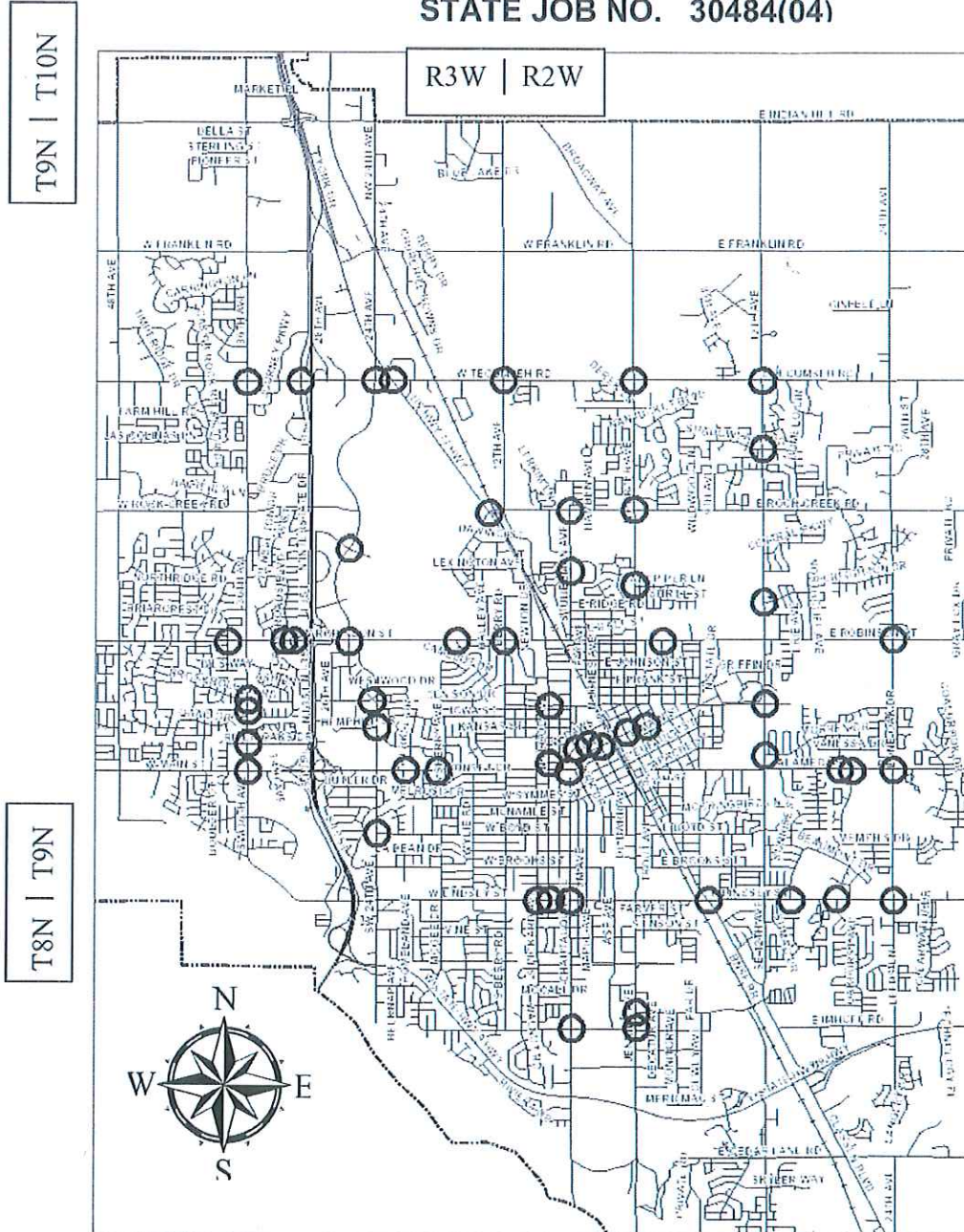


STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED
TRAFFIC SIGNAL PEDESTRIAN PUSH BUTTON UPGRADES
AT VARIOUS INTERSECTIONS CITYWIDE

Federal Aid Project Number: STPG-214E(081)AG
CLEVELAND COUNTY
STATE JOB NO. 30484(04)



Approximate Center of Project

Latitude: 35°13'N
Longitude: 97°27'W

2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION ENGLISH GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010

THIS PROJECT IS LOCATED WITHIN THE URBAN LIMITS OF THE CITY OF NORMAN

INDEX OF SHEETS	
1	TITLE SHEET
2	GENERAL NOTES and SCOPES OF WORK
3	QUANTITIES BY INTERSECTION
4	LUMINAIRE QUANTITIES
5	MAST ARM SIGN DETAILS/PAY QUANTITIES
6-8	MAST ARM SIGNS

The following ODOT Standards will be required:

TCS1-1-01	TCS14-1-00
PBD1-1-00	SA1-1-02
HLD1-2-00	HLD2-2-00

David R. Riesland
David R. Riesland, P.E.
City of Norman
OKLA. REG. NO. 24187

CITY OF NORMAN OKLAHOMA
DATE APPROVED: 11/8/2016
BY [Signature]
TRANSPORTATION ENGINEER

CITY OF NORMAN OKLAHOMA
DATE APPROVED: 11/8/16
BY [Signature]
DIRECTOR OF PUBLIC WORKS

OKLAHOMA DEPARTMENT OF TRANSPORTATION
DATE APPROVED: _____
BY _____
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED: _____
BY _____
DIVISION ADMINISTRATOR

PEDESTRIAN PUSH BUTTON UPGRADES CITYWIDE Job Number: 30484(04)	Sheet No. 1 of 8
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PAY QUANTITY NOTES

- (TC-25) Construction Traffic Control will be installed in a manner approved by the Engineer, in accordance with Chapter VI of the Manual on Uniform Traffic Control Devices, current edition, and applicable O.D.O.T. Standard Drawings. Price bid for this item shall be payment in full for the installation, maintenance and subsequent removal of all necessary construction traffic control devices and pavement markings required for completion of the project.
- All signs and barricades, which are shown with Type "A" Lights in the Standard Drawings shall have the corresponding light attached during non-daylight hours.
- (TP-1) Payment for this item will be based on plan quantity. See the 2009 Specifications for Highway Construction.
- (I) Any salvageable equipment shall be returned to the City.
- (SP-1) Pay Item SIGNAL SYSTEM CONTROLLER UPGRADE includes 336 GTI LED (Incandescent Look) Countdown Pedestrian Signal Modules (16" X 18") manufactured by General Electric, or approved equal, and 4 Station Mount, Offset for APS Push Button Station, Aluminum Pelco #SP-3096-OK-PNC.
- (SP-2) This project will require Accessible Pedestrian Signal (APS) capabilities. The pedestrian pushbutton assembly shall be the 2-Wire iNav Accessible Pedestrian Signal (APS) as manufactured by Polara Engineering, Inc., of Corona, CA or approved equal. The iNavigator pushbuttons shall be black in color and shall feature a custom voice message. The sign to be used is the Option T 9"x15" retroreflective with countdown detail. The buttons will also be programmed using Bluetooth (BLE) to the buttons or Wi-Fi connecting to the iCCU. Price shall include iCCU, interconnect board, 50 pin connector and SDLC cable for each intersection of the 30 intersections that will receive APS button upgrades. The spares for future locations are for three future four-legged intersections with crosswalks on all legs and would feature three iCCUs including the above mentioned components for each iCCU. Also, included in this project will be six (6) Configurators with Bluetooth and Wi-Fi capability.
- (SP-3) LED International Heads displaying fully-illuminated symbols (walking person and upraised hand) shall be required on this project. The units to be installed on this project shall be GTI LED (Incandescent Look) Countdown Pedestrian Signal Modules (16" X 18") manufactured by General Electric, or approved equal. These units shall be 16" McCain Pedestrian Signal Housing with Vantage Visor and all necessary mounting hardware.
- (SP-4) For mast arm mounted street name signs shown on the plans that are larger than the existing sign to be replaced, the contractor and supplier shall provide design calculations for higher loading requirements. Price bid for each mast arm street name sign installation should include removal of one existing sign. Mast-arm mounted street name signs are to be 3M's Diamond Grade 3(cubed), 4090, retro-reflective sheeting, or equivalent.
- (SP-5) The luminaires to be installed (87 total fixtures as shown on Sheet 4 of 8) on this project shall be an LED Holophane LEDgend fixture in accordance with the latest City of Norman standards and specifications, or an approved equal. In order to be considered an equal fixture, the proposed fixture will need to meet the following requirements:

Voltage	= 120
Controlled by	= Photocell
Lamp Type	= LED
Lamp Color (Nominal)	= 4-4000K
Vertical Distribution	= Medium
Lateral Distribution	= Type 3
Distribution Control	= Cutoff
Style	= Cutoff Design

SCOPES OF WORK—PEDESTRIAN EQUIPMENT

This Scope applies to Sites 1, 10, 12, 16, 19, 25, 31, 32, 40, 42, 44, and 46.

Install a countdown pedestrian module in each of the existing pedestrian signal heads and upgrade each of the existing pedestrian push buttons to Navigator push buttons.

This Scope applies to Sites 2, 3, 4, 5, 6, 7, 9, 15, 23, 24, 26, 27, 29, 30, 33, 34, 35, 36, 41, 43, 47, 50, 51, 54, and 55.

Install a countdown pedestrian module in all of the existing pedestrian signal heads.

This Scope applies to Site 8.

Replace the existing pedestrian head on the northeast corner of the intersection controlling northbound pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head. Install a countdown pedestrian module in the remaining seven pedestrian signal heads.

This Scope applies to Site 11.

Replace the existing pedestrian head on the southeast corner of the intersection controlling southbound pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head. Install a countdown pedestrian module in the remaining seven pedestrian signal heads. Change out the existing cabinet.

This Scope applies to Sites 13, 20, 22, 28, 37, 39, and 53.

Replace the existing pedestrian heads controlling all pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head for each of the heads. Upgrade existing pedestrian push buttons to Navigator push buttons.

This Scope applies to Site 14.

Upgrade existing pedestrian push buttons to Navigator push buttons.

This Scope applies to Sites 17 and 18.

Replace the existing pedestrian heads controlling all pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head for each of the heads. Upgrade existing pedestrian push buttons to Navigator push buttons. It will also require 21-conductor cable run from the cabinet to all corners (Site 17) and from the cabinet to the northeast, southeast, and southwest corners (Site 18).

This Scope applies to Sites 21 and 38.

Replace the existing pedestrian heads controlling all pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head for each of the heads.

This Scope applies to Site 45.

Install a countdown pedestrian module in all of the existing pedestrian signal heads. This will also require 21-conductor signal cable be run from the cabinet to all four corners of the intersection.

This Scope applies to Site 48.

Install a countdown pedestrian module in each of the existing pedestrian signal heads and upgrade each of the existing pedestrian push buttons to Navigator push buttons. This intersection also needs two Pelco offset mounting brackets in the southeast corner of the intersection.

This Scope applies to Site 49.

Install a countdown pedestrian module in each of the existing pedestrian signal heads and upgrade each of the existing pedestrian push buttons to Navigator push buttons. This will also require that 21-conductor signal cable be run from the cabinet to the northwest and southeast corners of the intersection.

This Scope applies to Site 52.

Replace the existing pedestrian heads controlling all pedestrian movements. This will require 12-feet of 5-conductor signal cable from the pole base to the pedestrian signal head for each of the heads and two Pelco offset mounting brackets in the southeast corner of the intersection. Upgrade existing pedestrian push buttons to Navigator push buttons. This intersection will also require removal of the existing push button system and installation of new 2-conductor wire for the new push buttons.

QUANTITIES FOR COUNTDOWN PEDESTRIAN SIGNAL HEAD UNITS

SITE NO.	INTERSECTION	COUNT DOWN MODULES	PED. HEADS		OFFSET MOUNT. BRACKET	APS BUTTONS	2C WIRE	5C WIRE	21C WIRE	SITE NO.	INTERSECTION	COUNT DOWN MODULES	PED. HEADS		OFFSET MOUNT. BRACKET	APS BUTTONS	2C WIRE	5C WIRE	21C WIRE
			LEFT	RIGHT									LEFT	RIGHT					
1	Tecumseh Road at 36 th Avenue NW	8				8				34	Gray Street at Peters Avenue	8			0				
2	Tecumseh Road at I-35 West	2				0				35	Gray Street at Porter Avenue	8			0				
3	Tecumseh Road at 24 th Avenue NW	8				0				36	Main Street at 36 th Avenue West	8			0				
4	Tecumseh Road at Flood Avenue	8				0				37	Main Street at Hal Muldrow Drive	0	1	3	4		48'		
5	Tecumseh Road at 12 th Avenue NW	8				0				38	Main Street at Mercedes Drive	0	3	5	0		96'		
6	Tecumseh Road at Porter Avenue	8				0				39	Main Street at Downtown Shopping Center	0	4	4	8		96'		
7	Tecumseh Road at 12 th Avenue NE	8				0				40	Main Street at 12 th Avenue East	8			8				
8	Kingston Road at 12 th Avenue NE	7	1			0		12'		41	Alameda Street at Crestland Drive	4			0				
9	Rock Creek Road at Flood Avenue	8				0				42	Alameda Street at Vicksburg Drive	8			8				
10	Rock Creek Road at Stubbeman Avenue	8				8				43	Alameda Street at 24 th Avenue SE	8			0				
11	Rock Creek Road at Porter Avenue	7	1			8		12'		44	Boyd Street at 24 th Avenue SW	8			8				
12	Conference Drive at 24 th Avenue NW	8				8				45	Lindsey Street at Pickard Avenue	8			0				500'
13	Norman North High School at Stubbeman Avenue	0	6	2		8		96'		46	Lindsey Street at Flood Avenue	8			8				
14	Sandpiper Lane at Porter Avenue	0				8				47	Lindsey Street at Chautauqua Avenue	8			0				
15	High Meadows Drive at 12 th Avenue NE	4				0				48	Lindsey Street at Classen Boulevard	8			2	8			
16	Robinson Street at Brookhaven Boulevard	8				8				49	Lindsey Street at Biloxi Drive	8			8				200'
17	Robinson Street at Crossroads Boulevard	0	4	4		8		96'	500'	50	Lindsey Street at Oakhurst Avenue	8			0				
18	Robinson Street at I-35 West	0	7	1		0		96'	500'	51	Lindsey Street at 24 th Avenue SE	8			0				
19	Robinson Street at 24 th Avenue NW	8				8				52	Constitution Street at Jenkins Avenue	0	1	5	2	6	30'	72'	
20	Robinson Street at Woods Avenue	0	2	2		4		48'		53	Imhoff Road at Chautauqua Avenue	0	4	4	8		96'		
21	Robinson Street at Berry Road	0	4	4		0		96'		54	Imhoff Road at Jenkins Avenue	6			0				
22	Robinson Street at Findlay Avenue	0	4	4		8		96'		55	Morren Drive at 12 th Avenue SE	8			0				
23	Robinson Street at 24 th Avenue NE	8				0				56	Spares for Future Locations	24			24				
24	Brookhollow Road at 36 th Avenue NW	4				0													
25	Boardwalk Street at 24 th Avenue NW	8				8													
26	Acres Street at Flood Avenue	8				0													
27	Quail Drive at 36 th Avenue NW	6				6													
28	Hemphill Drive at 24 th Avenue NW	0	2	2		4		48'											
29	River Oaks Drive at 36 th Avenue NW	8				0													
30	Gray Street at Flood Avenue	8				0													
31	Gray Street at University Avenue	8				8													
32	Gray Street at Webster Avenue	8				8													
33	Gray Street at Santa Fe Avenue	8				0													
SUB-TOTALS		182	31	19	0	118	0'	600'	1,000'			154	13	21	4	98	30'	408'	700'
TOTAL												336	44	40	4	216	30'	1,008'	1,700'

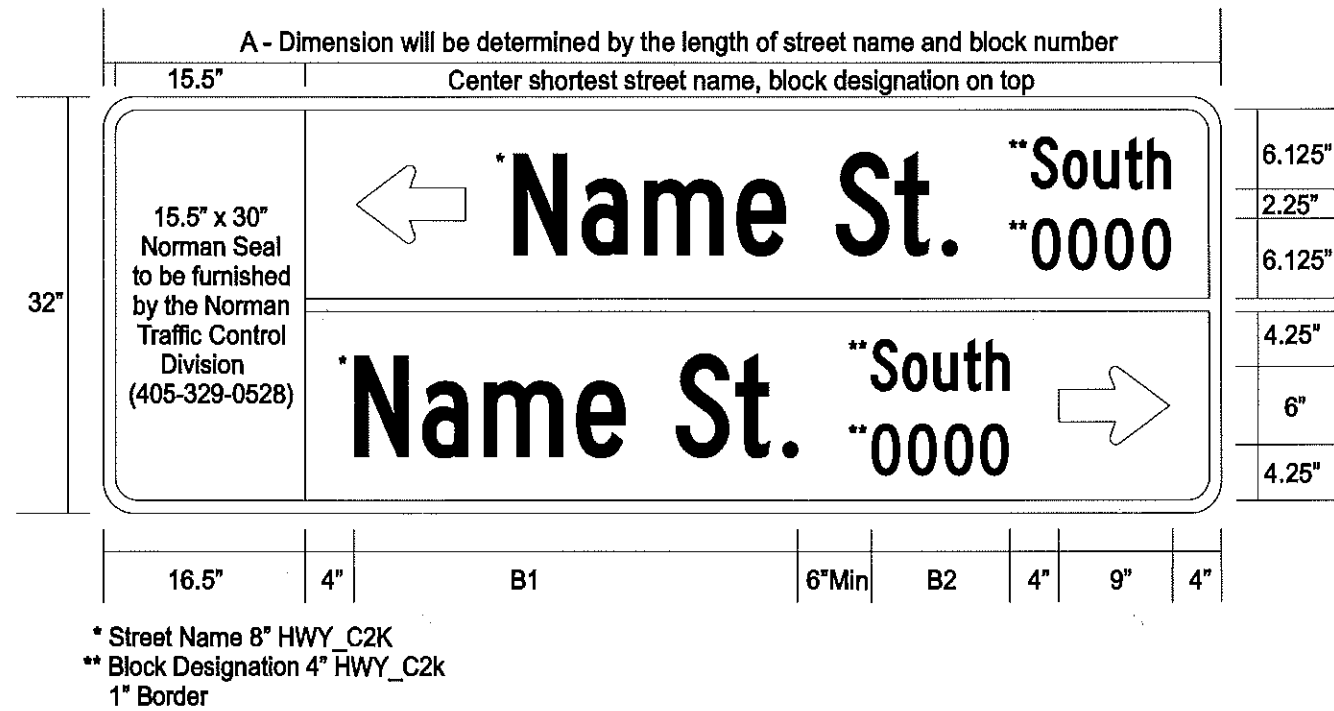
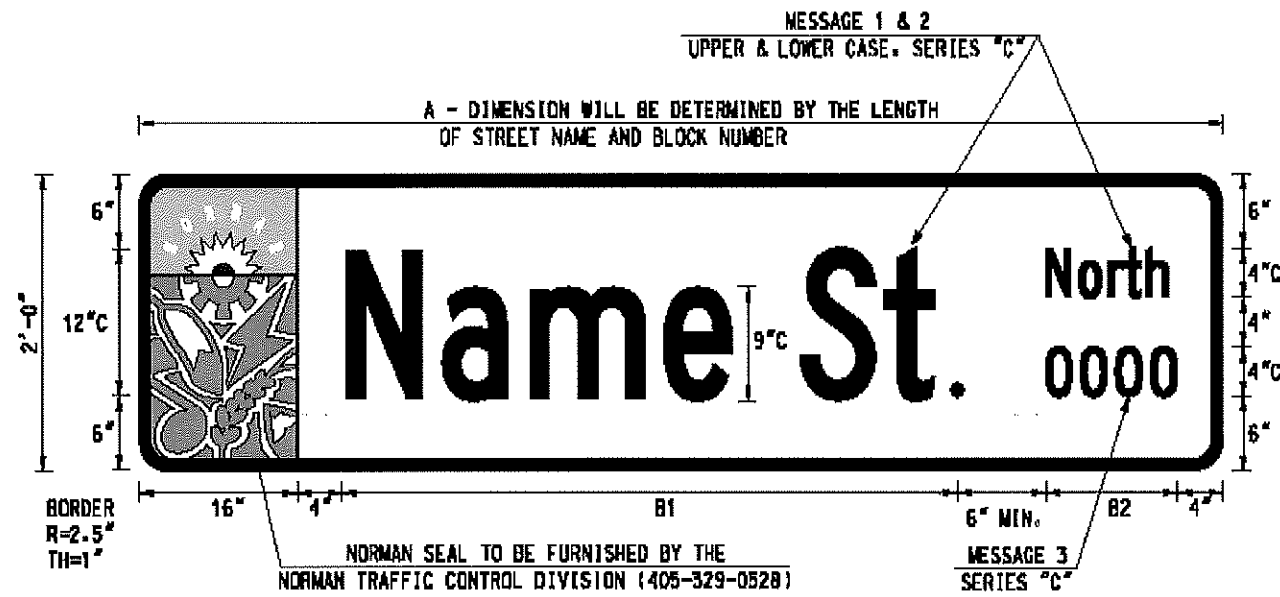
QUANTITIES FOR TRAFFIC SIGNAL LUMINAIRE UPGRADE TO LED BY INTERSECTION

SITE NO.	INTERSECTION	NUMBER OF FIXTURES	NUMBER WITH PHOTOCELL?	NUMBER WITHOUT PHOTOCELL?
3	Tecumseh Road at 24 th Avenue NW	1	1	0
4	Tecumseh Road at Flood Avenue ¹	4	4	0
6	Tecumseh Road at Porter Avenue	4	4	0
7	Tecumseh Road at 12 th Avenue NE	4	4	0
9	Rock Creek Road at Flood Avenue	4	4	0
10	Rock Creek Road at Stubbeman Avenue	3	3	0
12	Conference Drive at 24 th Avenue NW	4	4	0
16	Robinson Street at Brookhaven Boulevard	1	1	0
17	Robinson Street at Crossroads Boulevard	3	3	0
18	Robinson Street at I-35 West	4	4	0
19	Robinson Street at 24 th Avenue NW	4	4	0
21	Robinson Street at Berry Road	4	4	0
22	Robinson Street at Findlay Avenue	2	2	0
24	Brookhollow Road at 36 th Avenue NW	3	3	0
25	Boardwalk at 24 th Avenue NW	4	4	0
27	Quail Drive 36 th Avenue NW	4	4	0
29	River Oaks Drive at 36 th Avenue NW	4	4	0
36	Main Street at 36 th Avenue West	4	4	0
40	Main Street at 12 th Avenue East	3	3	0
41	Alameda Street at Crestland Drive ²	2	2	0
42	Alameda Street at Vicksburg Avenue	1	1	0
44	Boyd Street at 24 th Avenue SW	2	2	0
45	Lindsey Street at Pickard Avenue	4	1	3
46	Lindsey Street at Flood Avenue	4	1	3
47	Lindsey Street at Chautauqua Avenue	4	1	3
49	Lindsey Street at Biloxi Drive	1	1	0
50	Lindsey Street at Oakhurst Avenue	2	2	0
51	Lindsey Street at 24 th Avenue SE	3	3	0
PAGE-TOTAL		87	78	9

¹ One fixture is located in the island in the southeast corner of the intersection on a pole containing pedestrian heads and push buttons.

² One fixture is located on the northeast corner of the intersection on a pole containing pedestrian heads and push buttons.

MAST ARM STREET NAME SIGN DETAIL
(Messages for each Intersection are on Sheets in Plan Set that Follow)



* Street Name 8" HWY_C2K
** Block Designation 4" HWY_C2k
1" Border

PAY QUANTITIES—TRAFFIC

0300 TRAFFIC				
ITEM NO.	CODE NO.	DESCRIPTION	UNIT	QUANTITY
809(A)	8090	ROADWAY LUMINAIRE (SP-5)	EACH	87
825(A)	8559	SIGNAL SYSTEM CONTROLLER UPGRADE (SP-1)	EACH	340
830	8000	PEDESTRIAN PUSH BUTTON (SP-3)	EACH	216
831	8295	1WAY 2SEC. ADJ. PED. SIG. HD. S-20 (SP-4)	EACH	84
834(A)	8207	5/C TRAFFIC SIGNAL ELECTRICAL CABLE (TP-1)	L.F.	1,008
834(A)	8213	21/C TRAFFIC SIGNAL ELECTRICAL CABLE (TP-1)	L.F.	1,700
834(B)	8220	2/C SHIELDED LOOP DETECTOR LEAD-IN CABLE (TP-1)	L.F.	30
850(C)	8118	MAST ARM MOUNTED SIGNS (ALUMINUM) (SP-4)	SF	1,818.9
880(J)	8905	CONSTRUCTION TRAFFIC CONTROL (TC-25)	L SUM	1

PAY QUANTITIES—CONSTRUCTION

0640 CONSTRUCTION				
ITEM NO.	CODE NO.	DESCRIPTION	UNIT	QUANTITY
641	1552	MOBILIZATION	L SUM	1

**PEDESTRIAN PUSH
BUTTON UPGRADES
CITYWIDE**
Job Number: 30484(04)

Sheet
No. 5
of 8

Summary of Street Name Signs—Main at Downtown Shopping Center									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Downtown Ctr	—	—	EB	112	24	91	—	18.7	18.7
Downtown Ctr	—	—	WB	112	24	91	—	18.7	37.3
Main St.	West	500	NB	84	24	48	10	14.0	51.3
Main St.	West	500	SB	84	24	48	10	14.0	65.3

Summary of Street Name Signs—Main at Mercedes									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Mercedes Dr.	South	100	EB	116	24	81	11	19.3	19.3
Mercedes Dr.	North	100	WB	116	24	81	10	19.3	38.7
Main St.	West	1800	NB	84	24	48	10	14.0	52.7
Main St.	West	1900	SB	84	24	48	10	14.0	66.7

Summary of Street Name Signs—Alameda at 24th									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
24 th Ave. SE	South	100	EB	118	24	79	11	19.7	19.7
24 th Ave. NE	North	100	WB	118	24	80	10	19.7	39.3
Alameda St.	East	2400	NB	110	24	72	11	18.3	57.7
Alameda St.	East	2300	SB	110	24	72	11	18.3	76.0

Summary of Street Name Signs—Alameda at Crestland									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Crestland Dr.	South	100	EB	116	24	78	11	19.3	19.3
Crestland Dr.	North	100	WB	116	24	78	10	19.3	38.7
Alameda St.	East	1800	SB	110	24	72	10	18.3	57.0

Summary of Street Name Signs—Chautauqua at Imhoff									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Chautauqua Ave.	South	2800	EB	140	24	102	11	23.3	23.3
Chautauqua Ave.	South	2700	WB	140	24	102	11	23.3	46.7
Imhoff Rd.	West	600	NB	100	24	64	10	16.7	63.4
Imhoff Rd.	West	700	SB	100	24	64	10	16.7	80.0

Summary of Street Name Signs—Lindsey at Pickard									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Pickard Ave.	South	1200	EB	114	24	75	11	19.0	19.0
Pickard Ave.	South	1100	WB	114	24	75	11	19.0	38.0
Lindsey St.	West	900	NB	106	24	67	10	17.7	55.7
Lindsey St.	West	1000	SB	106	24	67	10	17.7	73.3

Summary of Street Name Signs—Lindsey at Flood									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Flood Ave.	South	1000	EB	100	24	62	11	16.7	16.7
Flood Ave.	South	900	WB	100	24	62	11	16.7	33.3
Lindsey St.	West	800	NB	106	24	67	10	17.7	51.0
Lindsey St.	West	900	SB	106	24	67	10	17.7	68.7

Summary of Street Name Signs—Lindsey at Chautauqua									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Chautauqua Ave.	South	1000	EB	140	24	102	11	23.3	23.3
Chautauqua Ave.	South	900	WB	140	24	102	11	23.3	46.7
Lindsey St.	West	600	NB	106	24	67	10	17.7	64.3
Lindsey St.	West	700	SB	106	24	67	10	17.7	82.0

Summary of Street Name Signs—Lindsey at Classen									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Classen Blvd.	South	2100	EB	118	24	80	11	19.7	19.7
Classen Blvd.	South	2000	WB	118	24	80	11	19.7	39.3
Lindsey St.	East	700	NB	106	24	67	8	17.7	57.0
Lindsey St.	East	600	SB	106	24	67	8	17.7	74.4

Summary of Street Name Signs—Lindsey at Biloxi									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Biloxi Dr.	South	1200	EB	94	24	56	11	15.7	15.7
Biloxi Dr.	South	1100	WB	94	24	56	11	15.7	31.3
Lindsey St.	East	1400	NB	106	24	67	9	17.7	49.0
Lindsey St.	East	1300	SB	106	24	67	9	17.7	66.7

Summary of Street Name Signs—Lindsey at Oakhurst									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Oakhurst Ave.	South	1200	EB	122	24	84	11	20.3	20.3
Oakhurst Ave.	South	1100	WB	122	24	84	11	20.3	40.7
Lindsey St.	East	1900	NB	106	24	67	9	17.7	58.3
Lindsey St.	East	1800	SB	106	24	67	9	17.7	76.0

Summary of Street Name Signs—Lindsey at 24 th SE									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
24 th Ave. SE	South	1200	EB	118	24	79	11	19.7	19.7
24 th Ave. SE	South	1100	WB	118	24	79	11	19.7	39.3
Lindsey St.	East	2400	NB	106	24	67	9	17.7	57.0
Lindsey St.	East	2300	SB	106	24	67	9	17.7	74.7

Summary of Street Name Signs—Rock Creek at Stubbeman									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Stubbeman Ave.	North	2300	EB	138	24	99	10	23.0	23.0
Stubbeman Ave.	North	2400	WB	138	24	99	10	23.0	46.0
Rock Creek Rd.	West	500	NB	130	24	93	10	21.7	67.7
Rock Creek Rd.	West	600	SB	130	24	93	10	21.7	89.3

Summary of Street Name Signs—Porter at Rock Creek									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Porter Ave.	North	2300	EB	108	24	70	10	18.0	18.0
Porter Ave.	North	2400	WB	108	24	70	10	18.0	36.0
Rock Creek Rd.	East	100	NB	130	24	93	8	21.7	57.7
Rock Creek Rd.	West	100	SB	130	24	93	10	21.7	79.3

Summary of Street Name Signs—Porter at Sandpiper									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Porter Ave.	North	1600	EB	108	24	70	10	18.0	18.0
Porter Ave.	North	1700	WB	108	24	70	10	18.0	36.0
Sandpiper Ln.	East	100	NB	120	24	84	8	20.0	56.0
Sandpiper Ln.	West	100	SB	120	24	84	10	20.0	76.0

Summary of Street Name Signs—Stubbeman at Timberwolves (North Signal)									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Stubbeman Ave.	North	1900	WB	138	24	99	10	23.0	23.0
Timberwolves Trail	—	—	NB	136	24	115	—	22.7	45.7
Timberwolves Trail	—	—	SB	136	24	115	—	22.7	68.3

Summary of Street Name Signs—Stubbeman at Timberwolves (South Signal)									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Stubbeman Ave.	North	1700	WB	138	24	99	10	23.0	23.0
Timberwolves Trail	—	—	NB	136	24	115	—	22.7	45.7
Timberwolves Trail	—	—	SB	136	24	115	—	22.7	68.3

Summary of Street Name Signs—Robinson at N. Interstate Dr.									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
N. Interstate Dr.	North	1100	EB	134	24	96	10	22.3	22.3
N. Interstate Dr.	North	1200	WB	134	24	96	10	22.3	44.7
Robinson St.	West	3000	NB	112	24	75	11	18.7	63.3
Robinson St.	West	3100	SB	112	24	75	11	18.7	82.0

Summary of Street Name Signs—Robinson at Crossroads/Rambling Oaks									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
← Crossroads Blvd. Rambling Oaks Dr →	North	1200	EB	130	32	66	11	28.9	28.9
← Rambling Oaks Dr Crossroads Blvd →	North	1100	WB	130	32	75	11	28.9	57.8
Robinson St.	West	3100	NB	112	24	75	11	18.7	76.5
Robinson St.	West	3200	SB	112	24	75	11	18.7	95.2

Summary of Street Name Signs—Robinson at Brookhaven									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Brookhaven Blvd.	North	1100	EB	144	24	106	10	24.0	24.0
Brookhaven Blvd.	North	1200	WB	144	24	106	10	24.0	48.0
Robinson St.	West	3700	NB	112	24	75	11	18.7	66.7
Robinson St.	West	3800	SB	112	24	75	11	18.7	85.3

Summary of Street Name Signs—Robinson at Berry									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Berry Rd.	North	1100	EB	96	24	57	10	16.0	16.0
Berry Rd.	North	1200	WB	96	24	57	10	16.0	32.0
Robinson St.	West	1100	NB	112	24	75	11	18.7	50.7
Robinson St.	West	1200	SB	112	24	75	11	18.7	69.3

Summary of Street Name Signs—Tecumseh at 24 th NW									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
24 th Ave. NW	North	3500	EB	120	24	82	11	20.0	20.0
24 th Ave. NW	North	3600	WB	120	24	82	11	20.0	40.0
Tecumseh Rd.	West	2300	NB	122	24	83	10	20.3	60.3
Tecumseh Rd.	West	2400	SB	122	24	83	10	20.3	80.7

Summary of Street Name Signs—Tecumseh at Flood									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
Flood Ave.	North	3500	EB	100	24	62	11	16.7	16.7
Flood Ave.	North	3600	WB	100	24	62	11	16.7	33.3
Tecumseh Rd.	West	2200	NB	122	24	83	11	20.3	53.7
Tecumseh Rd.	West	2300	SB	122	24	83	11	20.3	74.0

Summary of Street Name Signs—12 th NE at Shadowlake/Kingston									
Message 1	Message 2	Message 3	Direction of Traffic	A (in.)	Height (in.)	B1 (in.)	B2 (in.)	Sign Area (S.F.)	Total (S.F.)
12 th Ave. NE	North	2900	EB	114	24	76	11	19.0	19.0
12 th Ave. NE	North	3000	WB	114	24	76	11	19.0	38.0
← Shadowlake Rd. Kingston Rd. →	East	1100	NB	118	32	65	9	26.2	64.2
← Kingston Rd. Shadowlake Rd. →	East	1200	SB	118	32	51	9	26.2	90.4