NEW		EXISTING
	Standard traffic and pedestrian count down signal heads mounted on Type I Signal Standard, height=10'	~ -{}
○ ———[]]	Pedestrian count down signal head mounted on Type I Signal Standard, height=8'	c[[]
	12" ↑ ↑ ↑ Traffic signal head	
$\longrightarrow \triangleright$	12" R Y G Traffic signal head	- [>
	Pedestrian head with count down signal head	
—	12" ← ← ← Traffic signal head	
\rightarrow	12" R Y G ← Traffic signal head	-
→ >	12" ← ← ← Traffic signal head Programmed visibility head (PVH)	$\xrightarrow{\hspace*{1cm}}$
40°,	Traffic signal heads mounted on Type II Signal Standard 40' M.A.: 12' between heads	
$\otimes\!$	EVP Detector	
	Type "A" pullbox	
	Type "B" pullbox	
	Type "C" pullbox	
	Existing pullbox	
£3	Replace existing pullbox with new Type "A" pullbox	
23	Replace existing pullbox with new Type "B" pullbox	
	Replace existing pullbox with new Type "C" pullbox	
	Exist. Model 170 controller	
	New Model 170 controller on new base	
ЦЦ	Loop detectors	
0	Sign	
•TS ·	New traffic signal standard	oTS
	Traffic signal conduits (underground)	
	Existing traffic signal facilities to be removed	X

TRAFFIC SIGNAL NOTES

- 1. All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
- 2. Signal indications during clearance interval:

 A. If a signal is G or <6 and will remain G or <6 during the next phase, it shall be G or <6 during the clearance interval.
 - B. If a signal is G or <G and will become R or extinguished during the next phase, it shall be Y or Y during the clearance interval.
 - C. ←If a signal is R and will remain R or becomes G during the next phase, it shall remain R during the clearance interval.
- 3. Back plates with a 5-inch border containing wind slots and a 1-inch wide retro-reflective tape shall be installed on all mast arm mounted traffic signal heads as indicated on the plan sheets.
- 4. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
- 5. A solid #8 bare copper wire shall be pulled with the traffic control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
- 6. A solid #6 bare copper wire shall be pulled with the power cable servicing the Controller cabinet for equipment ground. Cost shall be incidental to the installation of the power cable.
- 7. Conduits and pullbox locations as shown on the plans are schematic. They may be modified by the contractor with the approval of the engineer.
- 8. The contractor shall install the controller and cabinet in the indicated location.
- 9. All work for the installation or modification of the traffic signal system shall conform to the latest revisions of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005" and the "Standard Plans" of the State of Hawaii, Department of Transportation, Highways Division, 2008 and as shown on these drawings.
- 10. Traffic Signal Standards shall conform to "4.0 Modifications to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" as noted in HDOT "Design Criteria for Bridges and Structures", August 8, 2014.
- 11. All splicing shall be done in the pullboxes.
- 12. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.

- 13. The concrete jacket for the conduit by-pass detail shown on State Standard Plan TE-36 shall not be paid for separately but considered incidental to the various contract items. The engineer shall determine if a concrete jacket is required.
- 14. All cable and elements for grounding shall be new.
- 15. Cables between signal faces, pedestrian heads, and EVP detectors and the nearest pullbox are not called out on the plan, but shall be furnished and installed in sufficient numbers and lengths as required. Cost shall be incidental to various traffic signal contract items.
- 16. Conduits between the traffic signal standard and the pullbox shall be in sufficient number as required. Cost shall be incidental to the installation of the traffic signal standard foundation.
- 17. Unless otherwise specified, all conduits shall be concrete encased PVC schedule 40.
- 18. The contractor shall notify the Traffic Control Branch, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (Phone: 768-8387).
- 19. While modifying the existing traffic signal systems, the contract shall keep the existing system operational until the new traffic signal system can be put into service.
- 20. The contractor shall salvage all existing heads, standards, and cables not used in the new system. Cost shall be incidental to the various contract items.
- 21. All traffic signal hardware removed from the intersection shall be stockpiled and delivered to a location determined by the Engineer.
- 22. Foundation for Type II Traffic Signal Standards with Mast Arms less than 40 feet in Length Shall be Constructed in Accordance with Hawaii State Department of Transportation Standard Plans, 2008 as Amended.
- 23. For Type II Traffic Signal Standards, the Contractor Shall be Responsible to Coordinate the Foundation with the Traffic Signal Standard Provided; any Changes Required to the Foundation due to the Traffic Signal Standard Provided Shall be Designed by a Licensed Structural Engineer. All Design and Construction Cost for These Changes will be Borne by the Contractor.

FED.ROAD DIST.NO.	STATE	PROJ. NO.	FISCAL YEAR	1	TOTAL SHEETS
OAHU	HAW.	HWY-0-01-13	2016	29	47

CONSTRUCTION NOTES

- 1. Locations of existing underground structures and utilities such as pipe-lines, conduits, cables, etc., shown on plans are approximate only. It is not the intent of these plans to show the exact location of all underground utilities and structures. It is the responsibility of the contractor to verify the locations of all existing utilities with the respective owners. Existing utilities damaged by the contractor shall be repaired by the contractor at his own cost.
- 2. The contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the engineer for clarification.
- 3. The contractor shall notify all agencies to verify, tone and locate their existing utilities within the project area prior to excavating. The contractor shall coordinate all work.
- 4. The locations of the new traffic signal standards, traffic signal standards with mast-arm, pedestrian push buttons, traffic controller, pullboxes, conduits and loop detectors shall be staked out in the field by the contractor and approval of the locations shall be obtained from the engineer prior to construction and installation.
- 5. All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition", Federal Highway Administration (2009) as amended.
- 6. Maintenance of traffic through the construction area shall be in accordance with Part VI of the "Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition", Federal Highway Administration (2009) as amended and as specified in the special provisions. The contractor shall furnish and maintain adequate barricades, blinkers, construction signs, etc., for the safety of the motoring public.
- 7. At the end of each day's work, the contractor shall remove all equipment and other obstruction to permit free and safe passage of public traffic.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL NOTES & LEGEND

TRAFFIC OPERATIONAL IMPROVEMENTS

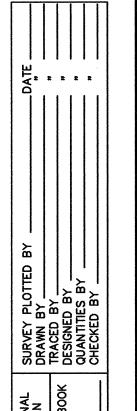
AT VARIOUS LOCATIONS

Project No. HWY-0-01-13

me or under my supervision and will be under my observation.
as defined in Chapter 16-115 the Hawaii Administrative Rules

Scale: As Noted

e: As Noted Date: Oct 2015
SHEET No. TS-1 OF 6 SHEETS



This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16–115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")

EXP. 4/30/16