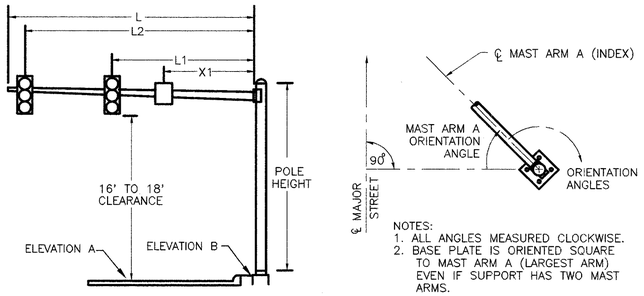
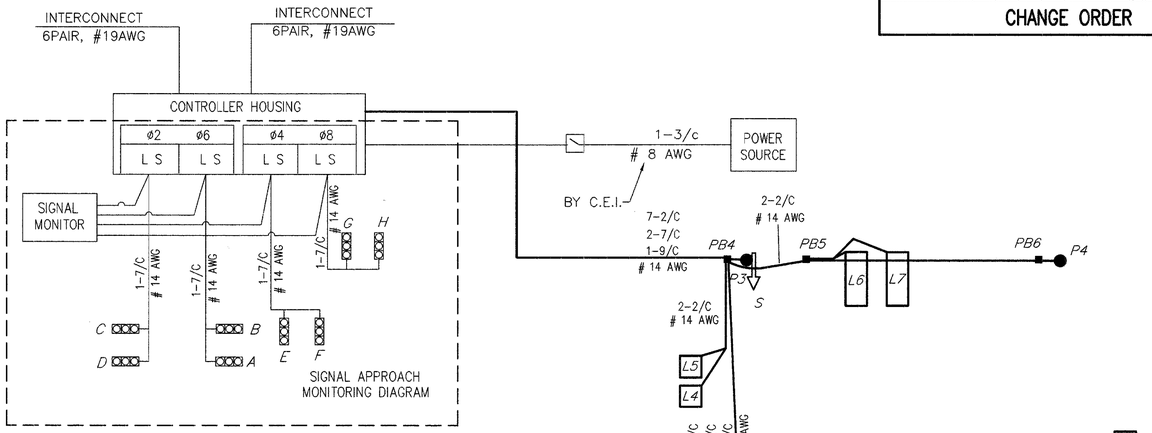
CALC. BY: DATE:	LAKE COUNTY LAK-20-2.70	OHIO
CHKD. BY: DATE:		FHWA REGION 5
	CHANGE ORDER	FEDERAL PROJECT



NOTES:
1. ALL ANGLES MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.

SUPPORT NO.	SIGNAL SUPPORT TC-81.20 TC-12.30: POLE DESIGN NO. TC-81.20	POLE DESIGN NO. TC-12.30	ARM DESIGN NO.	POLE HEIGHT (FT)	FOUNDATION STATION	FOUNDATION OFFSET	L (FT.)	L 1 (FT.)	L 2 (FT.)	L 3 (FT.)	X 1 (FT.)	ELEVATION A INT. CENTERLINE	ELEVATION B SIGNAL SUPPORT	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM "A": MAST ARM B	PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE (12" FROM TOP)		
P1	4		3	20'	203+60	27'R	33	22	32					270		90	90				180			
			3				32	9	19						90									
P2	PED			8'	202+88	23'R								0		90 180	90 180				180			
P3	11		11	20'	202+95	45'L	39	28	38				683.5	0		270	270				180			
P4	12		12	20'	203+83	45'L	48	33	47				683.7	90							180			

ORIENTATION ANGLE CHART



WIRING DIAGRAM

FUNCTION	ø2	ø4	ø6	ø8
MINIMUM GREEN	20	8	20	8
PED WALK	7	7	–	–
PED CLEARANCE	11	10	–	–
GREEN EXTENSION	–	3.5	–	3.5
MAXIMUM GREEN	55	25	55	25
YELLOW CLEARANCE	3.6	3.1	3.6	3.1
ALL RED CLEARANCE	1.4	1.6	1.4	1.6
RECALL	PED	NONE	PED	NONE

SIGNAL TIMING

NOTES:
1. PHASE SPLITS SHALL INCLUDE ALL GREEN PLUS YELLOW & ALL RED
2. PERMISSIVES SHALL START AT THE ZERO POINT OF THE CYCLE
3. OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 & 6 YELLOW

	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	85	100	120
PHASE 2 SPLIT	80 %	88 %	83 %
PHASE 4 SPLIT	20 %	12 %	17 %
PHASE 6 SPLIT	80 %	88 %	83 %
PHASE 8 SPLIT	20 %	12 %	17 %
PERMISSIVE	15 %	15 %	15 %
OFFSET	87 %	96 %	39 %
TIME OF DAY SCHEDULE	ALL OTHER TIMES	6:30AM TO 9:00AM MON–SAT	3:30PM TO 6:30PM MON–SAT

COORDINATION TIMING

SIGNAL HEAD	ø2 & ø6 R/W		ø2 & ø6 CLEAR		ø4 & ø8 R/W		ø4 & ø8 CLEAR		FLASH
A	G	G	Y	R	R	R	R	R	Y
B	G	G	Y	R	R	R	R	R	Y
C	G	G	Y	R	R	R	R	R	Y
D	G	G	Y	R	R	R	R	R	Y
E	R	R	R	R	G	G	Y	R	R
F	R	R	R	R	G	G	Y	R	R
G	R	R	R	R	G	G	Y	R	R
H	R	R	R	R	G	G	Y	R	R
S–S	DW	DW	DW	DW	W	FDW	DW	DW	DARK
T–T	W	FDW	DW	DW	DW	DW	DW	DW	DARK

SIGNAL DISPLAY CHART

LOOP #	SIZE	# TURNS	MODE	DELAY	UNIT #	PHASE
L1	6' x 6'	3	PRESENCE	0	1	SYSTEM
L2	6' x 6'	3	PRESENCE	0	2	SYSTEM
L3	12' x 15'	2–4–2	PRESENCE	8	3	4
L4	6' x 6'	3	PRESENCE	0	4	SYSTEM
L5	6' x 6'	3	PRESENCE	0	5	SYSTEM
L6	6' x 15'	2	PRESENCE	8	6	8
L7	6' x 15'	2	PRESENCE	0	7	8

LOOP DETECTOR CHART

ITEM	TOTAL	UNIT	DESCRIPTION
202	10	LIN FT	CURB REMOVED
202	680	SQ FT	WALK REMOVED
608	740	SQ FT	4" CONCRETE WALK
608	50	SQ FT	CURB RAMP, TYPE 2
625	5	EACH	GROUND ROD
625	6	EACH	PULLBOX, MISC.: AS PER PLAN
625	129	LIN FT	CONDUIT, 2", 713.04
625	7	LIN FT	CONDUIT, 3", 713.04
625	187	LIN FT	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3"
625	136	LIN FT	TRENCH
632	8	EACH	VEHICULAR SIGNAL HEAD, 3 SECT., 12" LENS, 1–WAY, AS PER PLAN
632	4	EACH	PEDESTRIAN SIGNAL HEAD, TYPE "D–2"
632	4	EACH	PEDESTRIAN PUSHBUTTON
632	5	EACH	LOOP DETECTOR UNIT, AS PER PLAN
632	2	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	8.63	CU YD	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DES. 12, WITH 48' ARM
632	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DES. 11, WITH 39' ARM
632	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DES. 4 WITH MAST ARMS
			TYPE TC–81.20, DES. 3, 33' AND TYPE TC–81.20, DES. 3, 32'
632	1	EACH	PEDESTAL, 8', TRANSFORMER BASE
632	3	EACH	CABLE SUPPORT ASSEMBLY
632	316	LIN FT	LOOP DETECTOR PAVEMENT CUTTING
632	974	LIN FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	124	LIN FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
632	884	LIN FT	LOOP DETECTOR WIRE, TYPE E
632	677	LIN FT	LOOP DETECTOR LEAD–IN CABLE
632	67	LIN FT	POWER CABLE, 3 CONDUCTOR, NO. 8 AWG
632	1	EACH	CONDUIT RISER, 1 1/2"
632	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	10.4	SQ FT	CONTROLLER WORK PAD
633	1.85	CU YD	CONCRETE FOR CABINET FOUNDATION
633	1	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

EUCLID AVE. & WILLO PLAZA TRAFFIC CONTROL PLAN