



HONOLULU AUTHORITY for RAPID TRANSPORTATION

Daniel A. Grabauskas  
EXECUTIVE DIRECTOR AND CEO

July 28, 2016

**TO:** HART Board of Directors

**THROUGH:** Daniel A. Grabauskas   
Executive Director and CEO

**FROM:** Chris Takashige   
Officer-in-Charge

Kai Nani Kraut   
Deputy Director Construction West

**SUBJECT:** Deferral of Guideway Lighting  
West Oahu Farrington Highway Guideway, Contract No. CT-HRT-10H0137  
Kamehameha Highway Guideway, Contract No. CT-HRT-11H0195

### Overview

Approve bilateral contract change orders in the credit amounts of \$2,492,713 (West Oahu Farrington Highway Guideway) and \$1,536,000 (Kamehameha Highway Guideway) for the deferral of the guideway lighting along both alignments.

### Justification

The contracts for both projects, through the Compendium of Design Criteria, required that *“lighting shall consist of appropriately located luminaries, which shall provide adequate lighting for the orderly egress of patrons and employees during power failure. The lighting and wiring system shall meet applicable requirements of NFPA 130.”*

The NFPA 130, 2007 Edition Section 6.2.5.1 states that the lighting requirements *“shall apply to all underground, enclosed or elevated trainways that are greater than 30.5 m (100 ft) in length or 2 car lengths, whichever is greater”* (emphasis added). As the HART system is elevated, the requirement for lighting did apply at the time the contracts were executed. The 2010 and 2014 editions eliminated the word “elevated”, so the current NFPA 130 has no requirement for lighting as the HART system is neither underground nor enclosed.

After the full length of the Guideways and Stations are completed, but before full revenue service, HART will perform system integration testing at least 6 months prior to operation. During the integration testing, HART will evaluate the necessity of lighting along the guideway in “in-situ” conditions while incorporating maintenance, operations and safety requirements into their evaluation. Having the Stations in place and



powered prior to the testing will allow the testing scenarios to more closely approximate the conditions that will be in place during revenue service.

In coordination with the HART Safety team, areas determined to need additional lighting will be identified and photovoltaic LED fixtures installed as required to meet minimum lighting levels prior to revenue service. Use of photovoltaics will allow the spacing to vary as needed to meet varying lighting levels along the alignment. Any areas determined to need additional lighting will have it installed prior to revenue service, so it is anticipated that some of this scope will be restored prior to revenue service.

**Recommendation**

HART Board of Directors to approve bilateral contract change orders for credit amounts of \$2,492,713 (West Oahu Farrington Highway Guideway) and \$1,536,000 (Kamehameha Highway Guideway) to recover funding due to the decreased construction costs resulting from deferral of the guideway lighting along both alignments.

**Fiscal Impact**

These change orders would restore a total of \$4,028,713 to the program budget.

	ICE	CPC	Negotiated	% Difference from ICE
KHG	\$ 1,730,422	\$ 1,406,374	\$ 1,536,000	(11.2) %
Justification:	KIWC argued that they could not agree to a credit that exceeded the original value they had programed into their cost proposal (\$ 1,536,000). HART agreed.			
WOFH	\$ 2,601,053	\$ 2,327,373	\$ 2,492,713	(4.2) %
Justification:	HART believed a credit within 5% of their original ICE was a fair settlement.			

# HART

HONOLULU AUTHORITY for RAPID TRANSPORTATION

## Deferral of Guideway Lighting for

## WOFH/KHG Contracts

July 28, 2016

# Summary

Bilateral contract change orders in the credit amounts of \$2,490,000 (West Oahu Farrington Highway Guideway) and \$1,536,000 (Kamehameha Highway Guideway) for the deferral of the guideway lighting along both alignments.

National safety guidelines in effect at the bid date were revised subsequent to the bid such that elevated walkways no longer have a minimum lighting requirement. HART still intends to meet the previously established requirements, but would like to defer the construction to allow an analysis of lighting levels along the guideway once the guideway and stations have been completed.

# Requirements at Bid

## Compendium of Design Criteria, Section 23.5.5 Egress for Passengers stated:

- Subsection B: System egress points shall be illuminated in accordance with **NFPA 130**, 2007 Section 6.2.5.2
- NFPA 130, 2007 Section 6.2.5.5: *“The illumination levels of underground, enclosed or elevated trainway walkways and walking surfaces (i.e., trackway and bench wall walkway) shall not be less than 2.7 ix (0.25 ft-candles) at the walking surface.”*

# Request For Proposal (RFP): Electrical Directive Drawings

As part of the initial design requirements for walkways lighting, HART stipulated the following:

- Provide 32W fluorescent lamp luminaires for center safety walk illumination.
- Luminaires attached to sound barrier walls and spaced 40' (forty feet) apart.

# NFPA 130, 2010 Edition Requirements:

## Section 6.2.5 Illumination:

6.2.5.1: *“The requirements of 6.2.5.2 through 6.2.5.3.2 shall apply to all underground or enclosed trainways that are greater than 30.5 m (100 ft) in length or 2 car lengths, whichever is greater.”*

- Since the guideway is neither underground nor enclosed, the lighting and wiring systems are not required pursuant to NFPA 130, and HART is recommending deferral of this work item until a full analysis of the lighting needs is possible.

# Deferral of Guideway Lighting Change Order Summary

Contract	Negotiated Change Amount
WOFH	\$ 2,492,713
KHG	\$ 1,536,000
Total	\$ 4,028,713

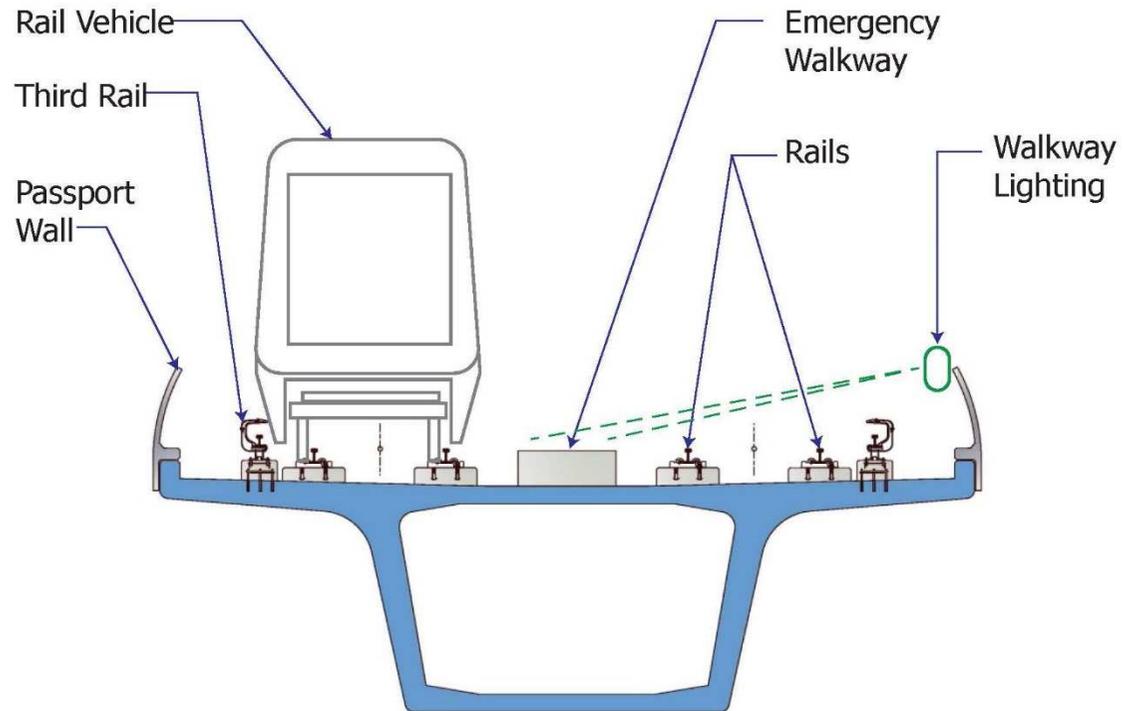
\$4,028,713 will be returned to Contract Allocated Contingency

# Coordination with HART Safety:

After the full length of the Guideways and Stations are completed, but before full revenue service, HART will perform system integration testing at least 6 months prior to operation. During the integration testing, HART will evaluate the necessity of lighting along the guideway in “in-situ” conditions while incorporating maintenance, operations and safety requirements into their evaluation. Having the Stations in place and powered prior to the testing will allow the testing scenarios to more closely approximate the conditions that will be in place during revenue service.

In coordination with the HART Safety team, areas determined to need additional lighting will be identified and photovoltaic LED fixtures installed as required to meet minimum lighting levels prior to revenue service. Use of photovoltaics will allow the spacing to vary as needed to meet varying lighting levels along the alignment.

# Profile of Guideway



*Mahalo!*

