

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-0300(101)	2005	2	26

GENERAL NOTES

1. This project is intended to modernize traffic signals under the State of Hawaii, Department of Transportation (DOT), Highways Division jurisdiction on the island of Oahu. Scope of this project includes:
- A. Retrofit existing incandescent traffic signals with light emitting diode (LED) units as scheduled herein.
- B. Replace all existing yellow circular signal indication on traffic signal faces for left/right turn movements with new yellow arrow indication oriented in the same way as the existing green arrow.
- C. Perform miscellaneous traffic signal upgrades and alterations as called for herein.
2. Location, description, and quantity of traffic signals shown herein were researched from best available records and field surveyed between December 2003 to March 2004 by State DOT, Highways Division, Traffic Branch, Traffic Design Section. Contact: Loy Kuo, Engineer @ 692-7681 or loy.kuo@hawaii.gov. Information reflected in the schedules of these plans are based on this research.
- The entire traffic signal inventory will have collectively experienced continual wear and maintenance by bid time and thru the entire project duration. Some individual signals and systems may be substantially modified by ongoing and future construction projects to differ from the schedules.
- Before starting work on each traffic signal system, Contractor shall field verify condition and promptly report to the Engineer of any differing site condition. Reporting shall include but not limited to, schematic layout of the intersection, color and indication type for each signal face, other pertinent information requested by the Engineer to best determine direction-to-proceed.
3. Maintenance of State Highways Division traffic signals on Oahu are currently shared by the following three agencies:
- A. City & County of Honolulu, Department of Transportation Services, Traffic Signals & Technology Division, Field Operations Manana Yard. Contact: Wally Nakihira, Field Supervisor @ 564-6101.
- B. State of Hawaii, Department of Transportation, Highways Division, Oahu District, Maintenance Section, Highway Electrical Unit. Contact: Victor Chan, Engineer @ 831-6886.
- C. State of Hawaii, Department of Transportation, Highways Division, Oahu District, Tunnel Section. Contact: Clyde Morita, Engineer @ 485-6233.

This project is not intended to have the Contractor take over general traffic signal maintenance function of these agencies during the project duration. However, Contractor shall perform the work required by this project and as field directed by the Engineer that may be maintenance in future.

Contractor shall coordinate its work and cooperate with these agencies to minimize impact and disruption to their operations.

4. Proper operation of traffic signals 24 hours a day, 7 days a week, is vital to public safety and welfare. Traffic signal technology is recognized to be a specialized field that may be beyond the basic trade knowledge of a journeyman-level electrician or contractor with the State of Hawaii Department of Consumer and Commerce Affairs C-13 contractor's license.
- Contractor is liable for any direct and collateral traffic signal damages caused by its operation. Before starting actual fieldwork, Contractor shall plan and implement provisions to respond to possible emergency situations relating to traffic signals resulting from its operation.

In the event that the Contractor fails to have the necessary expertise, equipment, or manpower to make prompt and proper repairs to damages caused by its operation; the State, at its own sole judgment, may proceed to perform the repair itself and recover the incurred costs from the Contractor through project billing back charge or other means.

CONSTRUCTION NOTES

1. The State of Hawaii, DOT, Highways Division, Hawaii Standard Specifications for Road Bridge, and Public Works Construction, dated 1994 (also commonly referred to as the Standard Specification); and the Special Provisions of this project are both separately bounded with these plans but are integral to this project's requirements.
- The U.S. DOT Manual of Uniform Traffic Control Devices (MUTCD), 2000 edition or later, is also integrally crossed referenced by the project documents.
- Unless otherwise shown, herein all work shall follow State of Hawaii, DOT, Highways Division, Standard Plans and its latest updates.
- Contractor shall inform its field personnel and provide convenient access of these documents to them during work hours.
2. Contractor shall notify State DOT, Traffic Branch, Traffic Design Section @ 692-7681 no later than two (2) weeks before starting work to schedule for a quality assurance meeting.
- Each work area/crew of this project shall have in presence minimally one Contractor's field supervisor who will have attended this meeting. Attendance of all Contractor's workers assigned for this project is encouraged but not required.
- The meeting, headed by a representative of Traffic Design Section, should last no longer than 4 hours. Traffic signal operation, Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4 - Highway Traffic Signals, Chapter 6 - Temporary Traffic Control, emergency response plan, and project inspection requirements are to be discussed.
- The meeting may serve as an evaluation of Contractor's personnel in accordance with Standard Specifications Section 108.05 - Character of Workers, Methods and Equipment.
3. Contractor shall verify presence of existing utilities and obstacles that may conflict with the construction activities and coordinate with pertinent government entity or utility company for necessary temporary relocation. All costs associated with the temporary relocations and restoration shall be borne by the Contractor.
4. No material or equipment shall be stockpiled or otherwise stored within State highway right-of-way except at locations approved by the Engineer. This restriction also applies to Contractor employees' personal vehicles and temporary toilets.
- Conditions of approval may require Contractor to barricade and/or cone off its material and equipment at its own costs in accordance with MUTCD. The Engineer reserves the right to rescind approval at any time with no extra cost to the State.
- Due to the relatively large amount of LED light units and the widespread work areas for this project, Contractor shall schedule, receive and store LED shipments at its own facility to meet the construction schedule. Such facility shall protect the stored LED's from the weathers and possible damages.
- Payment for LED installation is scheduled for complete installation, i.e., furnishing materials, labor, equipment, tools and incidentals. Material-only payment for the LED will NOT be advanced or made.
5. Contractor shall request instructions from the Engineer and State's maintenance representative before construction to identify items and conditions defining what are to be salvaged.

Contractor shall follow such instructions to salvage all existing traffic signal bulbs and reusable traffic signal parts. Clean, sort, label, and bundle/palletize salvaged parts for convenient transport, storage, and reuse. Deliver salvaged materials to location(s) on Oahu to be designated by the Engineer. Remove and dispose all non-salvageable parts, debris, and trash.

Payment for such salvage and disposal work will be considered incidental and inclusive to other scheduled payment items.

6. Unless otherwise directed, existing utilities, structures, and features shall be protected at all times by the Contractor. The Contractor shall be held liable for any damages incurred from its operations. All damages shall be promptly repaired or replaced in accordance with the standards and specifications of the affected government entity or utility company at the Contractor's own expense.
- Utilities most relevant to this project include power and telecommunication lines, traffic signal system, intersection-to-intersection interconnect system, street lighting, emergency vehicle preemption system, and fiber optic cable system.
7. Contractor shall not close lane or slow traffic during morning (6 to 8 AM) and afternoon (3:30 to 6:00 PM) peak hours on normal weekdays unless otherwise approved by the Engineer.
- This requirement does not preclude the State to restrict Contractor's lane closure at other times, e.g., special events and public complaints, to fulfill the requirements of Standard Specifications Section 107 - Legal Relations and Responsibility to the Public.
8. Contractor shall not risk harm to the public by working overhead of vehicular and pedestrian traffic without safety measures required by OSHA or best trade practice, whichever is more stringent.
9. Most work of this project, i.e., typical light unit change out, can be conventionally performed without disabling the entire traffic signal system of the intersection. To maximum extent possible, Contractor shall minimize disruption or disabling the traffic signal system.
- If traffic signal system must be disabled due to overriding safety or public concerns and agreed in advance with the Engineer, Contractor shall notify and coordinate no less than one week in advance with C#C of Honolulu, Department of Transportation Services, Traffic Signals & Technology Division, Field Operations Manana Yard, for control cabinet access and traffic signal controller shutdown and power up. Contact: Wally Nagihira, Field Supervisor @ 564-6101.
10. Contractor shall perform miscellaneous traffic signal work in accordance to best trade practice and accommodating to future maintenance. Such practice includes, but not limited to use of stainless steel hardware and thread grease.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
NOTES
TRAFFIC SIGNAL MODERNIZATION
LED SIGNAL RETROFIT, PHASE I
AT VARIOUS LOCATIONS ON OAHU
Fed. Aid Project No. CMAQ-0300(101)
Date: May 2005
SHEET No. 1 OF 3 SHEETS

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VERIZON HAWAII GENERAL CONSTRUCTION/DESIGN NOTES

- All applicable construction work shall be done in accordance with the "Verizon Hawaii Standard Specifications for Placing Underground Telephone Systems" dated March 1999, and all subsequent amendments and additions.
- The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.
- The Contractor shall be responsible for any damages to these utilities as a result of their operations. Adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.
- The Contractor shall saw-cut A.C. pavement, concrete curb and gutter, and concrete sidewalk wherever new pullboxes or ductlines are to be placed.
- Prior to excavation of the ductline, the Contractor may request that Verizon Hawaii locate existing ductlines wherever required.

The location of telephone facilities are approximate only. Arrange to have telephone facilities toned prior to commencing excavation activities in the vicinity of underground telephone facilities. Excavation permit and toning request information can be obtained at the Excavation Desk on the 3rd Flr. at 3239 Ualena Street.

- The Contractor shall take necessary precaution not to damage existing cables or ducts. Any work involving existing cables or ducts shall be done in the presence of the Verizon Hawaii inspector or their representative.
- The Contractor shall pump all manholes dry during final inspection.
- The Contractor shall notify the Verizon Hawaii inspector 48 hours prior to the pouring of concrete or backfilling.
- The Contractor shall furnish all materials, labor and equipment necessary to install the ductlines in place complete.

THE BUS NOTE

The Contractor shall notify Oahu Transit Services, Inc. (OTS), Ed Sniffen (848-4571) or Lowell Tom (848-4578), two weeks prior to construction, informing them of location, scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stop.

PUBLIC HEALTH, SAFETY, AND CONVENIENCE NOTES

- The Contractor shall observe and comply with all federal, state and local laws required for the protection of public health and safety and environmental quality.
- The Contractor at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards and Regulations of the State Department of Health. The City shall require supplementary measures as necessary.
- Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities and shall take all necessary precautions for the protection, convenience, and safety of the public.

TRAFFIC CONTROL NOTES

- Contractor shall implement temporary traffic control during work impacting vehicular and pedestrian traffic. Traffic control plans and devices shall comply with latest Manual of Uniform Traffic Control (MUTCD). Contractor is reminded to reference Special Provision Section 107.13 Public Convenience and Safety in application of traffic control.
- Bidders shall research, field verify, and satisfy one self in understanding the general traffic condition and pattern of the work areas of this project. Traffic Summary Island of Oahu 2002 and Traffic Survey Date Island of Oahu 2002 can be accessed and viewed at the Hawaii State Public Library by library patrons. Public may also purchase a copy for about \$75 from the State of Hawaii DOT, Highways Division, Planning Branch. Send written request to: Ronald Tsuzuki, Branch Head, 869 Punchbowl Street, 3rd Floor, Honolulu, Hawaii or faxing to 587-1787.
- Contractor shall hire special-duty police officer(s) at busy or challenging intersections. Busy intersection is defined for this purpose as any car's needing to wait more than one traffic signal phasing cycle to pass thru the intersection. Challenging intersection is described as having vehicles passing the intersection at a speed faster than 30 mph, road geometrics with limited sight distances, or other high driver-demand conditions. When in doubt during construction, Contractor shall seek clarification from the Engineer.

Traffic control by police officer(s) for the abovementioned conditions at the following minimum quantities shall be inclusive of the base contract amount and not considered as extra:

- One (1) police officer for intersection having up to twelve (12) incoming lanes from all approaches.
- Two (2) police officers for intersection with thirteen (13) or more incoming lanes from all approaches.

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SHEET No. 2 OF 3 SHEETS

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10/2/05	DESIGNED BY	
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HAWAIIAN ELECTRIC COMPANY NOTES

1. Location of HECO Facilities

The location of HECO's overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall verify in the field, the locations of the facilities and shall exercise proper care in excavating and working in the area. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.

2. Compliance with Hawaii Occupational Safety and Health Laws

The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. Excavation Permit

The Contractor shall obtain an excavation permit from HECO's Technical Division (543-5654) located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.

4. Overhead Lines

State law requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50KV and below. For each additional 1KV above 50KV, an additional 0.4 inch shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirements is provided as a convenience and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate, de-energize, or blanket HECO lines) can be put in place. HECO's cost of safeguarding its lines will be charged to the contractor.

Contact HECO's Customer Installation Department at 543-7846 for assistance in identifying and safeguarding overhead power lines.

Refer to Section X of HECO's Electric Service Installation Manual for additional guidelines when working around HECO's facilities. A copy may be obtained from HECO's Customer Installations Department.

5. Pole Bracing

A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all associated costs to brace, repair, or straighten poles. All means of structural support for the pole proposed by the Contractor shall first be reviewed by HECO before implementation. For pole bracing instructions, the Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of two (2) weeks in advance.

6. Underground Lines

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. The Contractor shall exercise due care and precautions to avoid disturbing any energized cables and temporary guards and shall work cautiously at all times to avoid accidents.

For verification of underground lines or for assistance in providing proper support and protection of these lines, the Contractor shall call HECO's Construction & Maintenance Dept., Customer & System Superintendent, at 543-4223, a minimum of two (2) week

7. Excavations

When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:

- a) Sheet piling and bracing the excavation to prevent slides, cave-ins and settlements.
- b) Protecting existing structures or facilities with beams, struts, or under-pinnings.
- c) Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

8. Relocation of HECO Facilities

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not to be limited to, excavation and backfill, permits and traffic control, and restoration of pavement, sidewalk and other facilities.

All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

9. Conflicts

The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, the Contractor shall notify HECO immediately upon discovery or identification of such conflict.

10. Damage to HECO Facilities

The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages to HECO's Trouble Dispatcher at 548-7961.

Repair work shall be done by HECO or by the Contractor under HECO's Supervision. Costs for damages to HECO facilities shall be borne by the Contractor.

11. HECO Stand-by Personnel

The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

12. Indemnity

The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions, including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortuous acts caused or contributed to by the Contractor or anyone acting under its direction or control or on its behalf provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

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