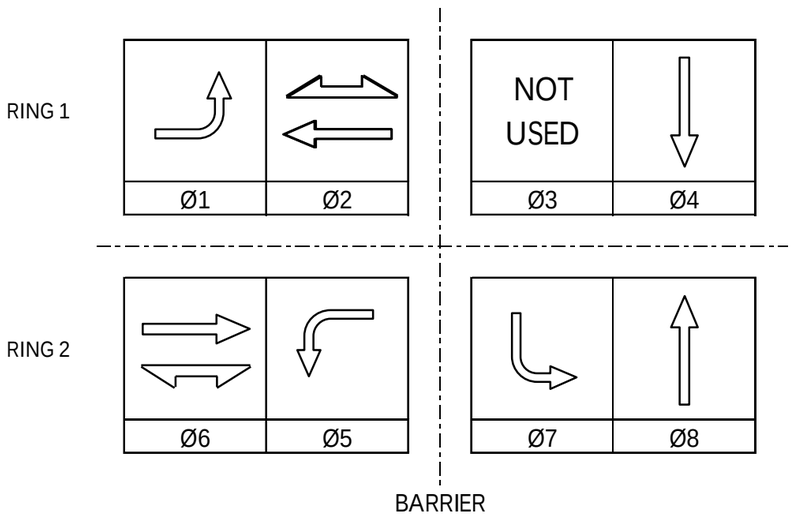
CITY OF MADISON

60631225P

S-27C

FILE NAME : C:\PWWORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024209-ST.DWG
LAYOUT NAME - 024209c-st
LAST PLOT DATE - 2022-10-12

	HEAD NUMBERS	FLASH
Ø1	9,10	R
Ø2	1,2,3	R
Ø3		
Ø4	11,12,13	R
Ø5	4,5	R
Ø6	6,7,8	R
Ø7	0	R
Ø8	16,17,18	R
Ø2P	81,82	
Ø4P	0	
Ø6P	83,84,85,86	
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				X
8		4		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. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. PHASE 1 AND PHASE 5 ARE INACTIVE DURING STAGE 1 AND STAGE 2.
3.
4.

East Washington Avenue and North Fair Oaks Avenue
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: 10/17/2022	Scale: NTS	

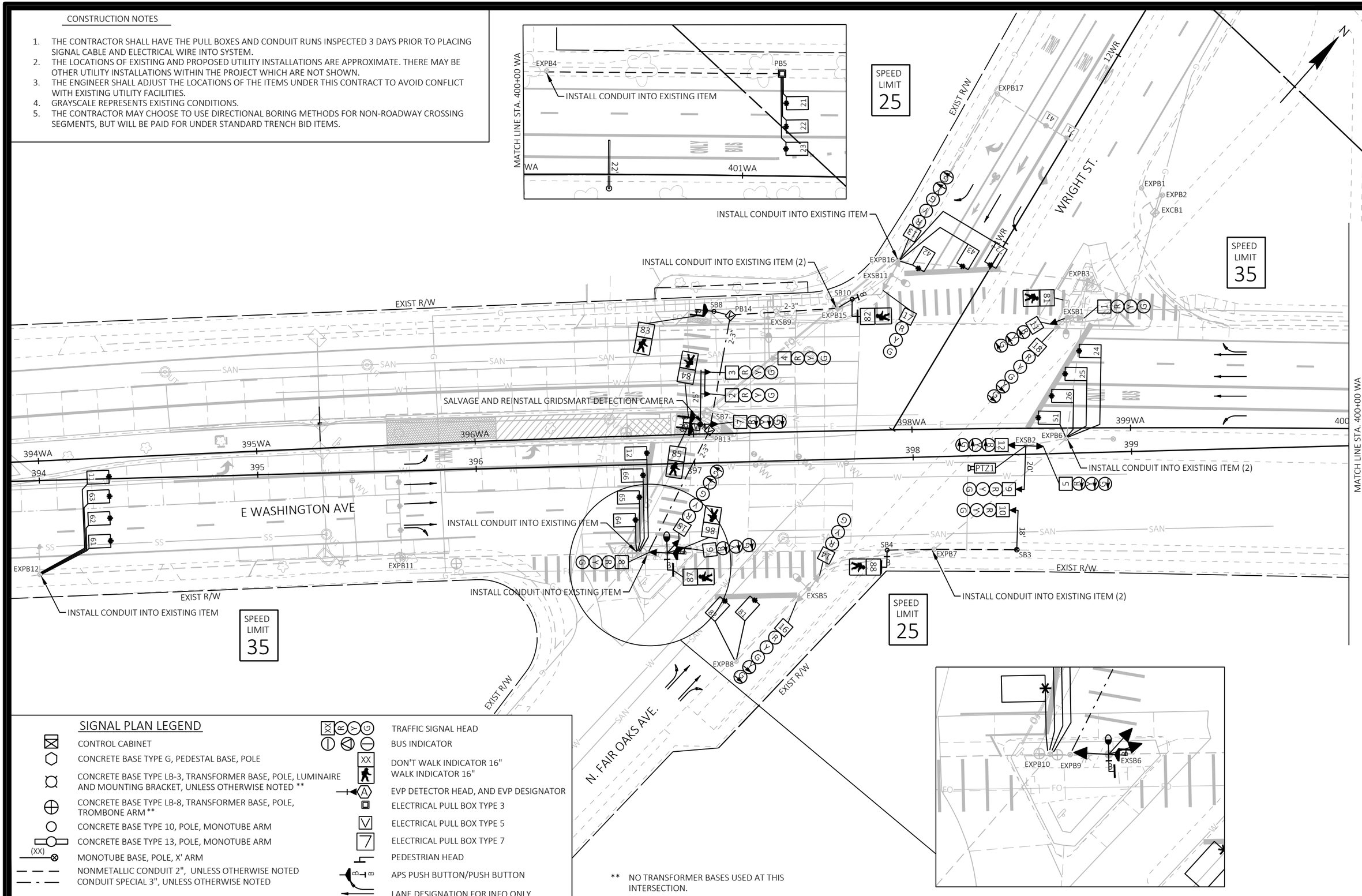
TEMP SEQ OF OPERATION: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE 60631225P
BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON CONTRACT NO: 60631225C

60631225P

S-27D

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
- 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: 2022-10-20	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

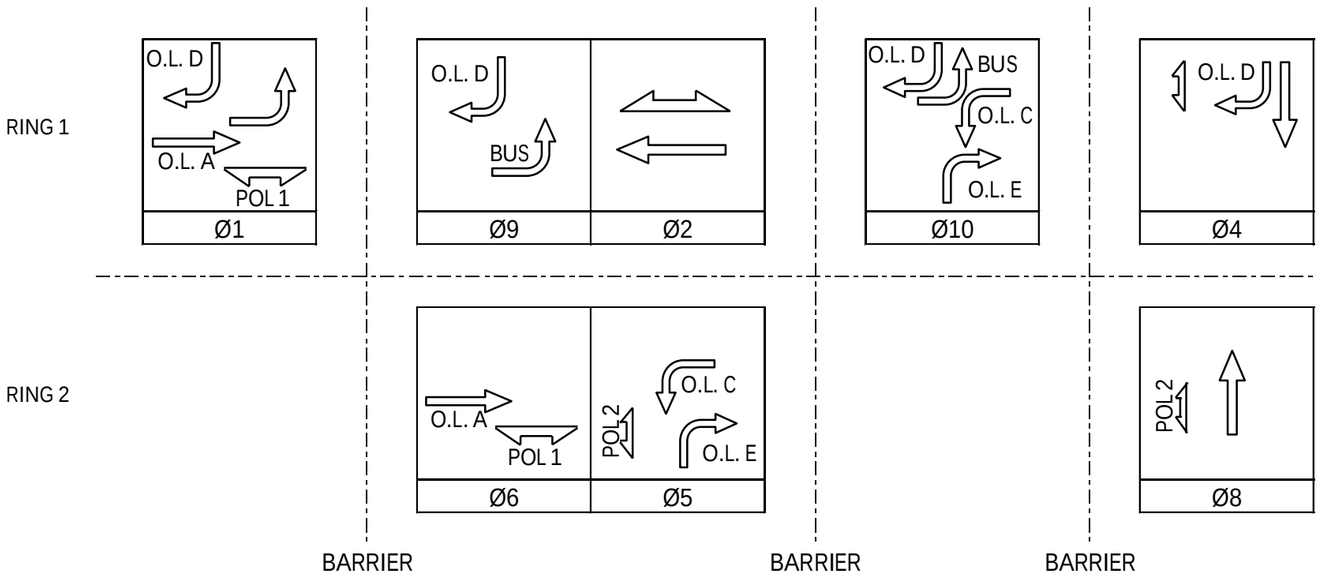
CITY OF MADISON

60631225P

S-27E

FILE NAME : C:\PWWORKING\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								

19	17	23	21	27	25	31	29	DETECTOR INPUT
65	71	81						PLAN LOOP DETECTOR*(S)
6	4	8						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)	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								

20	18	24	22	28	26	32	30	DETECTOR INPUT
66	72	82						PLAN LOOP DETECTOR*(S)
6	4	8						CALLED PHASE
								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 | Designed By: STRAND 60631225P | REVISION | Date: 10/20/2022 | DATE | BY | Scale: NTS

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

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													

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
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

Mark	REVISION	Date:	DATE	BY
		10/20/2022	Scale: NTS	

Designed By: STRAND
60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT N. FAIR OAKS AVENUE
BUS RAPID TRANSIT
CITY OF MADISON

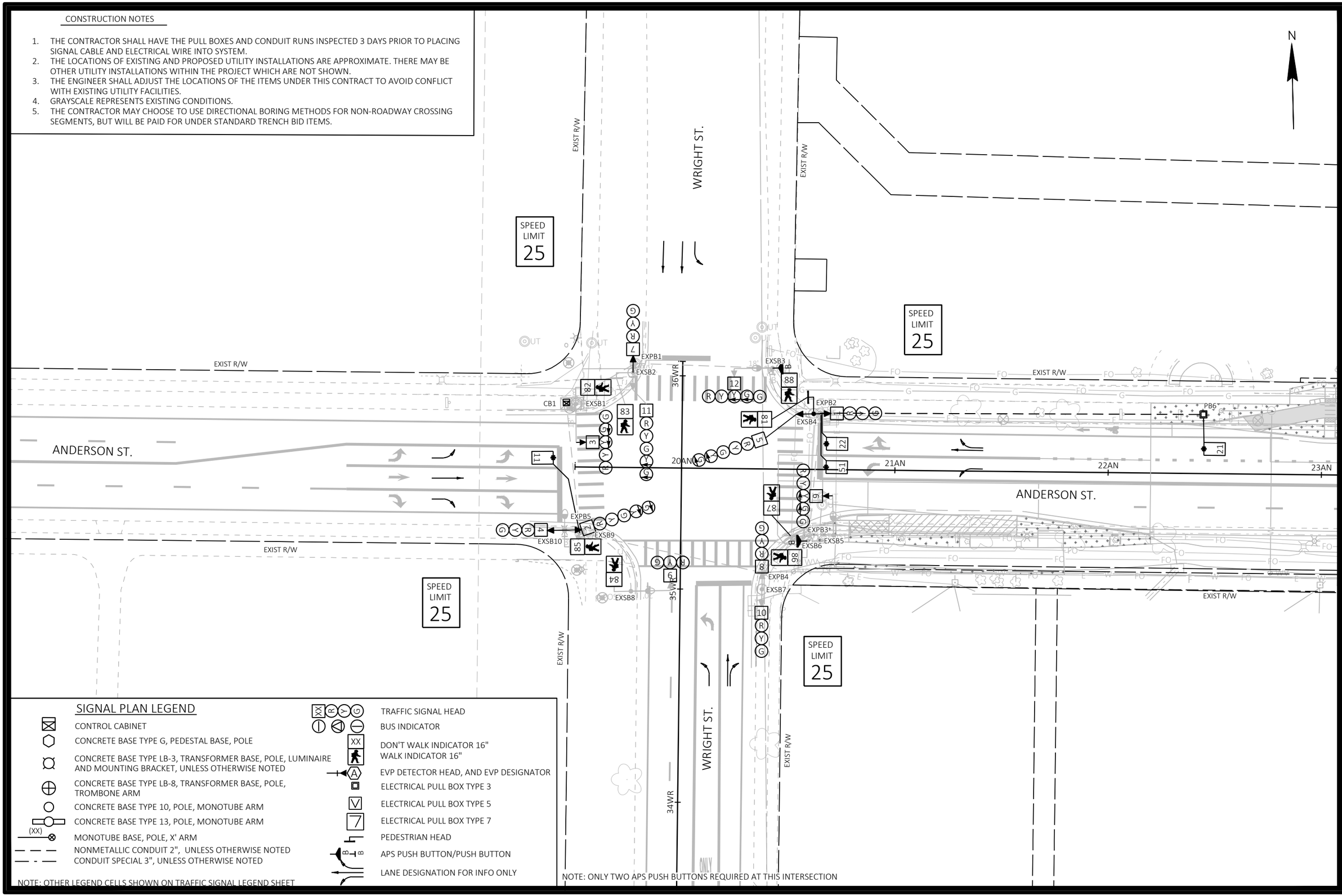
60631225P
CITY OF MADISON, DANE COUNTY, WI
CONTRACT NO: 60631225C

60631225P

S-27G

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
Date: 2022-10-19
60631225P
Scale: 1 IN:40 FT

60631225P

SIGNAL PLAN: ANDERSON STREET AT WRIGHT STREET

BUS RAPID TRANSIT

CITY OF MADISON

CITY OF MADISON, DANE COUNTY, WI

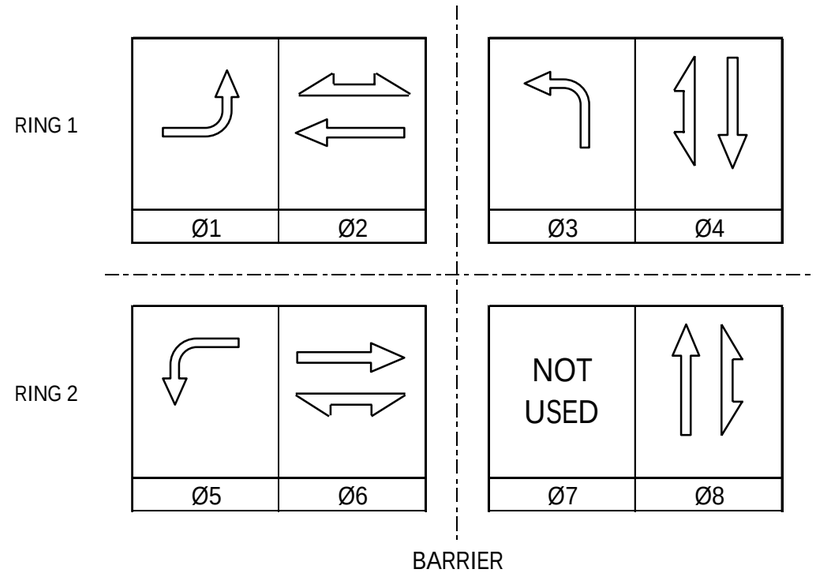
CONTRACT NO: 60631225C

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		



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								

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)	21	51						
CALLED PHASE	2	5						
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: | REVISION | DATE | BY
Designed By: STRAND 60631225P | Date: 10/20/2022 | Scale: NTS

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

CABLE ROUTING: WRIGHT STREET AT ANDERSON STREET

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

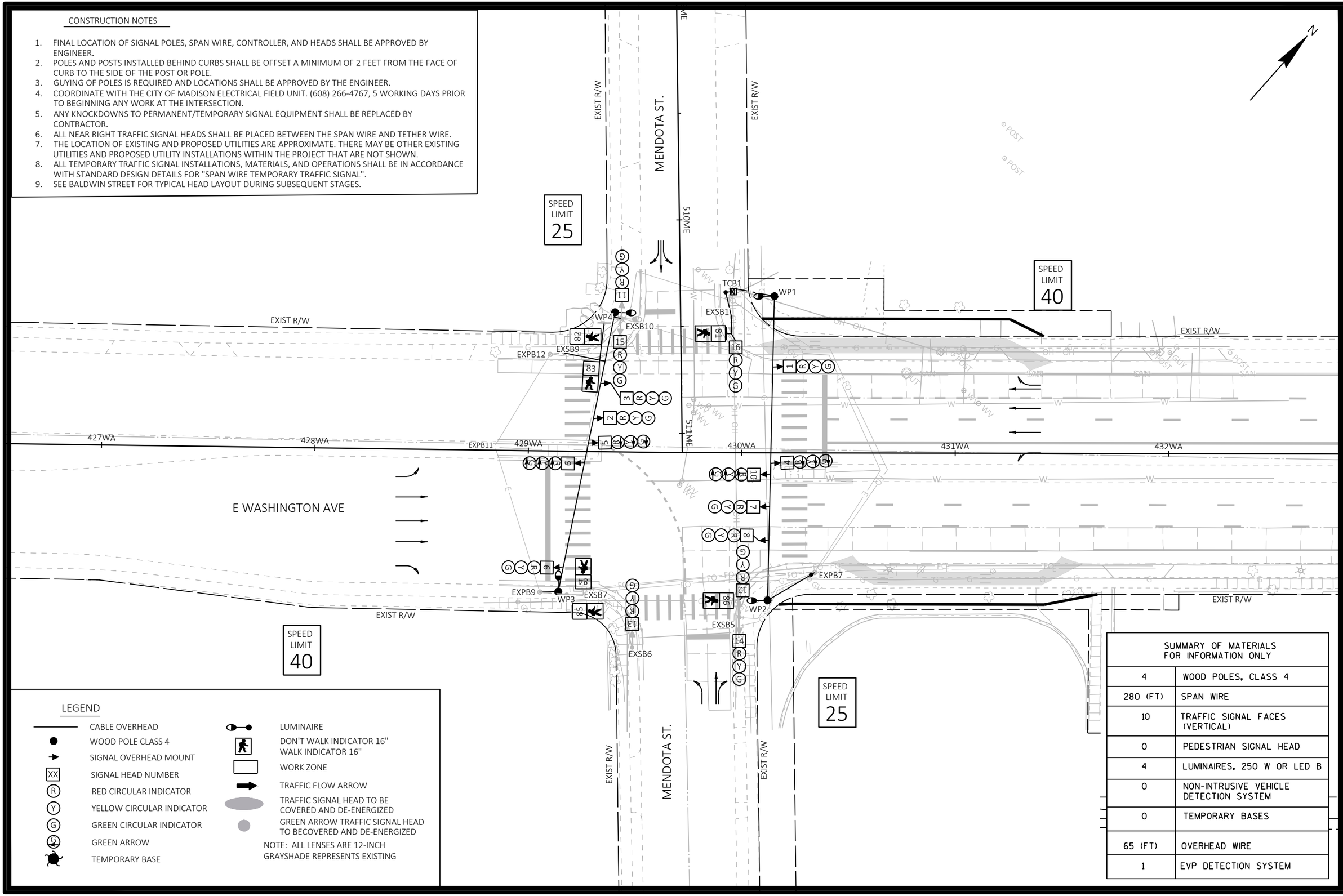
CITY OF MADISON

60631225P

S-28C

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
4	WOOD POLES, CLASS 4
280 (FT)	SPAN WIRE
10	TRAFFIC SIGNAL FACES (VERTICAL)
0	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
0	TEMPORARY BASES
65 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVENUE AT MENDOTA STREET 60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

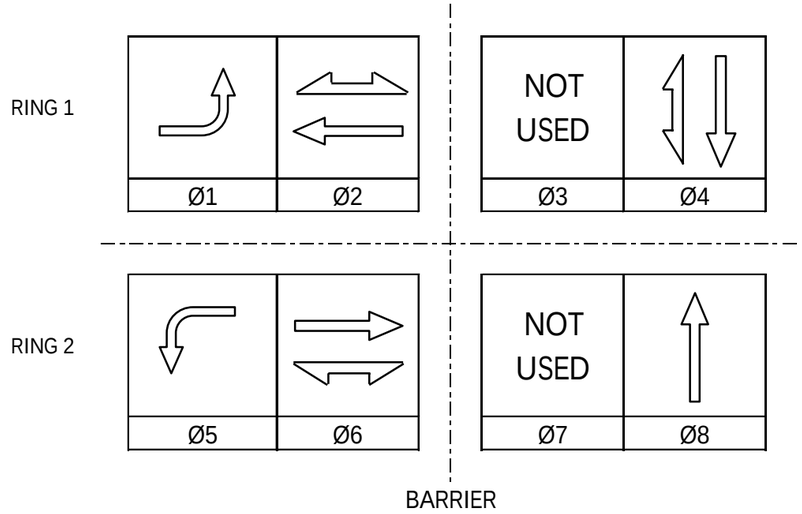
CITY OF MADISON

60631225P

S-29A

FILE NAME: C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D0107215\024210-ST.DWG
LAYOUT NAME - 024210-st
LAST PLOT DATE - 2022-10-19

	HEAD NUMBERS	FLASH
Ø1	9,10	R ←
Ø2	1,2,3	R
Ø3		
Ø4	11,12,13	R
Ø5	4,5	R ←
Ø6	6,7,8	R
Ø7		
Ø8	14,15,16	R
Ø2P	81,82	
Ø4P	83,84	
Ø6P	85,86	
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	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
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	Designed By: STRAND 60631225P	REVISION	Date: 10/17/2022	Scale: NTS	DATE	BY

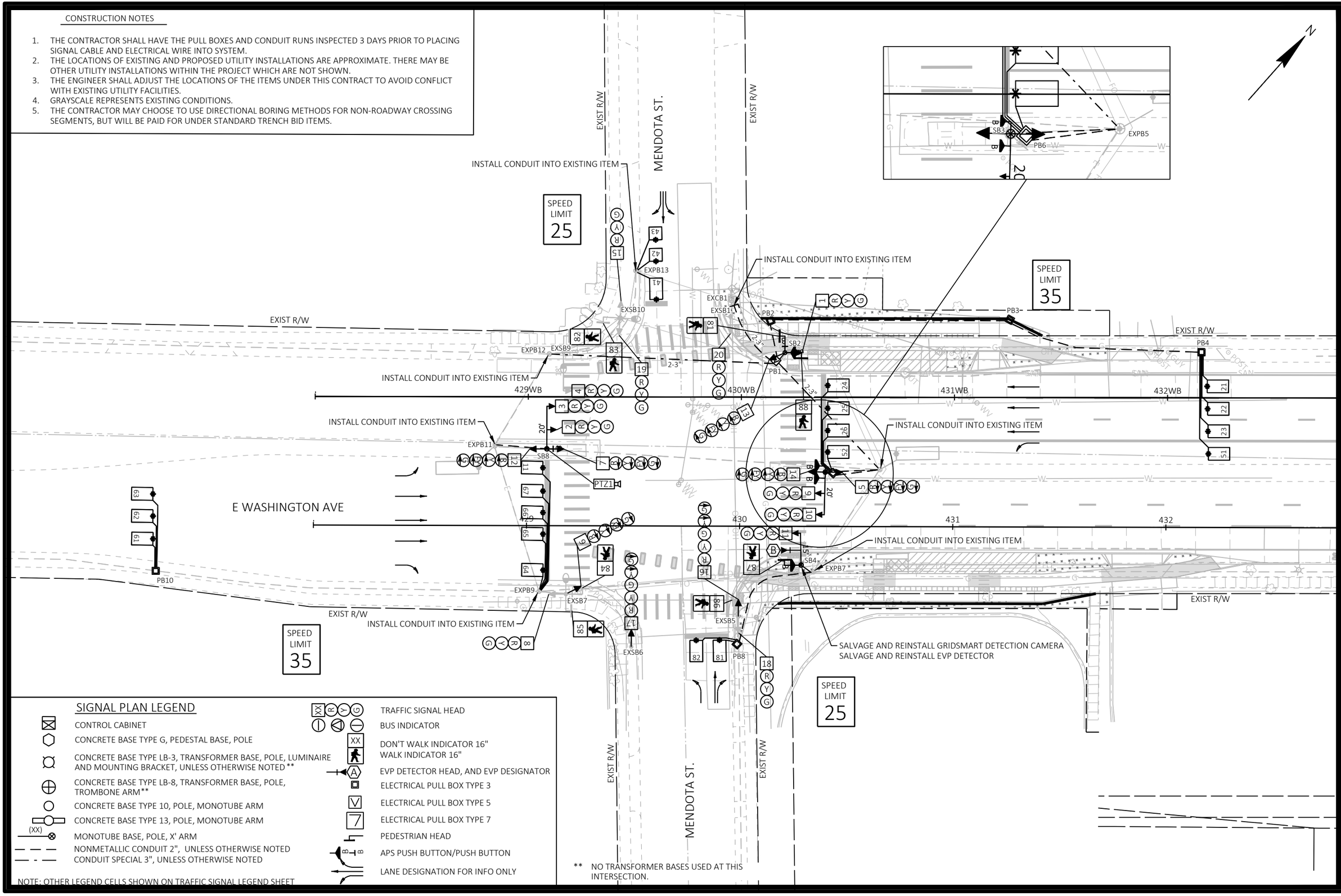
TEMP SEQ OF OPERATION: E WASHINGTON AVENUE AT MENDOTA STREET 60631225P
BUS RAPID TRANSIT CITY OF MADISON, DANE COUNTY, WI
CITY OF MADISON CONTRACT NO: 60631225C

60631225P

S-29B

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: STRAN	Date: 2022-10-20	Scale: 1 IN:40 FT	
60631225P			

SIGNAL PLAN: E WASHINGTON AVENUE AT MENDOTA STREET

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

BUS RAPID TRANSIT

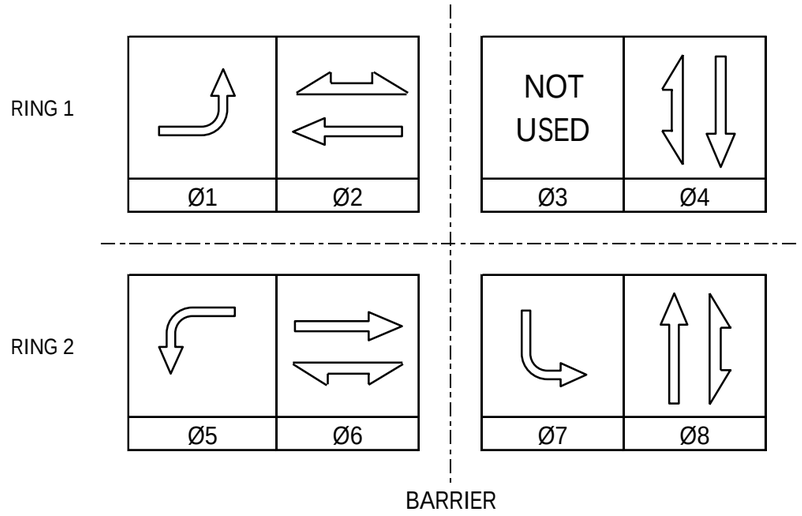
CITY OF MADISON

60631225P

S-29C

FILE NAME : C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\D01\07215\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	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	11	22	24	26	42	51	61	63	65	67	82						PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	2	2	2		5	6	6	6	6	8						CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION					X												EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	21	23	25	41	43	52	62	64	66	81							PLAN LOOP DETECTOR*(S)
CALLED PHASE	2	2	2	4		5	6	6	6	8							CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION					X												EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	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:	DATE	BY
Designed By: STRAND 60631225P		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

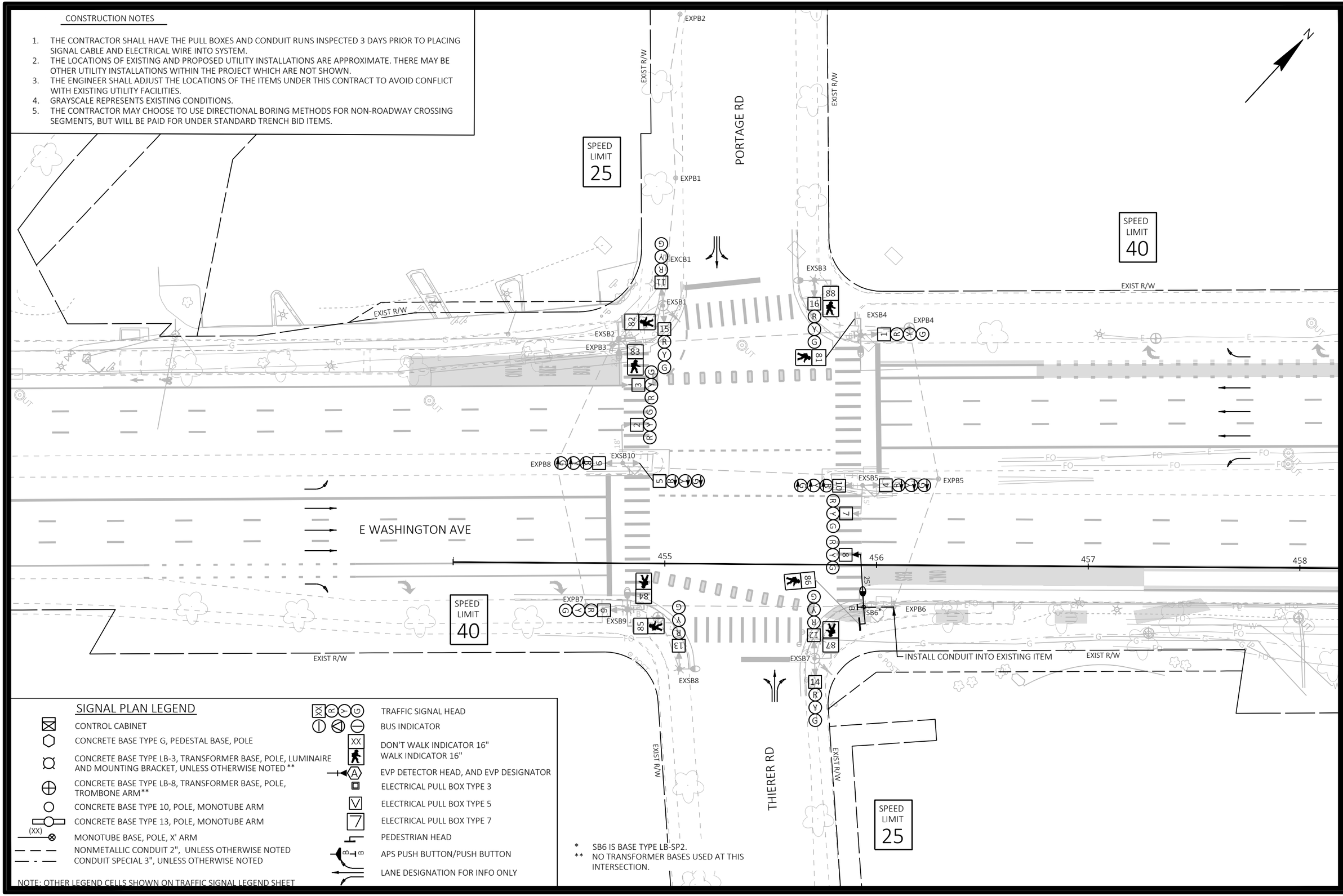
CITY OF MADISON

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
60631225P
Scale: CUSTOM

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

CITY OF MADISON

60631225P
S-30A

FILE NAME: C:\PW\WORKING\AECOM_DS20_NA_2019\CAR28015\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												

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
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

Mark	REVISION	Date:	DATE	BY
		10/20/2022	Scale: NTS	

Designed By: STRAND
60631225P

60631225P

CABLE ROUTING: E WASHINGTON AVENUE AT PORTAGE ROAD

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

60631225P

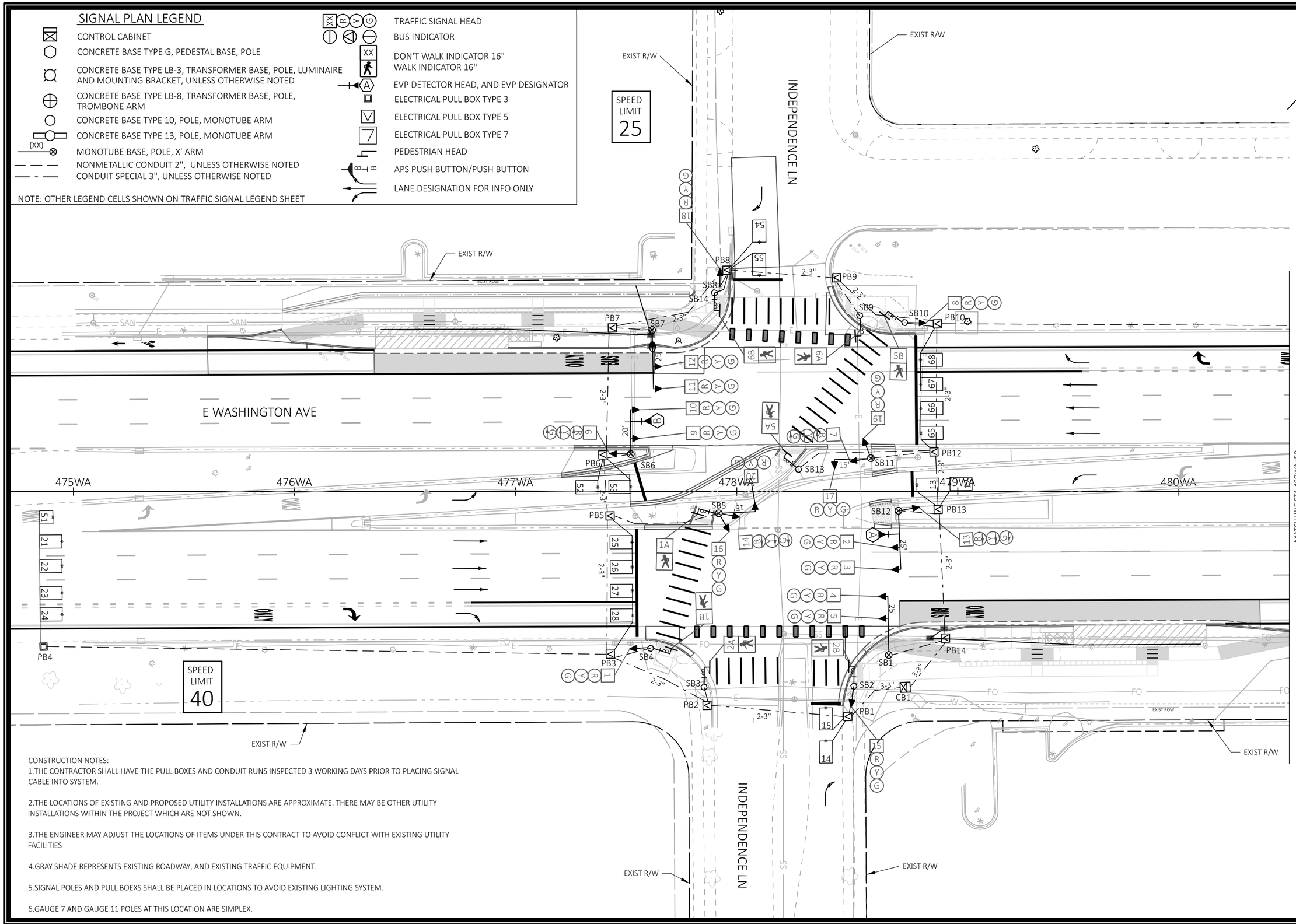
S-30B

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

- 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



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

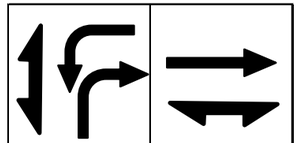
60631225P

S-31B

7/15/2022

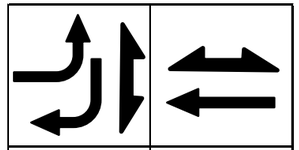
	HEAD NUMBERS	FLASH
Ø1	13,14,15,16,17	
Ø2	1,2,3,4,5	
Ø3		
Ø4		
Ø5	6,7,18,19,20	
Ø6	8,9,10,11,12	
Ø7		
Ø8		
Ø1P	1A,1B	
Ø2P	2A,2B	
Ø5P	5A,5B	
Ø6P	6A,6B	
OLE		
OLF		
OLG		
OLH		

RING 1



Ø1	Ø2	NOT USED	NOT USED
		Ø3	Ø4

RING 2



Ø5	Ø6	NOT USED	NOT USED
		Ø7	Ø8

BARRIER

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-	

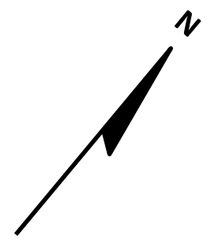
TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

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	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	11	13	15	21	23	25	27	51	53	55	61	63	65	67			PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	1	1	2	2	2	2	5	5	5	6	6	6	6			CALLED PHASE
CALL OPTION	1	1	1	2	2	2	2	5	5	5	6	6	6	6			CALL OPTION
DELAY TIME																	DELAY TIME
EXTENTION OPTION																	EXTENTION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	12	14		22	24	26	28	52	54		62	64	66	68			PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	1		2	2	2	2	5	5		6	6	6	6			CALLED PHASE
CALL OPTION	1	1		2	2	2	2	5	5		6	6	6	6			CALL OPTION
DELAY TIME																	DELAY TIME
EXTENTION OPTION																	EXTENTION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE



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

SEQUENCE OF OPERATION: E WASHINGTON AVE AT INDEPENDENCE LN

BUS RAPID TRANSIT

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

WASHINGTON AVE / INDEPENDENCE LN

CITY OF MADISON

COUNTY

SIGNAL NO: CABINET TYPE: TS2

CONTROLLER TYPE: COBALT

DATE: 10/22 PAGE NO. 3 of 4

60631225P

S-31C

FILENAME

: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.

EMERCENCY 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	Designed By: TSI 60631225P	REVISION Date: 10/4/2022	DATE	BY

Scale: NTS

CABEL ROUTING: WASHINGTON AVE & INDEPENDENCE LN

60631225P

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

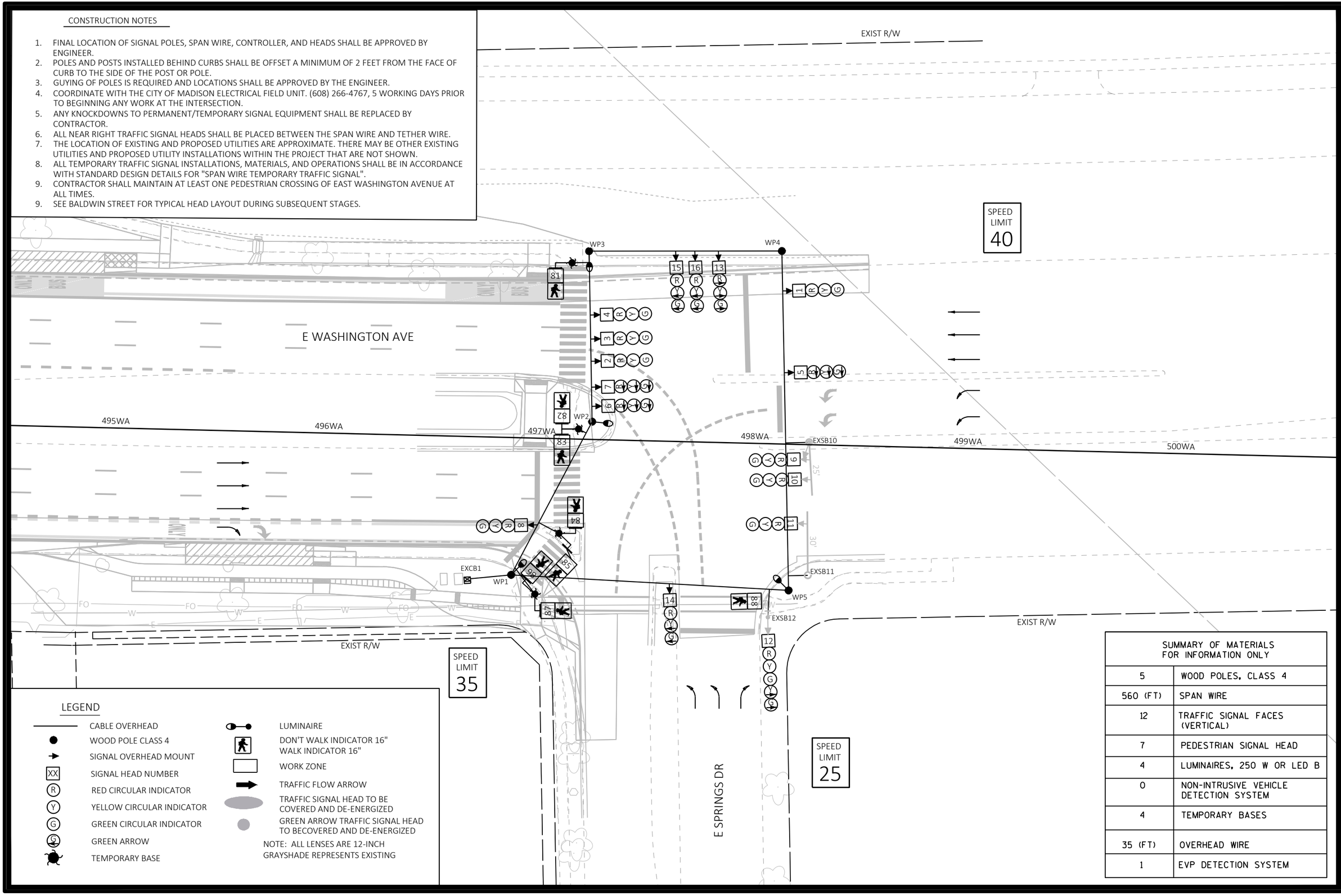
60631225P

S-31D

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

CONSTRUCTION NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER, AND HEADS SHALL BE APPROVED BY ENGINEER.
2. POLES AND POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE.
3. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF MADISON ELECTRICAL FIELD UNIT. (608) 266-4767, 5 WORKING DAYS PRIOR TO BEGINNING ANY WORK AT THE INTERSECTION.
5. ANY KNOCKDOWNS TO PERMANENT/TEMPORARY SIGNAL EQUIPMENT SHALL BE REPLACED BY CONTRACTOR.
6. ALL NEAR RIGHT TRAFFIC SIGNAL HEADS SHALL BE PLACED BETWEEN THE SPAN WIRE AND TETHER WIRE.
7. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
8. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS, AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL".
9. CONTRACTOR SHALL MAINTAIN AT LEAST ONE PEDESTRIAN CROSSING OF EAST WASHINGTON AVENUE AT ALL TIMES.
9. SEE BALDWIN STREET FOR TYPICAL HEAD LAYOUT DURING SUBSEQUENT STAGES.



LEGEND

- CABLE OVERHEAD
- WOOD POLE CLASS 4
- SIGNAL OVERHEAD MOUNT
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW
- TEMPORARY BASE
- LUMINAIRE
- DON'T WALK INDICATOR 16" / WALK INDICATOR 16"
- WORK ZONE
- TRAFFIC FLOW ARROW
- TRAFFIC SIGNAL HEAD TO BE COVERED AND DE-ENERGIZED
- GREEN ARROW TRAFFIC SIGNAL HEAD TO BECOVERED AND DE-ENERGIZED

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

SUMMARY OF MATERIALS FOR INFORMATION ONLY	
5	WOOD POLES, CLASS 4
560 (FT)	SPAN WIRE
12	TRAFFIC SIGNAL FACES (VERTICAL)
7	PEDESTRIAN SIGNAL HEAD
4	LUMINAIRES, 250 W OR LED B
0	NON-INTRUSIVE VEHICLE DETECTION SYSTEM
4	TEMPORARY BASES
35 (FT)	OVERHEAD WIRE
1	EVP DETECTION SYSTEM

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

TEMPORARY SIGNAL PLAN: E WASHINGTON AVE AT E SPRINGS DR 60631225P

CITY OF MADISON, DANE COUNTY, WI

BUS RAPID TRANSIT

CONTRACT NO: 60631225C

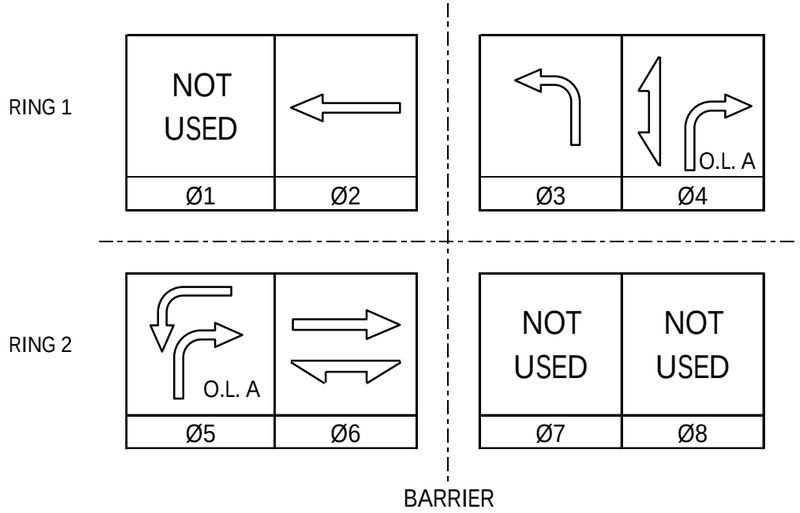
CITY OF MADISON

2022-10-19

60631225P

S-32A

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)																	PLAN LOOP DETECTOR*(S)
CALLED PHASE																	CALLED PHASE
CALL OPTION																	CALL OPTION
DELAY TIME																	DELAY TIME
EXTENSION OPTION																	EXTENSION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL																	USE ADDED INITIAL
CROSS SWITCH PHASE																	CROSS SWITCH PHASE

GENERAL NOTES:

1. CONTRACTOR MUST MAINTAIN NEAR DETECTION FOR ALL MOVEMENTS.
2. SEE BALDWIN STREET FOR TYPICAL PHASE ACTIVIATION/DEACTIVATION DURING SUBSEQUENT STAGES.
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

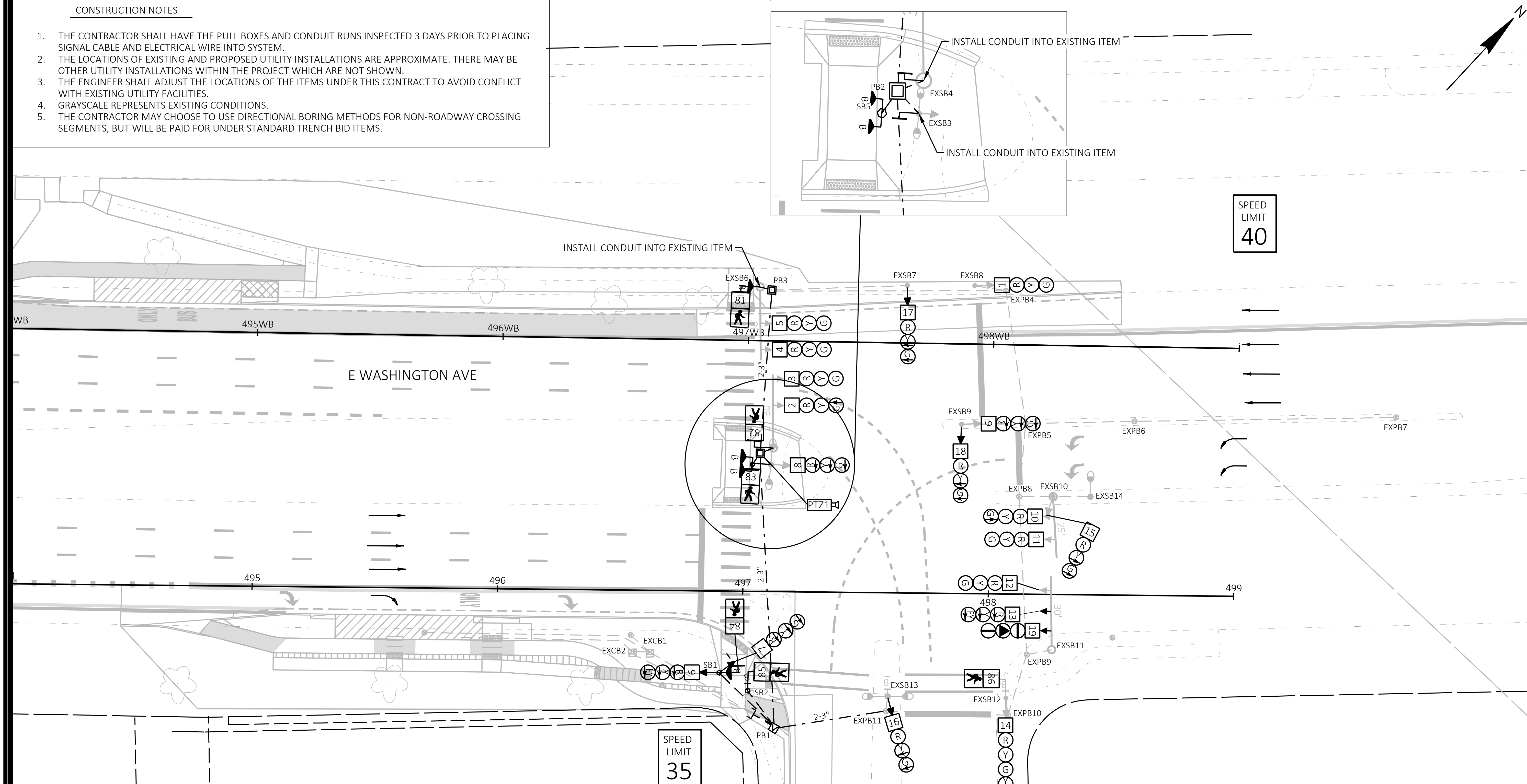
Designed By: STRAND
60631225P
Date: 10/17/2022
Scale: NTS

TEMP SEQ 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-32B

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	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
(XX) 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

MARK	REVISION	DATE	BY

Designed By: STRAND Date: 2022-05-20
60631225P
Scale: 1"=40'_XREF

SIGNAL PLAN: E WASHINGTON AVE AT E SPRINGS DR

60631225P

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

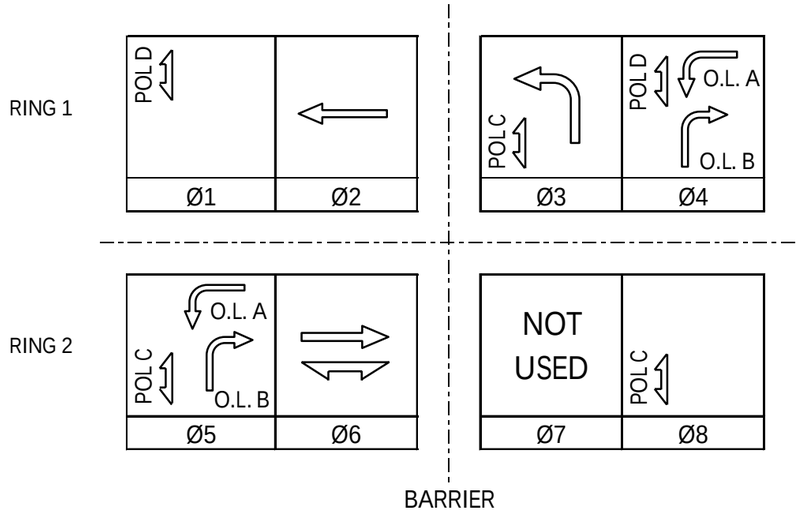
BUS RAPID TRANSIT

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	



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+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: | DATE | BY
Designed By: STRAND 60631225P
Scale: NTS

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

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

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CABLE ROUTING: E WASHINGTON AVENUE AT EAST SPRINGS DRIVE

BUS RAPID TRANSIT

CITY OF MADISON, DANE COUNTY, WI

CONTRACT NO: 60631225C

CITY OF MADISON

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