



Wisconsin Department of Transportation

July 31, 2015

Division of Transportation Systems Development

Bureau of Project Development
 4802 Sheboygan Avenue, Rm 601
 P O Box 7916
 Madison, WI 53707-7916

Telephone: (608) 266-1631
 Facsimile (FAX): (608) 266-8459

NOTICE TO ALL CONTRACTORS:

Proposal #12: 6999-06-78, WISC 2015 472
C WI Rapids, 8th and Chestnut Streets
Intersection Modification
Local Street
Wood County

Letting of August 11, 2015

This is Addendum No. 01, which provides for the following:

Special Provisions

Added Special Provisions	
Article No.	Description
20	Microwave Detector Assembly

Deleted Special Provisions	
Article No.	Description
15	Wireless Traffic Sensor
16	Wireless Traffic Sensor Access Point
17	Wireless Traffic Sensor Repeater
18	Wireless Traffic Sensor Contact Closure Module

Schedule of Items

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0060.010	Microwave Detector Assembly	EA	0	4	4

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0060.005	Wireless Traffic Sensor	EA	18	0	0
SPV.0060.006	Wireless Traffic Sensor Access Point	EA	2	0	0
SPV.0060.007	Wireless Traffic Sensor Repeater	EA	2	0	0
SPV.0060.008	Wireless Traffic Sensor Contact Closure Module	EA	1	0	0

Plan Sheets

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
9	Traffic Signal Plan - Revised type of vehicle detection
10	Sequence of Operations - Revised detector logic table and conflict chart
19	Miscellaneous Quantities - SPV.0060.005, SPV.0060.006, SPV.0060.007, SPV.0060.008; Deleted. SPV.0060.010; Added

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

ADDENDUM NO. 01

6999-06-78

July 31, 2015

Special Provisions

- 15. **DELETED**
- 16. **DELETED**
- 17. **DELETED**
- 18. **DELETED**
- 20. **Microwave Detector Assembly, Item SPV.0060.010.**

A Description

This special provision describes furnishing and installing a microwave based sensor as shown on the plans, and as provided hereinafter.

B Materials

B.1 Environmental / Power Requirements

Furnish a microwave based sensor that detects trucks, vehicles, motor cycles and bicycles and sends a signal representative of a loop type detector in a presence mode to the traffic controller devices.

The sensor shall operate in the field under harsh environments and be immune to the effects of weather, sun rays, night problems, head light glare, and all privacy issues.

The sensor shall function in the field without any degradation of operation with the following temperature ranges: -40°C to +85°C.

The Sensor plus interface board shall operate with 24 DVC supplied to the interface card and require no other power supplies. The sensor shall operate via an ethernet interface with power supplied over the ethernet connector (POE). Total current shall be no more than 415mA at any time during operation with no output active. POE cable shall be provided as part of this bid item.

Operation shall be within 20 seconds from a cold start up. Full operation shall be no greater than 2 minutes, and provide for full automatic recovery from a power failure. Sensor shall be FCC approved.

B.2 Operations

The sensor shall be a microwave based motion and presence sensor used for intersection control. The sensor shall interface with a traffic signal control cabinet, and shall output signals when when vehicles are present in user defined zones. These zones shall be able to be created by using an X-Y coordinate system, and have the operation verified and optimized using a laptop with Internet Explorer TM 6.0 or greater as part of the installation process or resident on the PC.

Sensor shall allow up to eight (8) zones and assign vehicle presence in each of these zones and up to four (4) outputs to the control cabinet via the sensor interface board. Detection zones shall be able to be created to a maximum distance of 600 feet from the sensor location.

Sensor shall track the presence of a vehicle in a detection zone for a predetermined time, user selectable from 0 to 960 seconds. The sensor shall also be able to track multiple moving and stationary vehicles simultaneously. Vehicles shall be tracked using its X-Y coordinates to determine its location, and the coordinates shall be updated 20 times per second.

The sensor shall be able to determine and display the speed of each vehicle in the detection zones, provide grid tracking for the live interactive zones, and be able to provide a histogram to verify setup of the zones.

The sensor shall be able to provide user defined delay and/or extension times for each zone.

B.3 Radar

The sensor shall support five (5) selectable channels of microwave operation and operate in the FSK-4 mode.

24.075 GHz
24.100 GHz
24.125 GHz
24.150 GHz
24.175 GHz

The beam angle shall be an Azimuth of 25 degrees to 100 feet, and then 20 degrees out to 400 feet. The elevation shall be 12 degrees.

B.4 Interface Board

The interface boards shall be available for the sensors and shall be compatible with NEMA TS-1 and TS-2, 170, 179, and 2070 cabinets. For each sensor, provide one interface board that has four (4) outputs that fits in a signal input file slot.

The interface board shall communicate with the controller cabinet and meet the requirements of CALTRANS 170/2070, 222 and 224 modules with respect to size and form.

The interface board shall have (4) LEDs to indicate the activity of each zone. There shall be an indication for a fault mode (no Ethernet connection) such that all LEDs are on. This action shall place calls on the traffic controller.

There shall be an RS-232 port for diagnostics on each interface board.

The interface boards shall provide power and short circuit protection for the sensor, and have capabilities to be hot swappable without adversely effecting its operation.

C Construction

The sensor shall be mounted on the side of a pole as shown on the plans at a height from 14 to 19 feet for optimal performance.

When mounting on the side of the pole a maximum 30 degree offset from the traffic direction shall be allowed to provide for optimal operation.

Mounting hardware shall be supplied with each sensor to allow the device to be attached to a pole with standard stainless steel strapping bands.

Interface board shall be installed in the traffic signal cabinet. POE cable shall be pulled through the conduit system from the interface board installed in the cabinet, to the microwave sensor installed on the traffic signal pole.

D Measurement

The department will measure Microwave Detector Assembly by each Microwave Detector Assembly, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.010	Microwave Detector Assembly	EA

Payment is full compensation for furnishing and installing microwave detector assembly, mounting hardware, ethernet cable, and interface board, and making all necessary connections.

Schedule of Items

Attached, dated July 31, 2015, are the revised Schedule of Items Page 7.

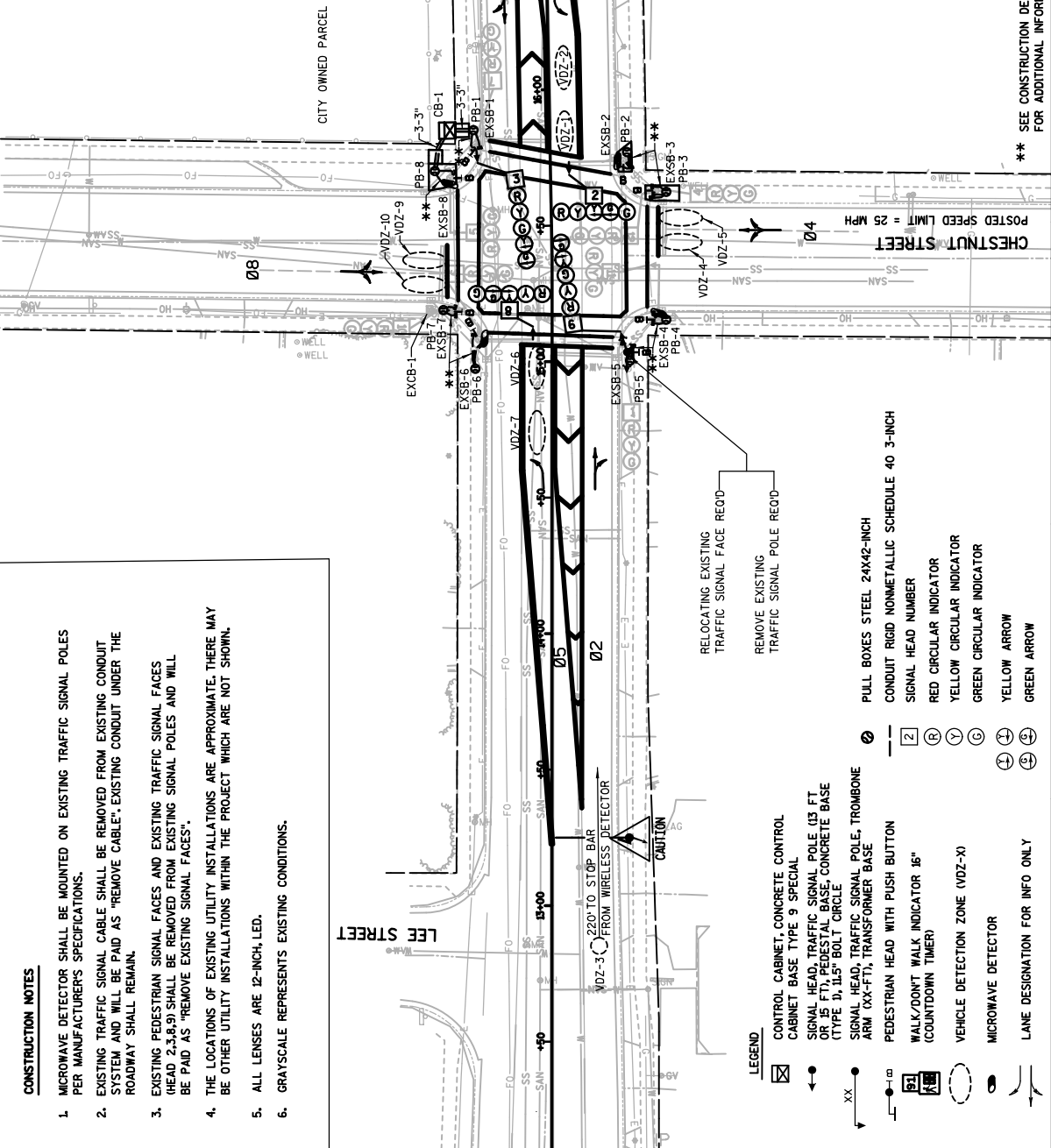
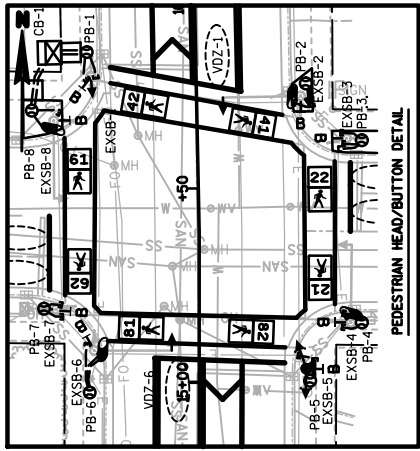
Plan Sheets

The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Revised: 9,10 and 19.

END OF ADDENDUM

CONSTRUCTION NOTES

1. MICROWAVE DETECTOR SHALL BE MOUNTED ON EXISTING TRAFFIC SIGNAL POLES PER MANUFACTURER'S SPECIFICATIONS.
2. EXISTING TRAFFIC SIGNAL CABLE SHALL BE REMOVED FROM EXISTING CONDUIT SYSTEM AND WILL BE PAID AS "REMOVE CABLE"; EXISTING CONDUIT UNDER THE ROADWAY SHALL REMAIN.
3. EXISTING PEDESTRIAN SIGNAL FACES AND EXISTING TRAFFIC SIGNAL FACES HEAD (2,3,8,9) SHALL BE REMOVED FROM EXISTING SIGNAL POLES AND WILL BE PAID AS "REMOVE EXISTING SIGNAL FACES".
4. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
5. ALL LENSES ARE 12-INCH, LED.
6. GRAYSCALE REPRESENTS EXISTING CONDITIONS.



- LEGEND**
- ☒ CONTROL CABINET, CONCRETE CONTROL CABINET BASE TYPE 9 SPECIAL
 - ◀ SIGNAL HEAD, TRAFFIC SIGNAL POLE (13 FT OR 15 FT), PEDESTAL BASE, CONCRETE BASE (TYPE 1), 1.5" BOLT CIRCLE
 - XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TROMBONE ARM (XX-FT), TRANSFORMER BASE
 - ◻ PEDESTRIAN HEAD WITH PUSH BUTTON (COUNTDOWN TIMER)
 - VEHICLE DETECTION ZONE (VDZ-X)
 - MICROWAVE DETECTOR
 - LANE DESIGNATION FOR INFO ONLY
 - PULL BOXES STEEL 24X42-INCH
 - CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH
 - SIGNAL HEAD NUMBER
 - RED CIRCULAR INDICATOR
 - YELLOW CIRCULAR INDICATOR
 - GREEN CIRCULAR INDICATOR
 - YELLOW ARROW
 - GREEN ARROW
 - RELOCATING EXISTING TRAFFIC SIGNAL FACE REQ'D
 - REMOVE EXISTING TRAFFIC SIGNAL POLE REQ'D

Addendum No. 01
ID 6999-06-78
Revised Sheet 9
July 31, 2015

TRAFFIC CONTROL SIGNAL	8TH STREET SOUTH & CHESTNUT STREET
WISCONSIN RAPIDS	WOOD COUNTY
SIGNAL NO. LOCAL	CONTROLLER TYPE: EPAC
APPROVED	CITY OF WISCONSIN RAPIDS
Date: _____	CITY TRAFFIC ENGINEER
CITY CONTACT: JOE ERNSTEADT DESIGNED BY: STRAND REVISED BY: _____	

** SEE CONSTRUCTION DETAIL "PULL BOX CONDUIT CONNECTIONS" FOR ADDITIONAL INFORMATION.

SEQUENCE OF OPERATION

HEAD NUMBERS	01		02		03		04	
	R/W	CLEAR TO	R/W	CLEAR TO	R/W	CLEAR TO	R/W	CLEAR TO
01	G Y		R R R		R R R		R R R	
02	R R R		G Y R		R R R		R R R	
03	R R R		R R R		R R R		R R R	
04	R R R		R R R		R R R		R R R	
05	R R R		R R R		R R R		R R R	
06	R R R		R R R		R R R		R R R	
07	R R R		R R R		R R R		R R R	
08	R R R		R R R		R R R		R R R	
02P	DW DWDW		* DWDW		DW DWDW		DW DWDW	
04P	DW DWDW		DW DWDW		* DWDW		DW DWDW	
06P	DW DWDW		DW DWDW		DW DWDW		DW DWDW	
08P	DW DWDW		DW DWDW		DW DWDW		DW DWDW	

RING 1

HEAD NUMBERS	05		06		07		08	
	R/W	CLEAR TO	R/W	CLEAR TO	R/W	CLEAR TO	R/W	CLEAR TO
01	R R R		R R R		R R R		R R R	
02	R R R		R R R		R R R		R R R	
03	R R R		R R R		R R R		R R R	
04	R R R		R R R		R R R		R R R	
05	G Y		R R R		R R R		R R R	
06	R R R		G Y R		R R R		R R R	
07	R R R		R R R		G Y R		R R R	
08	R R R		R R R		R R R		R R R	
02P	DW DWDW		DW DWDW		DW DWDW		DW DWDW	
04P	DW DWDW		DW DWDW		DW DWDW		DW DWDW	
06P	DW DWDW		* DWDW		DW DWDW		DW DWDW	
08P	DW DWDW		DW DWDW		* DWDW		DW DWDW	

RING 2

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	CALLS AND EXTENDS	DETECTOR OPERATION EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
1		X		1	1					
2		X		1	1					
3			X		2					
4		X		4	4					
5		X		4	4					
6		X		5	5					
7		X		5	5					
8		X		6	6					
9		X		8	8					
10		X		8	8					

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
 O.L. "B" =
 O.L. "C" =
 O.L. "D" =
 NONE

Addendum No. 01
 ID 6999-06-78
 Revised Sheet 10
 July 31, 2015

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

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
SN	
TOWBAR	
HARDWARE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF INTERCONNECT COMMUNICATION	
NONE	X
TIC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	
*LOCATION OF MASTER CONTROLLER NO.	S-
SIGNAL SYSTEM #:	SS-

- GENERAL NOTES:
1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
 2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START (SEE CHART 1 AT LEFT).

TRAFFIC CONTROL SIGNAL
 8TH STREET SOUTH AND CHESTNUT STREET
 WISCONSIN RAPIDS
 WOOD COUNTY

SIGNAL NO. LOCAL
 CITY CONTACT: JOE ERNSTEADT
 DESIGNED BY:
 REVISION BY:

SEQUENCE OF OPERATIONS

CHART 1

PHASE NONCONFLICTING PHASE ON	PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,4,8
2	5 OR 6	1,4,8
3		
4	8	1,2,5,6
5	1 OR 2	4,5,8
6	1 OR 2	4,5,8
7		
8	4	1,2,5,6

- ** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)
 * WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

LED MODULE SUMMARY

CATEGORY	LOCATION	DESCRIPTION	QUANTITY	UNIT
658.0600	4	LED MODULES 12-INCH RED BALL EACH	4	
658.0605	4	LED MODULES 12-INCH YELLOW BALL EACH	4	
658.0610	4	LED MODULES 12-INCH GREEN BALL EACH	4	
658.0620	4	LED MODULES 12-INCH GREEN ARROW EACH	4	

TRAFFIC SIGNAL CONTROLLER, SIGNAL MOUNTING HARDWARE

CATEGORY	LOCATION	DESCRIPTION	QUANTITY	UNIT
658.5069.001	1	SIGNAL MOUNTING HARDWARE LS	1	
SPV.0060.001	1	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8 PHASE EACH	1	

CABLE SUMMARY

CATEGORY	LOCATION	FROM	TO	REMOVE CABLE LF
000	8TH STREET SOUTH AND CHESTNUT STREET	EXSB-1	EXSB-2	56
		EXSB-2	EXSB-3	16
		EXSB-3	EXSB-4	50
		EXSB-4	EXSB-5	17
		EXSB-5	EXSB-6	57
		EXSB-6	EXSB-7	15
		EXSB-7	EXSB-8	50
		EXSB-8	EXSB-1	15
TOTAL				276

MICROWAVE DETECTOR SUMMARY

CATEGORY	EQUIPMENT LOCATION	STATION	LOCATION	MICROWAVE DETECTOR ASSEMBLY EACH	ETHERNET CABLE LENGTH -FOR INFORMATION ONLY
000	EXSB-2	15+73.3	26.8RT	1	125
	EXSB-4	15+55.5	39.1RT	1	215
	EXSB-6	15+08.2	27.0LT	1	170
	EXSB-8	15+68.1	37.0LT	1	60
TOTALS				4	570

EXISTING SIGNAL EQUIPMENT SUMMARY

CATEGORY	EQUIPMENT LOCATION	STATION	LOCATION	RELOCATING EXISTING SIGNAL FACE EACH	REMOVE EXISTING SIGNAL FACES EACH	REMOVE EXISTING TRAFFIC SIGNAL POLE EACH	REMOVE EXISTING TRAFFIC SIGNAL CABINET EACH	REMARKS
000	EXSB-1	15+79	27LT	---	1	---	---	REMOVE PEDESTRIAN FACE AND EXISTING HEAD 3
	EXSB-2	15+73	27RT	---	1	---	---	REMOVE PEDESTRIAN FACE AND EXISTING HEAD 2
	EXSB-3	15+42	36RT	---	1	---	---	REMOVE PEDESTRIAN FACE
	EXSB-4	15+45	39RT	---	1	---	---	REMOVE PEDESTRIAN FACE
	EXSB-5	15+04	28RT	1	---	---	---	REMOVE PEDESTRIAN FACE AND EXISTING HEAD 9
	EXSB-6	15+08	27LT	---	1	---	---	REMOVE PEDESTRIAN FACE AND EXISTING HEAD 8
	EXSB-7	15+19	37LT	---	1	---	---	REMOVE PEDESTRIAN FACE
	EXSB-8	15+68	37LT	---	1	---	---	REMOVE PEDESTRIAN FACE
	EXSB-1	15+19	43LT	---	---	---	1	REMOVE PEDESTRIAN FACE
TOTALS				1	7	1	1	

SAWING CONCRETE

CATEGORY	STATION	STATION	LOCATION	LF
000	15+63.9	15+88.1	LT	50
				690.0250

Addendum No. 01
ID 6999-06-78
Revised Sheet 19
July 31, 2015

SCHEDULE OF ITEMS

REVISED:

CONTRACT:
20150811012

PROJECT(S):
6999-06-78

FEDERAL ID(S):
WISC 2015472

CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0620	SPV.0060 Special 004. Remove Existing Traffic Signal Pole	1.000 EACH	.		.	
0670	SPV.0060 Special 009. Remove Existing Traffic Signal Cabinet	1.000 EACH	.		.	
0680	SPV.0060 Special 010. Microwave Detector Assembly	4.000 EACH	.		.	
	SECTION 0001 TOTAL				.	
	TOTAL BID				.	