Modification or Addition to Improvement Standards and Details

Modification Number: 2010-1
Effective Date of Change: 3-12-2010

Modification:

1. **Standard Drawing T-7**: Modify detail to eliminate the use of bike push button post adjacent to bike lane. All designated bike lanes shall be provided with bike loops.

2. **Standard Drawing T-16**: Modify typical front detector loop layouts near the intersection limit lines from an array of four Type A loops to an array of two loops with a modified Type A loop for the front and Type A loop for the back, in each travel lane. Each detector loop shall be provided with its own detector lead in cable and connected in controller for operation. Modify type and placement of detector hand hole. Clarify and add notes to loop installation procedures.

3. **Standard Drawing T-17**: Remove note 7 regarding the use of Type A valve box (detector handhole).

4. **Standard Drawing T-19**: Clarify detail and note to identify the size of the pedestrian sign R10-4B to be 9”x12”. Clarify note for pedestrian push button.

5. **Standard Construction Specifications, Section 49-2.06**: Modify 2nd paragraph to read: All new traffic signal interconnect pull boxes shall be No. 6.

6. **Standard Construction Specifications, Section 49-2.06**: Modify 4th paragraph to read: All new traffic signal pull boxes adjacent to controller cabinets shall be No. P44.

7. **Standard Construction Specifications, Section 49-5.01**: Modify 4th paragraph to read: All detector loops shall be 5’ by 5’. Detector loops near intersection limit lines shall consist of an array of two loops for each lane, including right turn lane. The front loop shall be a modified Type A loop with four turns and the back loop is a Type A loop with three turns. Spacing between loops in the same lane shall be 10-feet. Each detector loop shall be provided with its own detector lead in cable and connected in controller for operation.

8. **Standard Construction Specifications, Section 49-5.01**: Remove the 9th paragraph and add: Detector handhole shall be Type “B”.

Amended specifications are attached. Projects with preconstruction conference prior to effective date not subject to modification.
Effect of Modification:

1. New two-loop array near the intersection limit lines provides adequate vehicle detection area in each travel lane. Two-loop array is cost effective – cut construction time and cost in half, comparing with old 4-loop array setup.

2. Modified Type A front loop in each travel lane provides effective detection to bicycles and motorcycles and is in compliant with the current Caltrans Traffic Operations Policy Directive 09-06 to provide detection for bicycles and motorcycles at traffic signals.

3. Limit detector loop and detector handhole work to one lane at a time will minimize construction/lane closure time.

Request for Modification Initiated By: [Signature] 3-11-2010

Modification Reviewed for Conformity and Consistency to Standards: [Signature] 3/17/10

Modification to Improvement Standards Approved: [Signature] 3/18/10
BIKE LOOP INSTALLATION AT MAJOR INTERSECTION WITH RIGHT TURN LANE

BIKE LOOP INSTALLATION ADJACENT TO CURB AND GUTTER

NOTES:

1. BIKE LOOP SHALL BE INSTALLED WITH CONDUIT, DETECTOR HANDHOLE (DH) AND DETECTOR LEAD IN CABLE (DLC) AND CONNECTED IN CONTROLLER WITH SEPARATE CHANNEL FOR OPERATION, UNLESS OTHERWISE NOTED ON THE PLANS.

2. FOR BIKE LANE WITH LESS THAN 3 FEET IN WIDTH, MEASURING FROM BIKE LANE STRIPE AND LIP OF GUTTER, USE 3/4 SIZE OF BIKE LANE LEGEND.

3. BIKE LANE LEGENDS, ARROWS AND BIKE DETECTOR SYMBOLS SHALL BE 2 COATS WATER BASED WHITE PAINT PER SECTION 84-3.02 OF THE STATE STANDARD SPECIFICATIONS.

CITY OF ELK GROVE - PUBLIC WORKS
BIKE LOOP AND BIKE LEGEND INSTALLATION DETAIL

DATE: 02/12/2009
REVISION: 1
APPROVED: DC
DRAWING NUMBER: T-7

BIKE LOOP DETECTOR DETAIL
BIKE DETECTOR SYMBOL DETAIL
BIKE LANE LEGEND DETAIL

NOT TO SCALE

PLPNS TYPE "A"
TWO DETECTOR
TURN (TYP). SEE
CABLE REQUIRED
DEPTH (NOTE
LOOP WINDING
TO CONTROLLER
DETECTOR
13)
AS
1 DLC PER
HAND
DETECTOR
TYPE'S
LEAD
HOLE
PATTERNS
SECTION
IN
LOOP
AND
TYPICAL LOOP INSTALLATION
CONNECTION
liS
A-A
PULL
BOX
NO.
4
TURNS COPPER WIRE
12 AWG
(REVISION I BY I APPROVED I
01/17/2006
9)
DATE:
03/01/2010
01/12/2009
SCALE
NOT
TO
DRAWING
NUMBER
CITY OF ELK GROVE - PUBLIC WORKS
TYPICAL DETECTOR LOOP
LAYOUTS
APPROVED BY:
CITY ENGINEER

LOOP INSTALLATION PROCEDURE
1. ALL LOOP WORK SHALL CONFORM TO THE LATEST VERSION OF SECTION 49-5 "DETECTOR" OF THE CITY OF ELK GROVE STANDARD CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS.
2. SEE CURRENT STATE STANDARD PLANS ES-5 SERIES FOR ADDITIONAL DETAILS.
4. NEW OR REPLACEMENT LOOP SHALL BE MARKED ON PAVEMENT AND THEIR LOCATION APPROVED BY THE ENGINEER, PRIOR TO PAVEMENT CUTTING.
5. LOOP INSTALLATION SHALL INCLUDE NEW CONDUIT, DETECTOR HANDHOLE (DH) AND DETECTOR LEAD IN CABLE (DLC), UNLESS OTHERWISE NOTED ON THE PLANS.
6. EACH DETECTOR LOOP IN EACH TRAVEL LANE SHALL BE INSTALLED WITH ITS OWN DETECTOR LEAD IN CABLE AND CONNECTED IN CONTROLLER WITH SEPARATE DETECTOR CHANNEL FOR OPERATION, UNLESS OTHERWISE NOTED ON THE PLANS.
7. DETECTOR LEAD IN CABLES SHALL BE CONTINUOUS WITHOUT SPACES BETWEEN LOOP TERMINATION PULL BOX AND CONTROLLER.
8. LOOP INSTALLATION 250' OR MORE FROM STOP BAR SHALL HAVE 4 TURNS.
9. DETECTOR LOOP CONDUCTOR SHALL NOT BE TYPE RWH-USE NEOPRENE-JACKETED OR TYPE USE CROSSLINKED POLYPROPYLENE INSULATED NO. 12 STRANDED COPPER WIRE. CONDUCTOR INSULATION THICKNESS SHALL BE 100 MILS MINIMUM.
10. DISTANCE BETWEEN SIDE OF LOOP AND LEAD-IN SAW CUT SHALL BE 1'-0" MINIMUM.
11. LOOPS AND LEAD-IN CUTS SHALL BE LOCATED A MINIMUM OF 2 FEET FROM THE NEAREST EDGE OF MANHOLE COVER OR VALVE BOX.
12. WIDTH OF SAW CUTS SHALL BE 1/4" WIDER THAN THICKNESS OF THE CONDUCTOR.
13. DEPTH OF SAW CUTS SHALL BE SUCH THAT THE MINIMUM SEALANT COVER SHALL BE 1/2" WITH AN ADDITIONAL 1/8" TO 1/4" GAP BETWEEN TOP OF SEALANT AND SURFACE OF PAVEMENT.
14. TEST EACH LOOP CIRCUIT AT CONTROLLER CABINET (OR, IF THESE ARE NOT INSTALLED, TEST AT TERMINATION PULL BOX) BEFORE FILLING SLOTS. PERFORM A RESISTANCE TEST BETWEEN EACH CIRCUIT AND GROUND. INSULATION RESISTANCE SHALL NOT BE LESS THAN 500 MEGA OHMS. TEST EACH LOOP CIRCUIT FOR CONTINUITY. LOOP CIRCUIT RESISTANCE SHALL NOT EXCEED 0.5 OHMS PLUS 0.35 OHMS PER 100 FEET OF LEAD-IN CABLE.
15. SEALANT FOR LOOP DETECTORS SHALL BE 3M 5000 OR APPROVED EQUAL ELASTOMERIC SEALANT.
16. CONDUIT BETWEEN DETECTOR HANDHOLE AND PULL BOX SHALL BE INSTALLED 30" MINIMUM BELOW ROADSIDE DITCH OR SWALE.
17. DETECTOR HANDHOLE (DH) SHALL BE TYPE B (SEE STD DWG T - 17).
18. ANY DAMAGE TO EXISTING LOOPS, DETECTOR HANDHOLE, CONDUIT AND DETECTOR LEAD IN CABLE SHALL BE REPLACED PER THE REQUIREMENTS SET FORTH IN THIS DETAIL.

DATE:
01/17/2006
NOT TO SCALE
REVISION
BY
APPROVED
DATE
1
dc
lm
01/12/2009
2
dc
lm
03/01/2010

CITY OF ELK GROVE - PUBLIC WORKS
TYPICAL DETECTOR LOOP LAYOUTS
APPROVED BY:
CITY ENGINEER

DRAWING NUMBER
T - 16
INSTALLATION REQUIREMENTS:

1. 18" SQ.± P.C.C. ENCASEMENT OUTLINE SHALL BE SAW OUT TO A MINIMUM DEPTH OF 3", EXCEPT WHERE AC OVERLAY IS TO BE PLACED.
2. THE PRECAST VALVE BOX WITH CAST IRON LID SHALL BE FABRICATED OF CALCIUM CARBONATE AND POLYESTER RESINS WITH FIBERGLASS REINFORCING AND DESIGNED FOR HEAVY TRAFFIC LOADS.
3. CAST IRON LID SHALL BE MARKED "DETECTOR" AND SHALL BE SECURED IN PLACE BY APPLYING SILICONE SEALANT. VALVE BOX LOCATION SHALL BE AS SHOWN ON THE PLANS.
4. THE EXCAVATION AROUND THE HANDHOLE SHALL BE BACKFILLED WITH 5 SACK P.C.C.
5. THE HANDHOLE SHALL BE PROTECTED WITH COLD PATCH OR OTHER SUITABLE PROTECTION UNTIL PERMANENT A.C. BACKFILL IS PLACED.
6. THE CEMENT USED TO JOIN THE ABS SWEEP "Y" TO THE PVC CONDUIT SHALL BE CAPABLE OF PROVIDING SOLVENT TYPE WELD BETWEEN THE TWO MATERIALS.
NOTES:

1. PEDESTRIAN PUSH BUTTON SHALL BE TYPE B, LARGE A.D.A. TYPE WITH A TWO-INCH (2") DIAMETER BUTTON. IT SHALL BE BUMBLEBEE OR APPROVED EQUAL.
2. PEDESTRIAN SIGNS SHALL BE METAL AND SHALL CONFORM TO STANDARD SIGN NO. R10-4b (9" x 12") OF THE MUTCD 2003 EDITION AND CALIFORNIA MUTCD EDITION.
3. PEDESTRIAN PUSH BUTTON HOUSING SHALL BE EITHER DIE-CAST OR PERMANENT MOLD CAST ALUMINUM.
4. AUDIBLE PEDESTRIAN SIGNAL SHALL BE MODEL APS-10 BY INDICATOR CONTROLS CORPORATION, OR APPROVED EQUAL.
5. ALL PEDESTRIAN SIGNAL HEADS SHALL BE THE "COUNTDOWN" VARIETY.
6. PEDESTRIAN HEADS SIGNAL DISPLAY SHALL BE HIGH INTENSITY L.E.D. AND MUST MEET THE STATE SPECIFICATIONS REQUIREMENTS FOR LUMINANCE. THE DISPLAY SHALL INCLUDE SOLID (FILLED IN) "WALKING PERSON" AND "RAISED HAND" SYMBOLS.