STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

FOR

FREEWAY MANAGEMENT SYSTEM PHASE 1B:
TRAFFIC OPERATIONS CENTER, UNIT 5B:
COMMUNICATION SYSTEMS UPGRADE

FEDERAL-AID PROJECT NO. IM-0300(119)-R

DISTRICTS OF EWA AND KOOLAUPOKO
ISLAND OF OAHU

2011

The following amendments shall be made to the Request For Proposals:

1. REQUEST FOR PROPOSALS

a. Prospective offerors are hereby notified that the receiving of sealed proposals is hereby rescheduled for 2:00 P.M., Hawaii Standard Time (HST), on December 22, 2011. The attached REQUEST FOR PROPOSALS shall be incorporated and made a part of the REQUEST FOR PROPOSALS.

2. TECHNICAL PROVISIONS

a. Replace Section 2.05(2) to read as follows:

"(2) HDOT will work with the chosen Offeror to accommodate staging at the H-3 facility limited to existing space availability. Use of the HDOT staging area will be at the Contractor's own risk. Any damage or loss due to use of this staging area will be the responsibility of the Contractor. The Contractor shall coordinate staging with the Engineer."

a. Amend Section 2.05 by adding the following:

"(7) HDOT will designate parking areas at the H-3 Maintenance Facility, which is on the Haiku side of the H-3 Harano Tunnels. In addition, a maximum of 2 parking spaces will be allowed for the Contractor's use at the H-3 TOC. Parking may be restricted during special events at the H-3 TOC. The

Contractor shall coordinate parking with the Engineer.

(8) HDOT will not allow the use of its toilet and kitchen facilities. HDOT will designate an area for the Contractor to locate a temporary toilet. The H-3 TOC tap water is non-potable. Therefore, the Contractor will be required to provide its own drinking water. The Contractor will be responsible for removing all trash it generates every day."

b. Amend Section 2.06.01 by revising item 4.e. to read as follows:

"e. Proposed Communications System transition procedures, including proposed maximum downtimes for cut over of equipment"

c. Amend Section 2.06.02, Terminal Server Device, item 4 to read as follows:

"4. The Contractor shall supply all required serial cabling and connectors based on information in this RFP. The following cables shall be factory terminated and tested: Ethernet patch cables, fiber optic patch cables, serial cables, and telephone cables. Pinout and cable length will be determined prior to installation by the Contractor and documented as part of the Communications Migration Plan. The Contractor must furnish tools and connectors to create and field test any necessary or proposed custom cables."

d. Amend Section 2.06.02, Gigabit Network Switch, item 4 to read as follows:

"4. The Contractor shall supply all required shielded Ethernet Cat6 and Fiber Optic cabling and connectors based on information in this RFP. The following cables shall be factory terminated and tested: Ethernet patch cables, fiber optic patch cables, serial cables, and telephone cables. Cable length will be determined prior to installation by the Contractor. In certain instances a field terminated shielded Cat6 cable may be required. The Contractor must furnish tools and connectors to create and field test any necessary or proposed custom cables."

e. Amend Section 2.06.02, Gigabit Fiber Network Switch (Hub 14), item 4 to read as follows:

"4. The Contractor shall supply all required shielded Ethernet Cat6 and Fiber Optic cabling and connectors based on information in this RFP. The following cables shall be factory terminated and tested: Ethernet patch cables, fiber optic patch cables, serial cables, and telephone cables. Cable length will be determined prior to installation by the Contractor. In certain instances a field terminated shielded Cat6 cable may be required. The Contractor must furnish tools and connectors to create and field test any necessary or proposed custom cables."

f. Amend Section 2.06.02, Voice Gateway, item 4 to read as follows:

"4. The Contractor shall supply all required telephone cabling and connectors based on information in this RFP. The following cables shall be factory terminated and tested: Ethernet patch cables, fiber optic patch cables, serial cables, and telephone cables. Pinout and cable length will be determined prior to installation by the contractor and documented as part of the Communications Migration Plan."

g. Amend Section 2.06.02, T-1 Extender over IP Device, item 3 to read as follows:

"3. The Contractor shall supply all required cabling and connectors based on information in this RFP. The following cables shall be factory terminated and tested: Ethernet patch cables, fiber optic patch cables, serial cables, and telephone cables. Pinout and cable length will be determined prior to installation by the Contractor and documented as part of the Communications Migration Plan. The Contractor must furnish tools and connectors to create and field test any necessary or proposed custom cables."

h. Amend Section 2.06.03, Overall Installation Requirements by adding the following after item 3:

"4. Should there be a long term power outage during the installation, configuration, or testing of the new devices, the Contractor shall power down all new equipment while keeping the existing system operational. This will serve to preserve back up power for the existing equipment.
5. The Contractor shall place all temporary racks used in the project so as not to impede access to other equipment. In addition, the minimum exit route width, as defined by OSHA, shall always be accommodated around the temporary racks.
6. The Contractor shall schedule edge device migration with the Engineer at least 30 calendar days in advance."

i. Amend Section 2.06.03, Overall Installation Requirements by replacing the last paragraph with the following:

"At hub locations with no available rack space, temporary/portable racks shall be provided by the Contractor and placed adjacent to the hub cabinet while the new communications equipment is installed in parallel and tested. After the new system is fully functional, the old equipment shall be removed and the new equipment can be transitioned to the existing cabinet space with minimum down time."

j. Amend Section 2.06.03, Edge Device Migration by revising the first paragraph to read as follows:

"At this point the OPCOM network and Ethernet network in the tunnel ring is operating in parallel. In addition the Terminal Servers and Voice Gateways are configured and tested to provide serial and telephone from the hub locations to Hub 14 (TOC). Edge devices such as PLC's Signs and Phones can now be individually migrated off the OPCOM network to the newly installed equipment on the Ethernet network. To minimize disruption of the live tunnel control and communication systems the Contractor shall migrate one edge device at a time and immediately test. The Contractor shall have staff present at Hub 14 (TOC) and at the field hub to which the device will be migrated. HDOT staff will assist in testing functionality of the migrated devices with specific specialized tunnel control systems. Down time of any one device shall not exceed 15 minutes or the down time specified in the Contractor's proposal, whichever is less. Should down time exceed this duration, migration shall be halted and existing equipment restored while the Contractor develops a revised migration plan. The Contractor shall not continue with edge device migration until a revised migration plan has been approved by the Engineer."

k. Amend Section 2.06.03, Removal of OPCOM Equipment to read as follows:

"The OPCOM equipment and associated electrical components shall be removed by and shall become the property of the Contractor. The Contractor shall dispose of the removed equipment at no additional cost to the State."

l. Amend Section 2.06.05, Optical Time Domain Reflectometer (OTDR) Testing by revising the 5th paragraph to read as follows:

"Successful completions of the above tests are the basis for acceptance. If the above criteria are not met, the Contractor shall isolate the problem and replace the splice or termination of cable that causes the fiber not to meet the acceptance criteria. If splice or termination work is necessary, with HDOT's prior authorization, this work will be paid under pay items 697.2010 – Splice Existing Non-Working Fibers or 697.2020 – Terminate Existing Non-Working Fibers. See Section 2.06.06 for the splice and termination work requirements. The Contractor shall take extreme care when performing this work so as to not damage any of the existing fiber optic splices and terminations. The Contractor will be responsible for any damages caused while testing the existing fibers."

m. Amend Section 2.06.06 by revising the 1st paragraph to read as follows:

"In the process of completing Task 5, the Contractor may encounter non-working fibers that need to be re-spliced or re-terminated. Although it is anticipated that the existing spare fibers are ready for use, the Contractor may need to splice, terminate, or replace existing fibers that may not be operational. The Contractor shall notify HDOT which non-working fibers require re-splicing or re-termination and shall not proceed with this work without HDOT authorization. This work will be paid under pay items 697.2010 – Splice Existing Non-Working Fibers or 697.2020 – Terminate Existing Non-Working Fibers. The work completed under these items shall meet the

following requirements:

1. Splicing: For connection of the fiber optic cable to fiber optic distribution panel or splicing to other cables, cut only those fibers needed for the connection or splice. Use splice trays to hold the spliced and unspliced fibers, with each fiber neatly secured to the tray. Contain all buffer tubes entirely within the splice tray, with no tubes being exposed. Package each spliced fiber in a protective sleeve or housing. Completely re-coat bare fibers with a protective, room-temperature vulcanizing (RTV) coating, gel or similar substance as recommended by the cable manufacturer, prior to application of the sleeve or housing, so as to protect the fiber from scoring, dirt, or microbending.

2. Termination: In hubs where optical fibers are to be connected to terminal equipment, provide matching connectors with factory-installed fiber pigtails of sufficient length, plus five feet of slack, and splice them to the corresponding optical fibers. Do not field install connectors. Provide fiber optic pigtails buffered and strengthened with aramid to reduce the possibility of accidental damage to the fiber or connection. Properly protect unused optical fibers with sealed end caps."

n. Amend Section 3.02 Team Experience, to read as follows:

"TEAM EXPERIENCE:
Provide a complete client listing for all of Offeror's related projects. For each Subcontractor, provide a complete client listing for that subcontractor's projects that are substantially similar to the work that the subcontractor will be performing on this project. For each project, include the following information: client name; a contact person from the client personally knowledgeable about the work you did for that client; the contact person's phone number and e-mail address; the start and end dates of the project; your firm's role (prime contractor, subcontractor, vendor) on the project; the total value of the project and your firm's contract value (if different); and a brief description of the project including scope.

Indicate the number of years Offeror and each Subcontractor has been in business and the number of years Offeror and each Subcontractor has performed services specified by this RFP."

o. Amend Section 3.02 Summary of Judgments, to read as follows:

"SUMMARY OF JUDGMENTS:
Provide a summary listing of judgments or pending lawsuits or actions against; adverse contract actions, including termination(s), suspension, imposition of penalties, or other actions relating to failure to perform or deficiencies in fulfilling contractual obligations against your firm and Subcontractors. If none, so state."

p. Amend Section 3.02 Financial Condition, to read as follows:

"FINANCIAL CONDITION:
Provide a general description of the financial condition of Offeror and Subcontractors and identify any conditions (e.g. bankruptcy, pending litigation, planned office closures, impending merger) that may impede the Offeror's or any Subcontractors' ability to complete the project."

q. The attached Written Questions Received and Responses Given, dated 11/17/11 shall be incorporated and made a part of the Technical Provisions.

r. Amend Exhibit C – H-3 As-Built Drawings for Existing OPCOM Communication System by adding the attached Telephone & Intercom System Wiring Diagram.

s. Amend Exhibit C – H-3 As-Built Drawings for Existing OPCOM Communication System by adding the attached H-3 Trans-Koolau Tunnel, OPCOM, Equipment Elevation, Haiku Far Approach

t. Amend Exhibit C – H-3 As-Built Drawings for Existing OPCOM Communication System by adding the attached H-3 Trans-Koolau Tunnel, CCTV & OPCOM, Equipment Elevation, Halawa Near Approach

u. Amend Exhibit D – Proposed Communication System Diagrams, dated 1/29/2010 by replacing it with the attached dated 11/8/2011.

v. Add the attached Exhibit F – OPCOM User Guides and make it a part of the Technical Provisions.

3. SPECIAL PROVISIONS

a. Add the attached Section 645 – Work Zone Traffic Control, dated 10/31/11 and make it a part of the Special Provisions.

b. Amend Federal Wage Rates, dated 03/18/2011 by replacing it in its entirety with the attached dated 10/14/2011.

4. PROPOSAL

a. Amend Proposal Schedule, page P-8, dated 5/26/11 by replacing it with the attached dated 10/14/11.

The pre-proposal meeting minutes are attached for your information.

Please acknowledge receipt of this Addendum No. 1 in your proposal.

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

REQUEST FOR PROPOSALS

The receiving of sealed proposals for the **Freeway Management System, Phase 1B, Traffic Operations Center, Unit 5B: Communication Systems Upgrade, Federal-Aid Project No. IM-0300(119)-R,** at the Contracts Office, Department of Transportation, 869 Punchbowl Street, Honolulu, Hawaii 96813, scheduled for 2:00 P.M., Hawaii Standard Time (HST), on December 8, 2011 is hereby POSTPONED UNTIL 2:00 P.M., December 22, 2011.

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

Internet Posting:

WRITTEN QUESTIONS RECEIVED AND RESPONSES GIVEN

Question #	Ref Section	Question	Response
1	Exhibit C	Can the offeror obtain building (Halawa IB Portal, Control Center, Halawa OB Portal, Haiku IB Portal, and Haiku OB Portal) floor plans in Autocad format or converted pdf documents? If yes, whom will be the contact for this information?	As-built drawings are not available in Autocad format. Additional as-built sheets are being provided via addendum.
2		Can user and technical documentation (Specifications) be provided for the OPCOM ML 4436 (Singlemode Card) ML4401 PS, ML 4414 card, ML 4403 Multimode card, ML 4417 (Voice - 3 port) card, ML 4418 card, ML 4405 RS232 - 4 port card, ML 4420-1 RS485 - 4 port card, and the ML 4420-2 RS485 - 4 port card? If yes, whom will be the contact for this information?	HDOT has some OPCOM documentation, which will be issued via addendum. The Offerors are responsible for their own research on OPCOM documentation.
3	Technical Provisions 2.06.02, Task 2	2.06.02 Task 2: Procurement of Communications Equipment Terminal Server Device, Item 4 states "All cables shall be factory terminated and tested"; however, the last sentence in the item number also states "The Contractor must furnish tools and connectors to create and field test any necessary or proposed custom cables." Can you please clarify what cables must be factory terminated?	Will be addressed via addendum.
4	Technical Provisions 2.06.02, Task 2	2.06.02 Task 2: Procurement of Communications Equipment Gigabit Network Switch, Item 1 states that the device shall include a modular slot based network switch; Does the modularity include the chassis in its entirety (all required interfaces/ports/power, etc.)?	Modular interfaces refer to the Fiber ports. Modular interfaces will allow replacement and customization of fiber interfaces.

WRITTEN QUESTIONS RECEIVED AND RESPONSES GIVEN

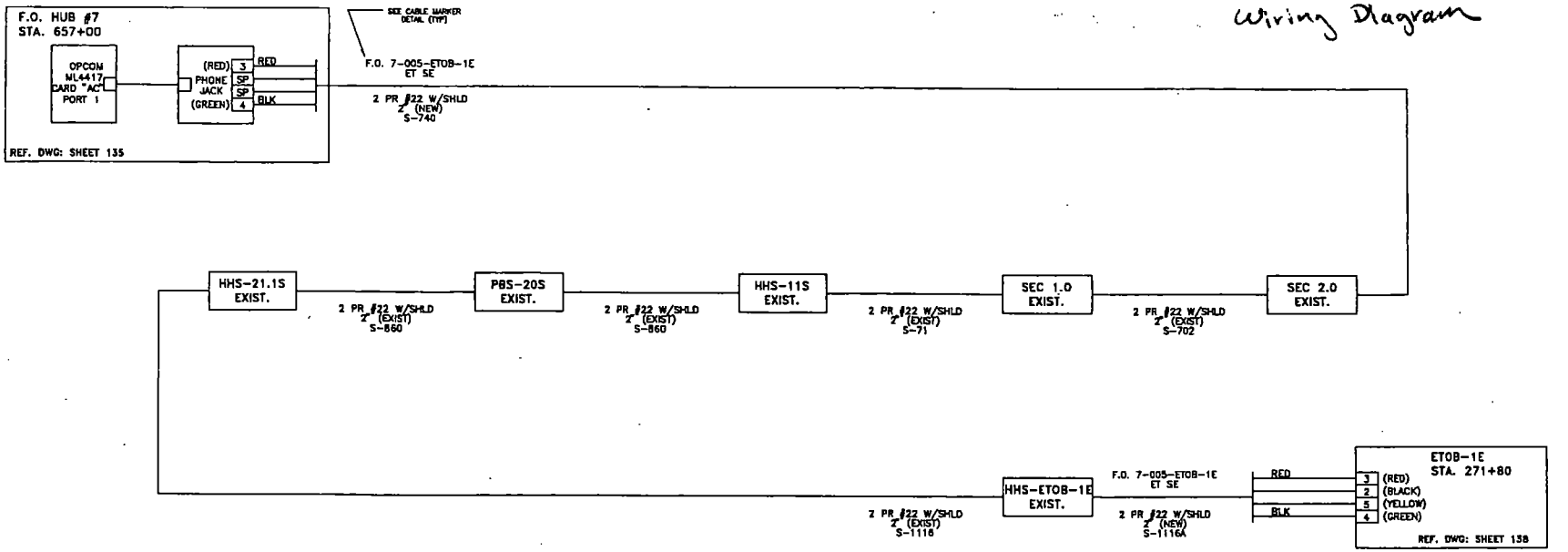
Question #	Ref Section	Question	Response
5	Exhibit C	Exhibit C H-3 AS-Built Drawings for existing opcom communication system H-3 System Block Diagram depicts HW F.O. HUB 2 (Halawa Near End); however, there is no Equipment Elevation for HUB 2, is it possible to obtain the diagrams for the equipment elevation for HUB 2 or clarify which drawing no. is the appropriate drawing for Hub 2 if it is a matter of a labeling issue?	Additional as-built sheets are being provided via addendum.
6	Exhibit C	Exhibit C H-3 AS-Built Drawings for existing opcom communication system H-3 System Block Diagram depicts HW F.O. HUB 8 (Haiku Far End); however, there is no Equipment Elevation for HUB 8, is it possible to obtain the diagrams for the equipment elevation for HUB 8 or clarify which drawing no. is the appropriate drawing for Hub 2 if it is a matter of a labeling issue?	Additional as-built sheets are being provided via addendum.
7	Technical Provisions 2.06.02, Task 2	Would the State Of Hawaii DOT be interested with Open Source Software for the Network Management Station?	The network monitoring software must be commercial software licensed for enterprise use. Open source software will not be accepted.
8		Based on the majority of the statements in the RFP, it is apparent that the communication is directly multiplexed via Fiber and that no existing Ethernet (layer 2) infrastructure exists, is this a correct assumption? If there is an existing Ethernet network, are there any existing Layer 3 addresses? Are there any VLANs configured?	The existing system is multiplexed and no Ethernet network is available on the OPCOM system. The new equipment will create a Ethernet based network through the tunnel. Current tunnel upgrades continually impact the network configuration thus the winning offeror will be given IP address ranges for new devices and network configuration information.

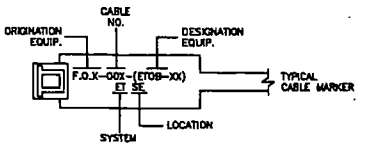
WRITTEN QUESTIONS RECEIVED AND RESPONSES GIVEN

Question #	Ref Section	Question	Response
9		Will the new Ethernet-based communications infrastructure contain different broadcast domains for Management, Voice, RS232/485/T1 signals?	Current tunnel upgrades continually impact the network configuration thus the winning offeror will be given IP address ranges for new devices and network configuration information.
10		Most of the hardware/software requirements that outlined IP (layer 3) communications did not contain any version number, what version of IP is required?	IPV4

HAIKU OUTBOUND

Typical Telephone & Wiring Diagram





CABLE MARKER DETAIL

2-2 PR #22 W/SHLD — WIRE TYPE
2 INCH — CONDUIT SIZE
N/A — CONDUIT NUMBER

REV.	DATE	DESCRIPTION	BY	APP.
2	6-14-95	ADDED WIRE NO'S	R.C.	
1	08-23-94	ADDED OPCOM TERMINATION	J.Z.	
0	05-04-94	ISSUED FOR CONSTRUCTION	J.Z.	
B	04-08-94	REVISED PER ENGINEER'S COMMENTS	J.Z.	
3	6-23-95	ADDED TERMINAL NO'S	R.C.	

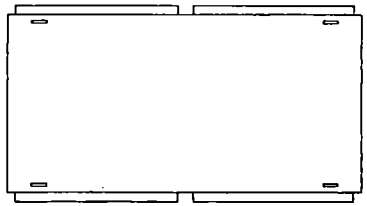
SCALE: AS SHOWN	DESIGNED	D. GETTY	APPROVED	
	DRAWN	J. SULLIVAN	8-15-93	P.O. 956-9000 / DATE: 06-23-95
	CHECKED	D. GETTY	APPROVED	

TRANSDYN CONTROLS, INC.

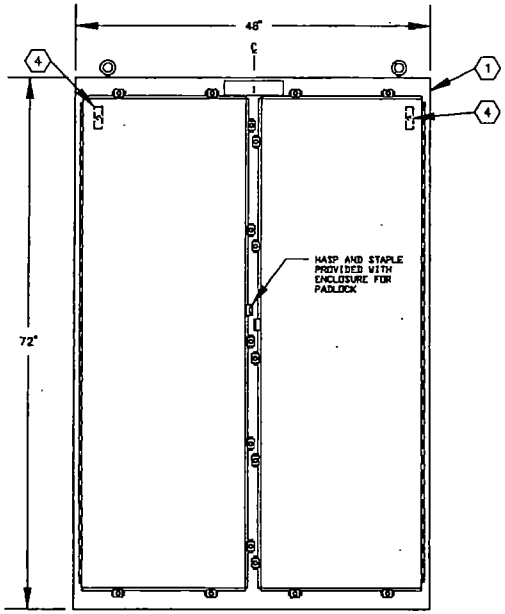
INTERSTATE ROUTE H-3
F.A.I. PROJECT NO. I-H3-1 (65)
TELEPHONE & INTERCOM SYSTEM WIRING DIAGRAM

JOB NO.	CLIENT JOB NO.	DRAWING NO.	REVISION
3125		3125-956-9000	3

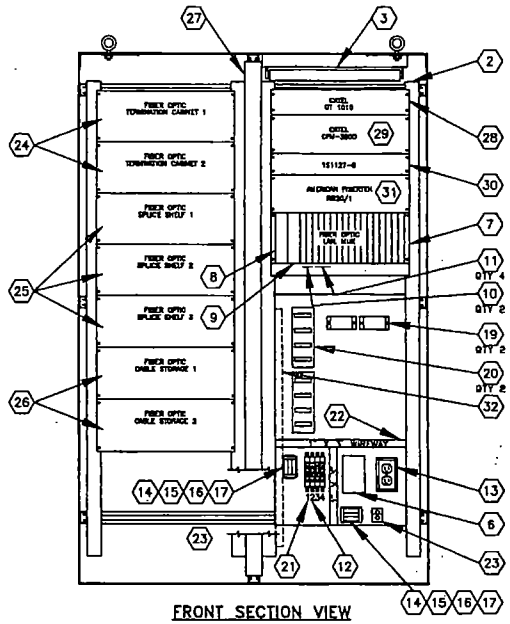
EQUIPMENT ELEVATION



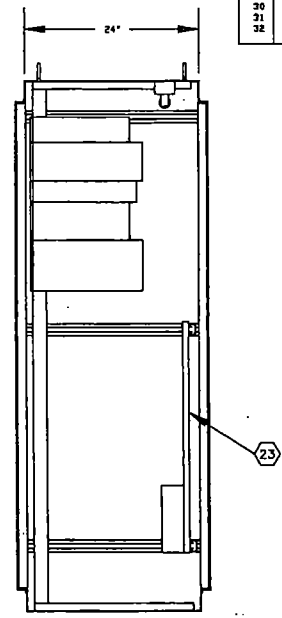
TOP VIEW



FRONT / BACK VIEW



FRONT SECTION VIEW



SIDE SECTION VIEW

NAMEPLATE SCHEDULE

NO.	QTY	1ST LINE INSCRIPTION	2ND LINE INSCRIPTION	TYPE	LETTER SIZE	SIZE
1	1	HAIKU FAR APPROACH	FIBER OPTIC HUB B/OCCV	BLK W/ WHT LETTER	1/4"	8" X 2"
2						
3						
4						
5						

LOCATION
11+40

BILL OF MATERIAL

ITEM	QTY	MFR.	PART NO.	DESCRIPTION
1	1	HOFFMAN	CUSTOM	ENCLOSURE, 72X48X24, NEMA 4
2	2	HOFFMAN	A-72RP24FS	RACK MTG ANGLES
3	1	HOFFMAN	X-LF16D1B	FLUORESCENT LIGHT STRIP, 18" LAMP
4	4	HOFFMAN	A-LF5VD	DOOR SWITCH
5	1	SIECOR	FSC-050	FIBER SPLICE CENTER
6	TBD	MCG	416	SURGE SUPPRESSOR
7	1	OPCOM	ML4400-1	CHASSIS, FIBER OPTIC LAN
8	1	OPCOM	ML4401	POWER SUPPLY
9	1	OPCOM	ML4403	FIBER OPTIC CONTROL CARD
10	1	OPCOM	ML4405	RS232 DROP CARD
11	TBD	OPCOM	ML4417	PHONE CARD
12	3	SQUARE D	QOU115	CIRCUIT BREAKER, 15 AMP
13	TBD	TBD	TBD	DUPLEX RECEPTACLE
14	A/R	ENTRELEC	168500.12	MTG RAIL
15	11	ENTRELEC	115116.07	TERM. BLOCK
16	2	ENTRELEC	118368.16	END SECTION
17	3	ENTRELEC	103002.26	END STOP
18	1	HOFFMAN	A-72P24F2	BACK PANEL, HALF
19	2	TRANSDYN	---	F.O.H. BRACKET
20	2	EAZY	MS-3	SPLITTER BOX
21	1	SQUARE D	QOU110	CIRCUIT BREAKER, 10 AMP
22	A/R	PANDUIT	TYPE E	PLASTIC WIREWAY
23	1	JVP	---	POWER GND BUS
24	2	BICC	481-000-000	72P TERMINATION CABINET
25	3	BICC	463-000-000	SPLICE SHELF
26	2	BICC	TBD	CABLE STORAGE
27	2	HOFFMAN	A-72FSCPS	CENTER PANEL SUPPORT
28	1	CATEL	DT 1010	OPTICAL TRANSMITTER
29	1	CATEL	CFM-3800	CONTROLLER
30	1	CATEL	151127-8	COMBINER
31	1	FIBERTEK	RR20/1	MULTIPLEXER AM
32	1	SOUND'R	ACS-1	6 DUPLEX OUTLET POWER STRIP

NOTES

1.) FOR POWER DISTRIBUTION WIRING DIAGRAM REFER TO DRAWING: 3125-964-2015

REV.	DATE:	DESCRIPTION	BY	APP.
1	10/5/94	SHOP AS-BUILT	J.Z.	CH.A.
C	5-27-93	SPLICE CABINETS	G.N.	J.E.
B	3/31/93	DOOR & TEMP. CONTROL SW.	G.N.	J.E.

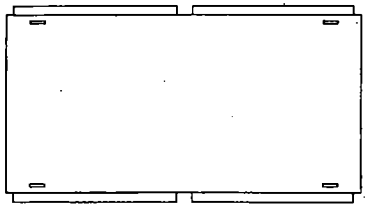
DRAWN BY: DAVID DREYER — APPR. BY:
DESIGN BY: JOHN EWERS — APPR. BY:
CHECK BY: JOHN EWERS — APPR. BY:
DATE: 2-23-1993 FILE: 964-3017 / DATE: 01-19-95

TRANSDYN CONTROLS, INC.

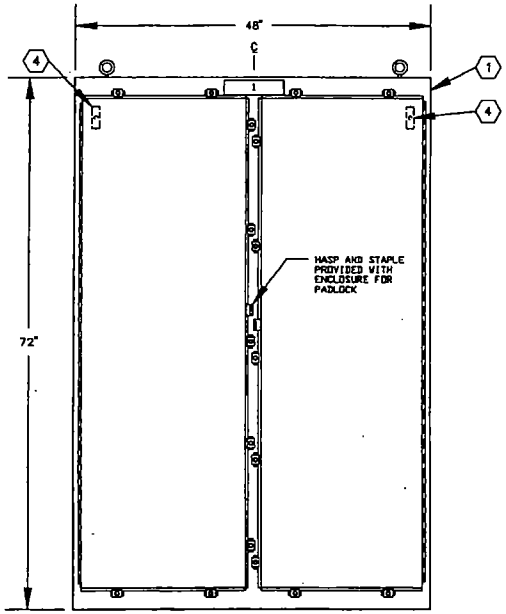
H-3 TRANS-KOOLAU TUNNEL
OPCOM
EQUIPMENT ELEVATION
HAIKU FAR APPROACH

JOB NO. 3125
CLIENT JOB NO.
SCALE 1/16" = 1" SHT 1 OF 1
DRAWING NO. 3125-964-3017

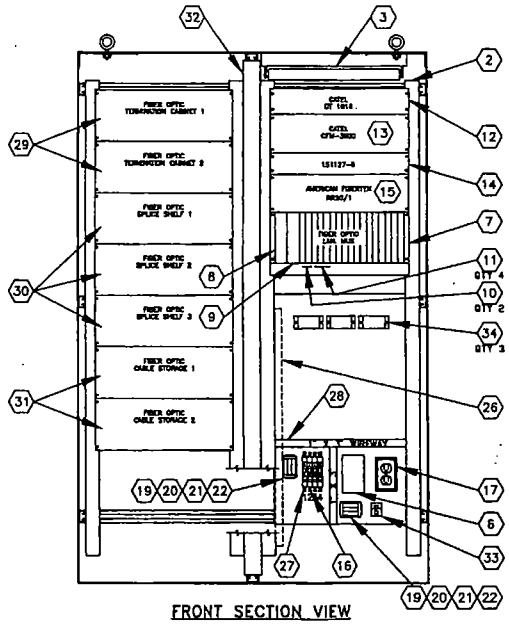
EQUIPMENT ELEVATION



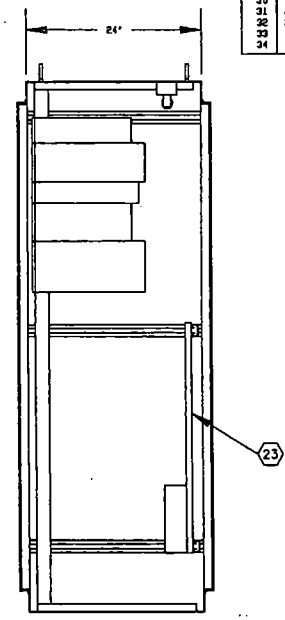
TOP VIEW



FRONT / BACK VIEW



FRONT SECTION VIEW



SIDE SECTION VIEW

NAMEPLATE SCHEDULE

NO.	QTY	1ST LINE INSCRIPTION	2ND LINE INSCRIPTION	TYPE	LETTER SIZE	SIZE
1	1	HALAWA NEAR APPROACH	FIBER OPTIC HUB I/OCTV	BLK W/ WHT LETTERS	1/4"	8" X 5"
2						
3						
4						
5						

LOCATION
475+00
"

BILL OF MATERIAL

ITEM	QTY	MFR.	PART NO.	DESCRIPTION
1	1	HOFFMAN	CUSTOM	ENCLOSURE, 72X48X24, NEMA 4
2	1	HOFFMAN	A-72RP24FS	RACK MTG ANGLES
3	1	HOFFMAN	X-LF16D18	FLUORESCENT LIGHT STRIP, 18" LAMP
4	4	HOFFMAN	A-LFSWD	DOOR SWITCH
5	1	SIECOR	FSC-059	FIBER SPLICE CENTER
6	1	MCG	416	SURGE SUPPRESSOR
7	1	OPCOM	ML4400-1	CHASSIS, FIBER OPTIC LAN
8	1	OPCOM	ML4401	POWER SUPPLY
9	1	OPCOM	ML4403	FIBER OPTIC CONTROL CARD
10	2	OPCOM	ML4405	RS232 DROP CARD
11	4	OPCOM	ML4417	PHONE CARD
12	1	CATEL	DT 1818	OPTICAL TRANSMITTER
13	1	CATEL	CFM-3800	CONTROLLER
14	1	CATEL	151127-8	COMBINER
15	1	FIBERTEK	RR20/1	MULTIPLEXER AM
16	3	SQUARE D	QOU115	CIRCUIT BREAKER, 15 AMP
17	1	TBD	TBD	DUPLEX RECEPTACLE
18	1	MOREN	6001	HEAT EXCHANGER
19	A/R	ENTRELEC	168500.12	MTG RAIL
20	11	ENTRELEC	115116.07	TERM. BLOCK
21	2	ENTRELEC	11E369.16	END SECTION
22	6	ENTRELEC	193002.26	END STOP
23	1	HOFFMAN	A72P24F2	HALF BACK PANEL
24				
25				
26	1	SOUND'R	ACS-1	6 DUPLEX OUTLET POWER STRIP
27	1	SQUARE D	QOU110	CIRCUIT BREAKER, 10 AMP
28	A/R	PANDUIT	TYPE E	PLASTIC WIREWAY
29	2	BICC	481-000-000	72P TERMINATION CABINET
30	3	BICC	463-000-000	SPLICE SHELF
31	2	BICC	TBD	CABLE STORAGE
32	2	HOFFMAN	A-72FSCPS	CENTER PANEL SUPPORT
33	1	TRANSDYN	----	GND LUG
34	3	TRANSDYN	----	F.O.H. BRACKET

NOTES

1.) FOR POWER DISTRIBUTION WIRING DIAGRAM REFER TO DRAWING: 3125-964-2018

REV.	DATE:	DESCRIPTION	BY	APP.
1	10/5/94	SHOP AS-BUILT	J.Z.	CH.A.
C	5/27/93	SPLICE CABINETS	G.N.	J.E.
B	3/31/93	DOOR & TEMP. CONTROL SW.	G.N.	J.E.

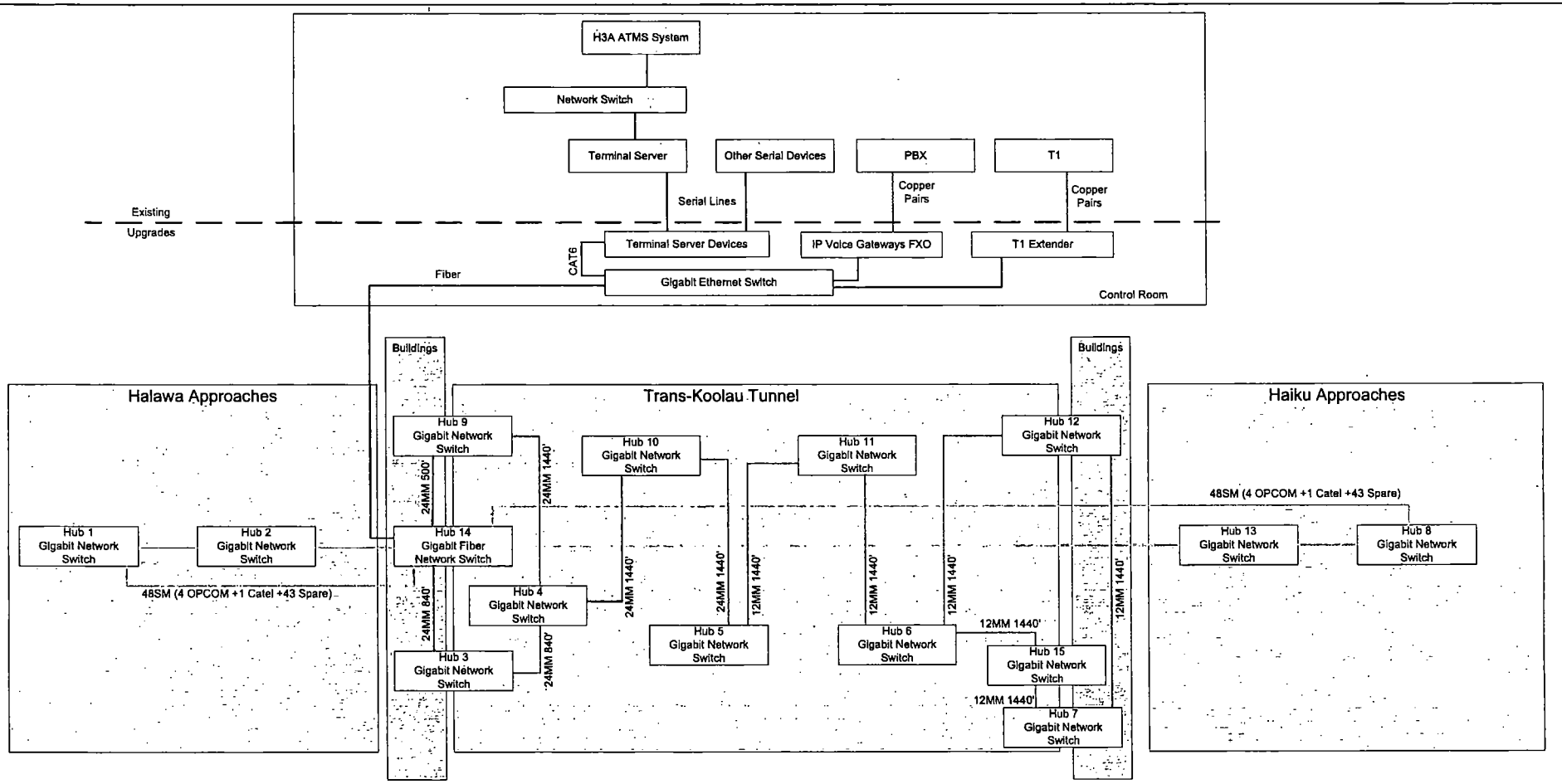
DRAWN BY	DAVID DREYER	APPR. BY	
DESIGN BY	JOHN EWERS	APPR. BY	
CHECK BY	JOHN EWERS	APPR. BY	

DATE: 2-23-1993 FILE: 984-3018 / DATE: 01-19-95

TRANSDYN CONTROLS, INC.

H-3 TRANS-KOOLAU TUNNEL
CCTV & OPCOM
EQUIPMENT ELEVATION
HALAWA NEAR APPROACH

JOB NO. 3125
CLIENT JOB NO.
SCALE 1/16" = 1"
SHT 1 OF 1
DRAWING NO. 3125-964-3018



No.	DATE	ISSUE / REVISION
1	4/29/2009	Initial Draft
2	6/25/2009	Modified Device Names
3	1/29/2010	HUB 15 Update
4	11/8/2011	Control Room Update

SUBMITTED BY:

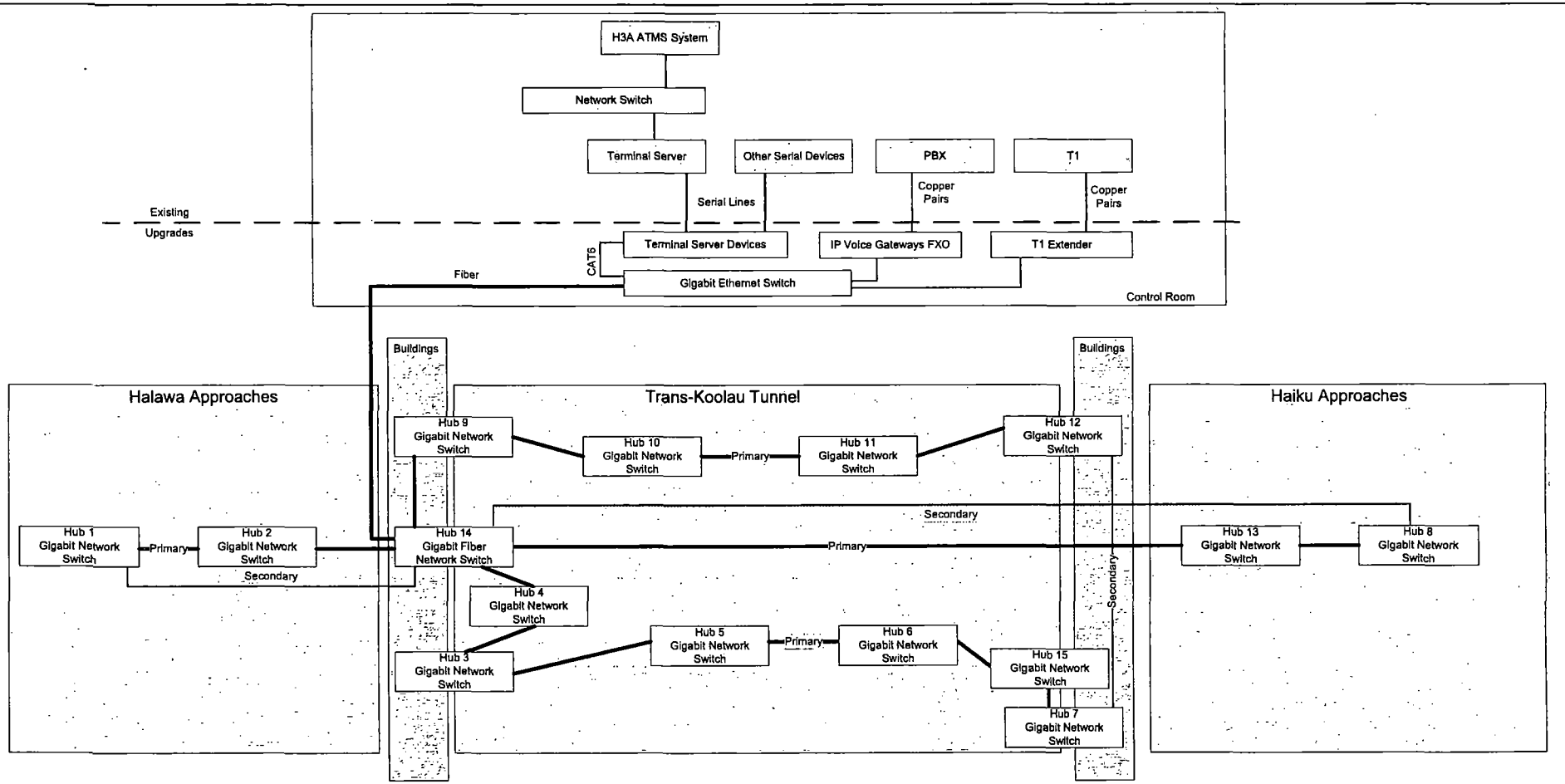
ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Proposed System Physical Diagram

SCALE: None

PAGE: A1



No.	DATE	ISSUE / REVISION
1	4/29/2009	Initial Draft
2	8/25/2009	Modified Device Names
3	1/29/2010	HUB 15 Update
4	11/8/2011	Control Room Update

SUBMITTED BY:

ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Proposed System Logical Diagram

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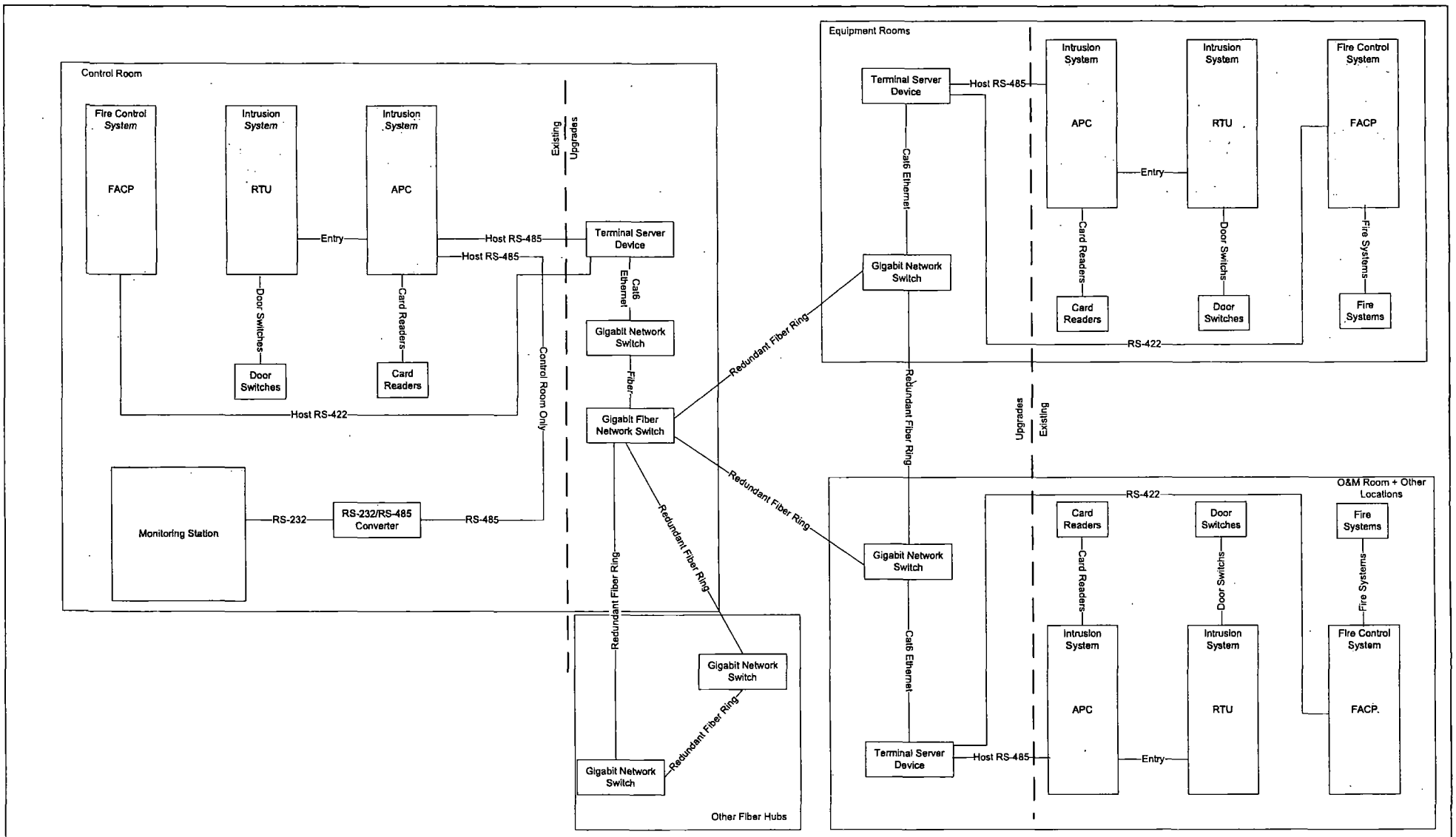

No.	DATE	ISSUE / REVISION
1	4/29/2009	Initial Draft
2	5/22/2009	Updated to reflect comments from HDOT
3	6/25/2009	Modified Device Names

SUBMITTED BY:

ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Intrusion & Fire Systems

SCALE: None

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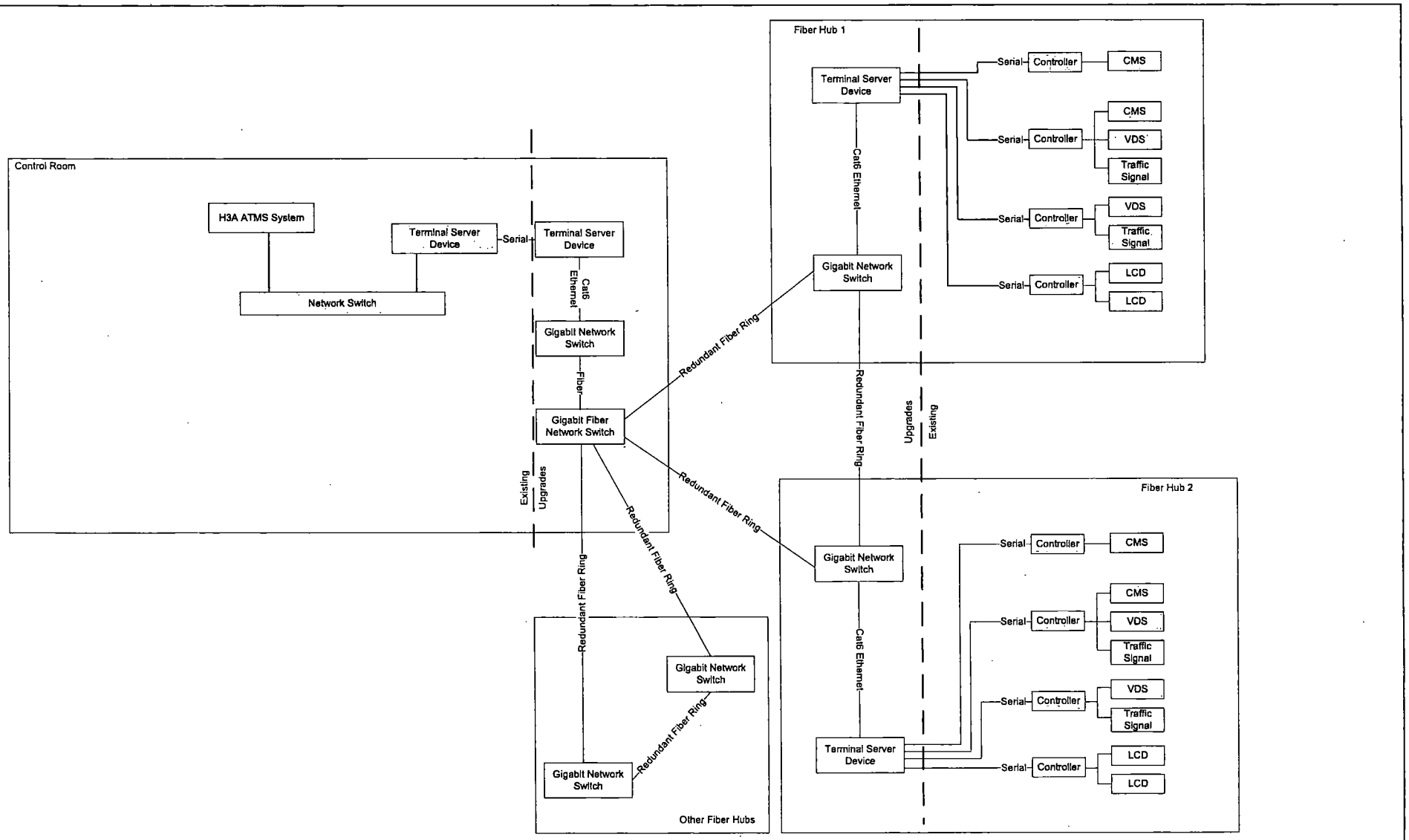

No.	DATE	ISSUE / REVISION
1	4/29/2009	Initial Draft
2	5/22/2009	Updated to reflect comments from HDOT
3	6/25/2009	Modified Device Names
4	11/8/2011	Control Room Update

SUBMITTED BY:

ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Traffic Controller, VMS, CMS, VDS

SCALE: None

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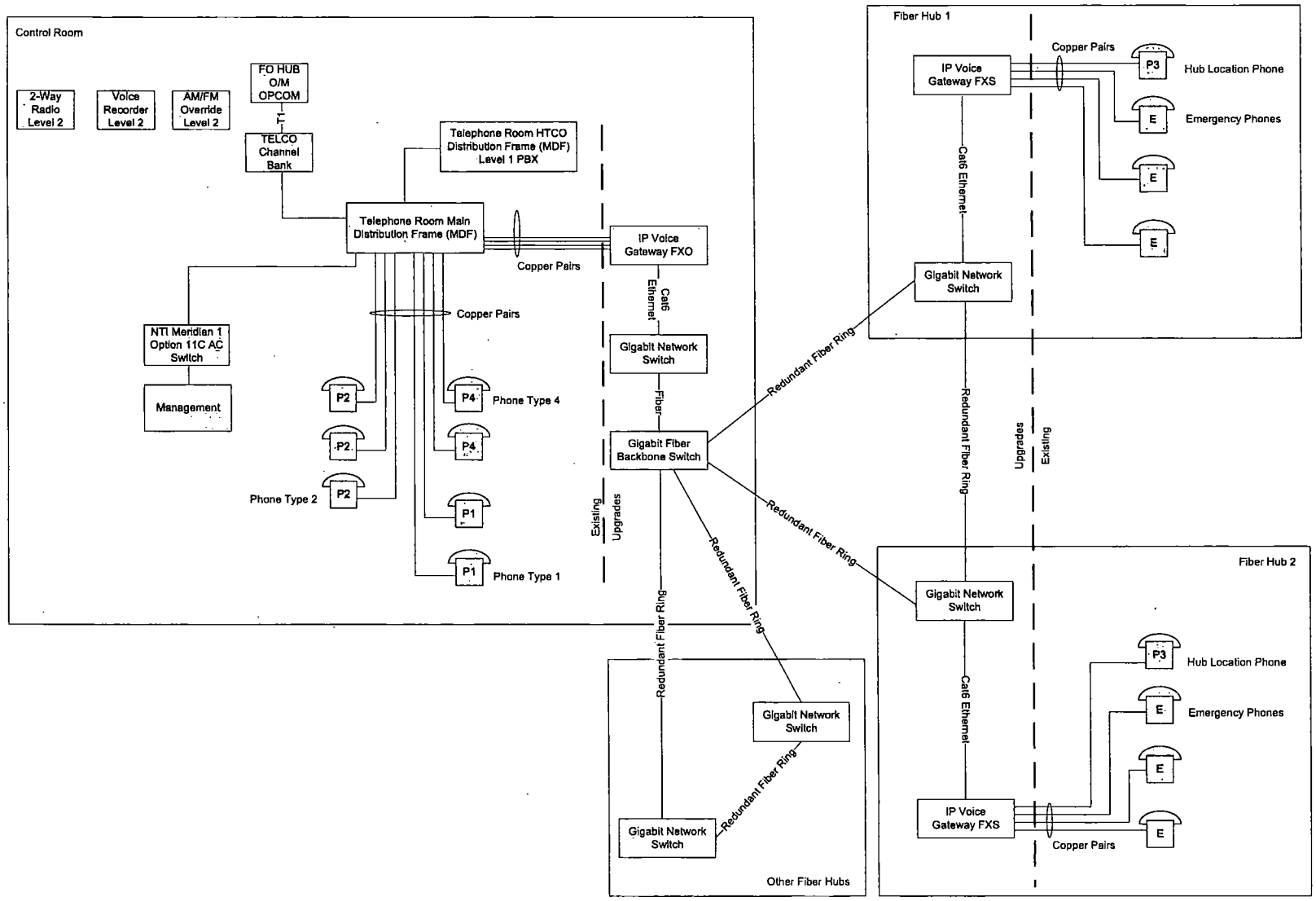

No.	DATE	ISSUE / REVISION
1	5/4/2009	Initial Draft
2	5/22/2009	Updated to reflect comments from HDOT
3	6/25/2009	Modified Device Names

SUBMITTED BY:

icx transportation

ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Telephone & Intercom (Ethernet)

SCALE: None

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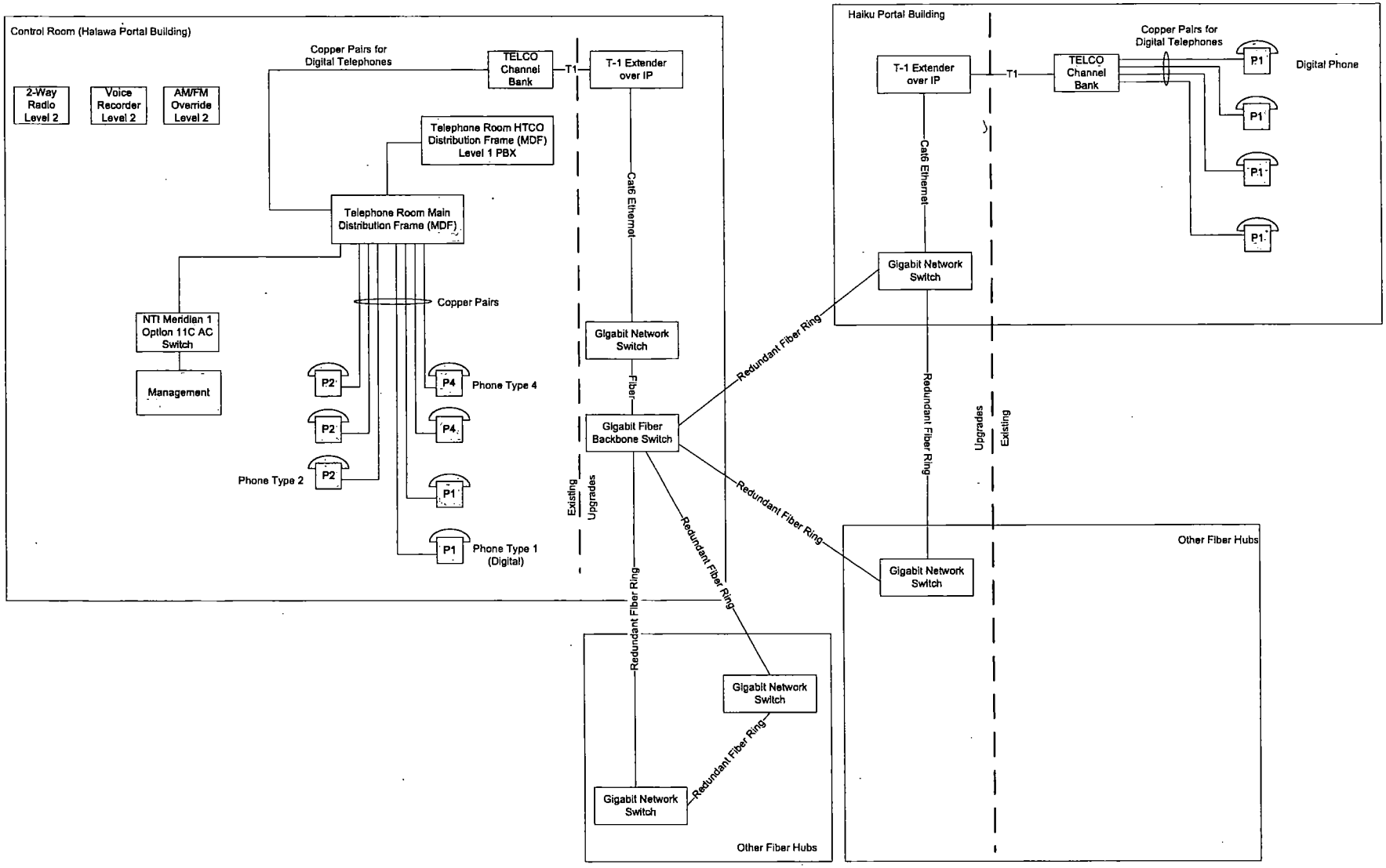


No.	DATE	ISSUE / REVISION
1	1/26/2010	Initial Draft

SUBMITTED BY:

icx transportation

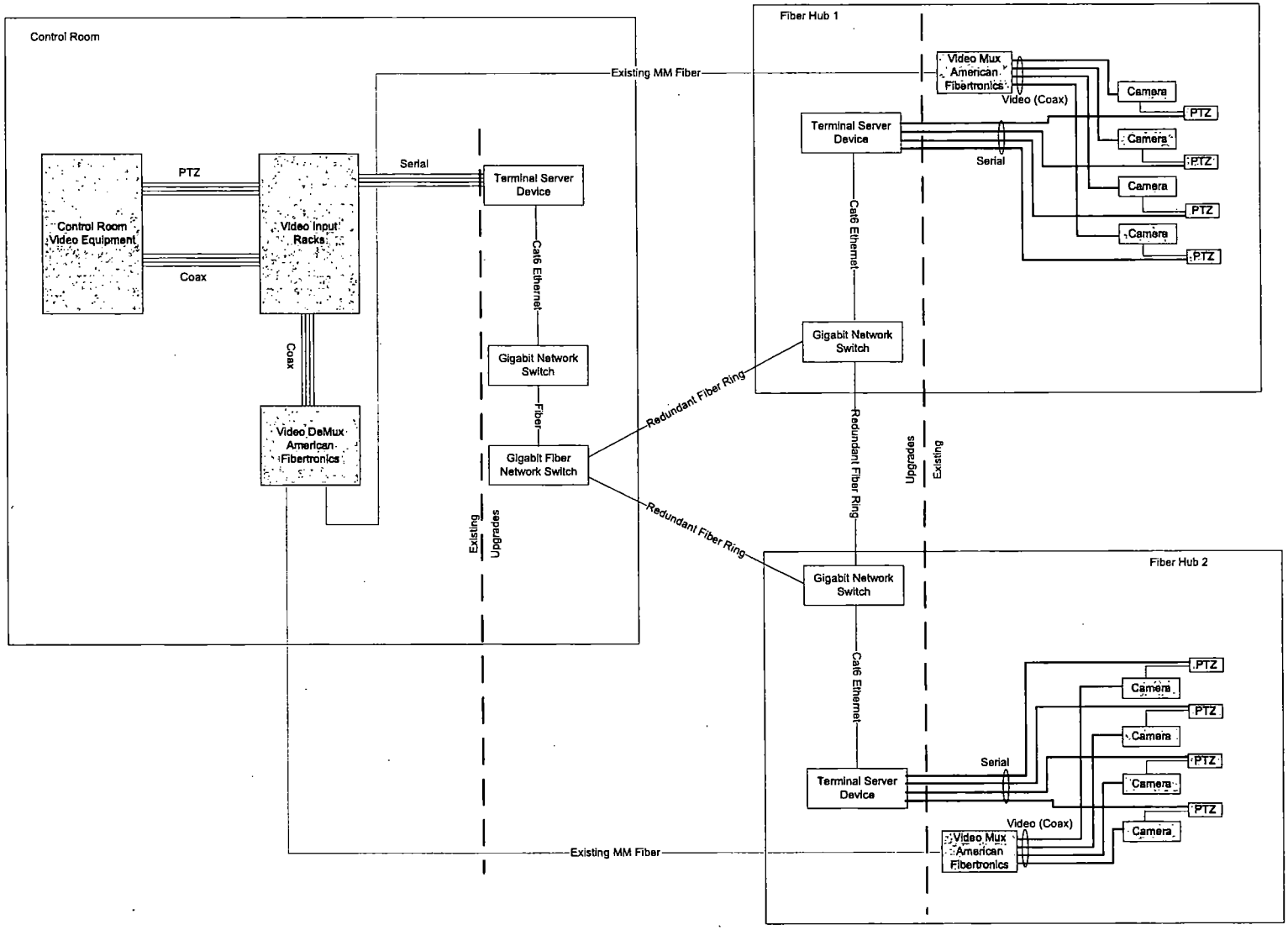
ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: Telephone T-1 Extender

SCALE: None

PAGE: A6



No.	DATE	ISSUE / REVISION
1	4/29/2009	Initial Draft
2	6/25/2009	Modified Device Names

SUBMITTED BY:

ICx Transportation Group
500 N. State College Blvd.,
Suite 1100
Orange, California 92868

PROJECT: Hawaii Department Of Transportation – Interstate Route H-3

TITLE: CCTV + PTZ Control

SCALE: None

PAGE: A7

EXHIBIT F
OPCOM USER GUIDES

ML4405
Four Channel RS232

USER GUIDE

Document Number: 764-0171-001
Rev G (TI)
Date 5/17/00

OPCOM, INC.
2210 Hutton Drive, Suite 105
Carrollton, Texas 75006

Phone: (972) 388-9069
Fax: (972) 388-9290
Email: support@opcom-inc.com

Table of Contents

INTRODUCTION

Overview

The ML4405 Channel Card provides four independent full duplex RS232 channels. Each channel may be user configured to operate in asynchronous mode, internal clock source, 110 to 19.2 Kbps data rates with local handshake lines. The ML4405 provides four RJ-45 modular eight-pin connectors for independent shielded cabling of each channel.

Each card uses one slot in a chassis and is position independent.
One of 128 addresses may be selected to allow up to 512 possible channels in a Muxlan system (128 addresses x 4 channels / cards).

The card can be user configurable to operate in one of two modes, either as a Point to Point system (Fig 1), or in a Point to Multi-Point operation (Fig 2). The P.M.P. system would operate in a poll/response format with a host computer broadcasting an address to multiple remote sites with the appropriate addressed site responding.

Fig 1 Point to Point Operation

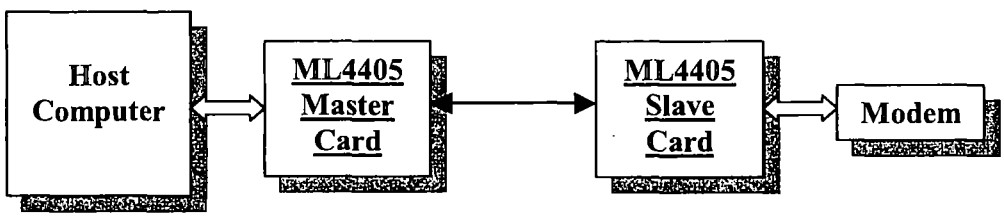
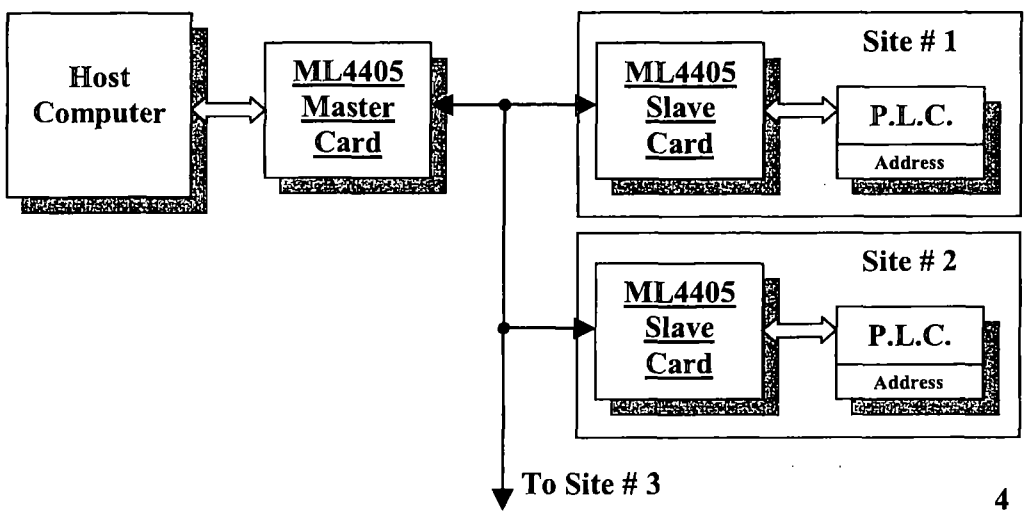


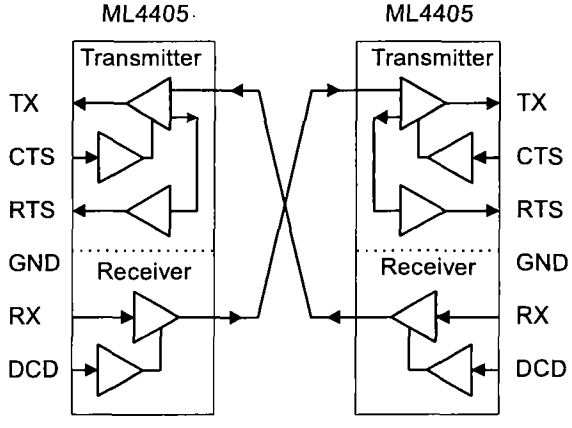
Fig 2 Point to Multi-Point Operation



Flow Diagram

The following is a logical representation of the signal flow and handshaking for the ML4405 in the Opcom system. Please note that the handshaking is done at the local ends, and is based on the presence of data to be transmitted or received at the local ends. The Opcom backbone passes data only, with all framing and handshaking done locally. The following diagram represents one data channel only on the ML4405 protocol card.

Fig 3 Flow Diagram



Not shown on the diagram are internal pull-up resistors on the CTS and DCD inputs, these will automatically enable the data to flow when no handshake lines are connected.

Data flow is as follows:

DCD controls the input to the board; it must be pulled to an RS232 low to disable the input, or high to enable it. Once enabled, data will flow to the opposite ML4405 board. When the transmitter has data in its buffer, RTS is asserted. No data will be transmitted until CTS is received.

Please note again that DCD and CTS have pull-ups on them that will *automatically enable the data flow* unless they are actively pulled to an RS232 low.

Fig 4 Practical Example of a Poll Response System, Point to Point / Multi-point

The following example shows one possible connection scheme between the ML4405 Protocol Cards and the attached equipment. Wiring schemes may change depending upon user application.

Fig 4 Application Diagram

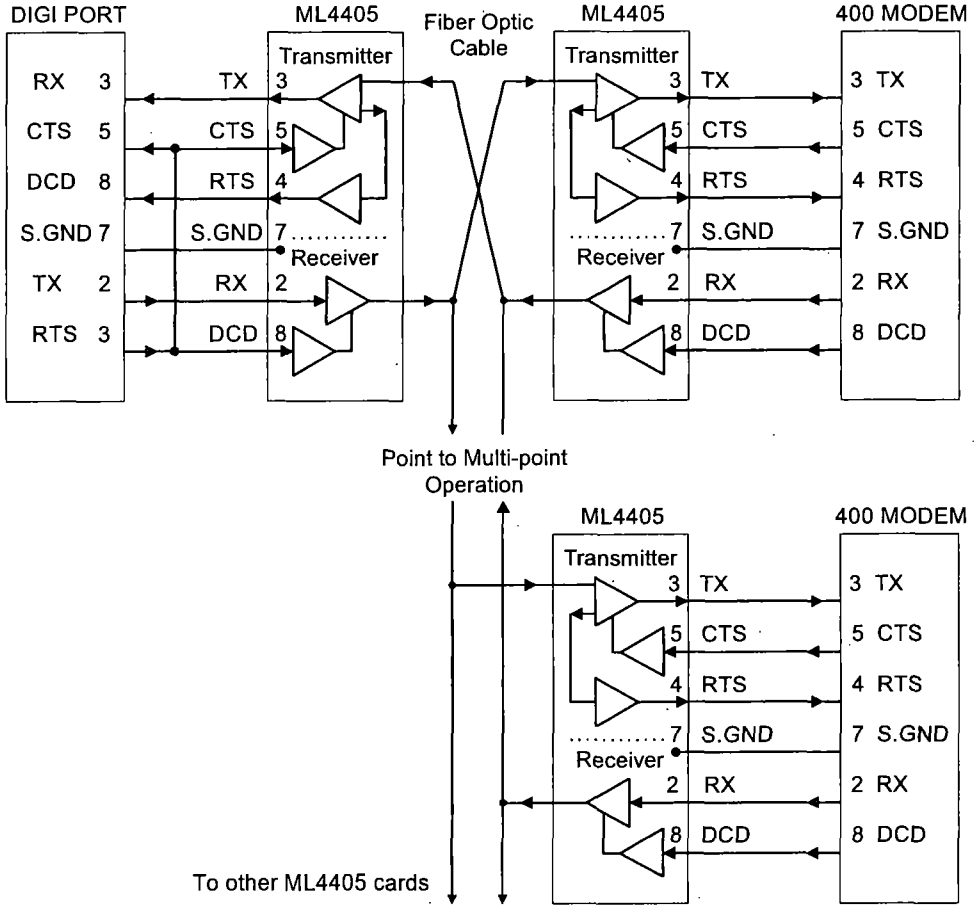
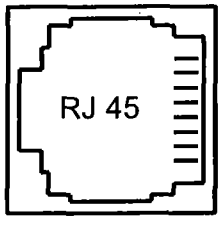


Fig 5 RJ 45 Pin Connections



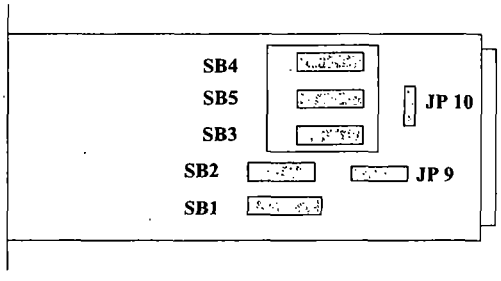
Pin	1	Chassis Ground	
	2	RX Data	(Output)
	3	TX Data	(Input)
	4	RTS	(Output)
	5	CTS	(Input)
	6	N.C.	
	7	Signal Ground	
	8	DCD	(Input)

INSTALLATION

CAUTION! Card is not hot plug-able. Power down chassis before inserting or removing card.

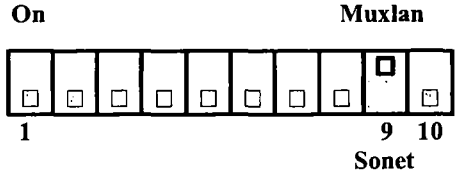
Before installing and powering on, configure the ML4405 for proper operation.

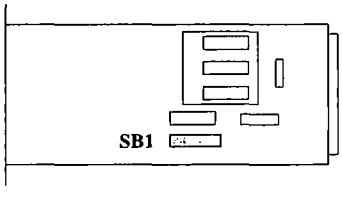
User Adjustments Locations



SB1 Switch

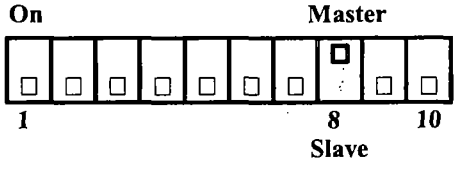
Muxlan or Sonet

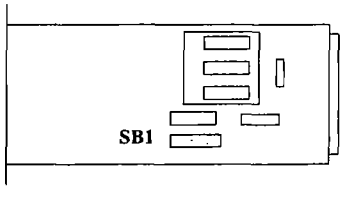




- This switch defines the operating system for the card.

Master or Slave – SB1 Switch



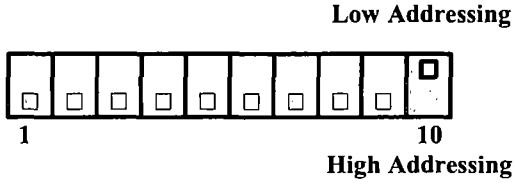


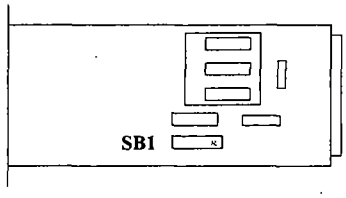
This switch allows a Master or Slave choice, one card is selected to be a master, and the other card must then be selected as a slave.

In Point to Multi-point operation all remote cards are selected as slaves.

Addressing

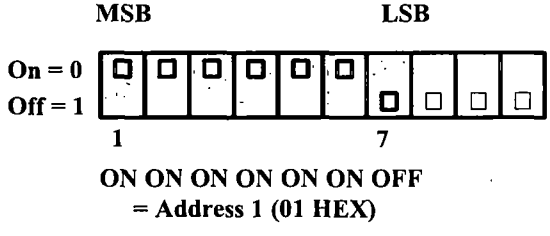
Sonet

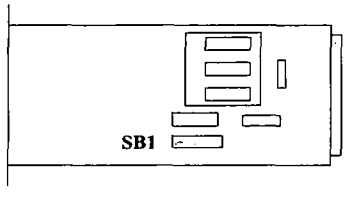




For Sonet only, set switch 10 — On for low addressing (0 –127)
Off for high addressing (128 – 255)

Muxlan & Sonet



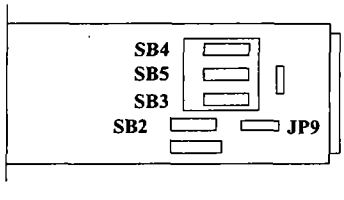


Select the card address, note that both cards must be set to the same address, in Point to Multi-Point all slaves must also have the same address.

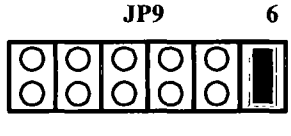
SW1 through 7 selects: 1 of 128 addresses (Muxlan)
1 of 256 addresses (Sonet-in conjunction with SW10)

SB2, 3, 4 & 5 Mode Switches

These four switches, one for each channel are identical in function and allow individual channels parameters to be set independent of the other channels.



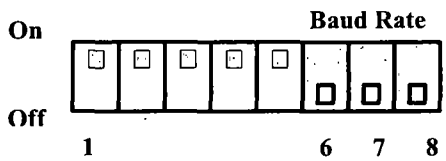
Note

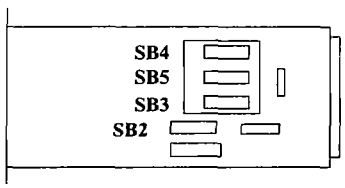


If all channels are to have the same configuration as channel one, install a jumper on JP9-6, this will then set channel one parameters for all four channels.
Conversely if JP9-6 jumper is removed, then all four channels are independent of each other.

The allowable parameters that can be set are Baud rate, Bits per Character, Parity On/Off, Parity Odd/Even and Stop Bits. The following procedures are identical for all channels

Baud Rate



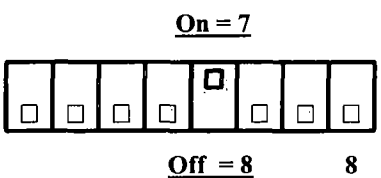


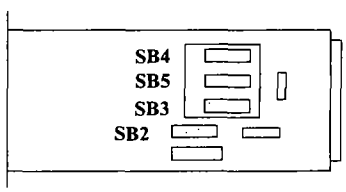
Switches 6, 7, & 8 are used to select the appropriate baud rate.

Use the adjacent table to select the appropriate baud rate.

Switch Settings			
Baud	**6**	**7**	**8**
19.2Kbps	**OFF**	**OFF**	**OFF**
9600	**OFF**	**OFF**	**ON**
4800	**OFF**	**ON**	**OFF**
2400	**OFF**	**ON**	**ON**
1200	**ON**	**OFF**	**OFF**
600	**ON**	**OFF**	**ON**
300	**ON**	**ON**	**OFF**
110	**ON**	**ON**	**ON**

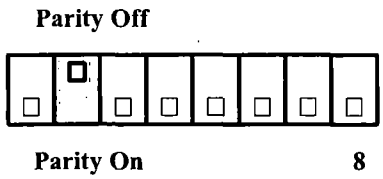
Bits per Character

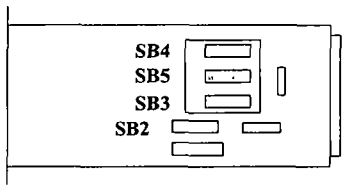




Select 7 or 8 Bits to match the character size.

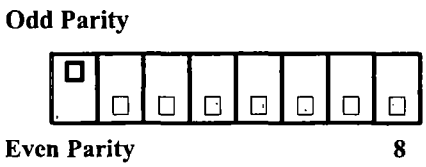
Parity

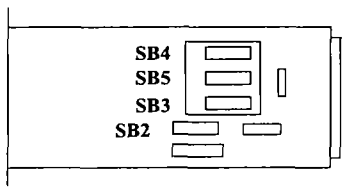




Turn Parity off if not required by external equipment.

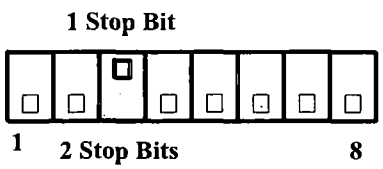
Parity Odd/Even

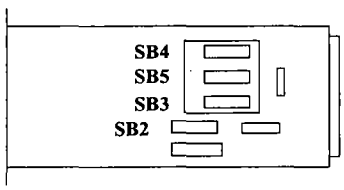




Select Odd or Even Parity to match external requirements.

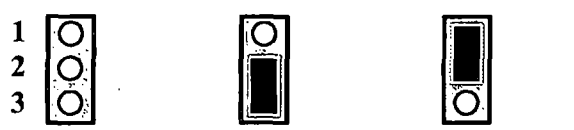
Stop Bits

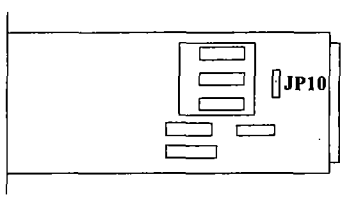




Select 1 or 2 Stop Bits to match external requirements

Point to Point/Multi-Point Operation





Select either Point/Point or Point/ Multi-Point operation, note that in PMP mode all Slaves must have the same address.

TROUBLESHOOTING

Troubleshooting

The following section lists some basic troubleshooting hints. The user should confirm that the basic system is working, i.e., the ML4400 chassis, the ML4401 power supply and the Fiber Optic Control Cards before proceeding to the protocol cards. The user should keep in mind that problem could be at either the local or remote end.

System Level

1. **Node not working.**

   a) Verify that the +5V, +12V and –12V LED's are illuminated.

   b) Is the Power Supply switched on?

   c) Verify that the Power Supply is securely seated in the chassis.

   d) Verify that the chassis is connected to AC power or optional 48VDC input.

   e) Replace Power Supply.

2. **FOCC LED's not on.**

   a) Check fiber cable.

   b) Check FOCC chassis seating.

   c) Replace FOCC.

3. **FOCC's LED's blinking.**

   a) Check receive optical power into R1 and R2. Does this match the recorded optical power?

b) If low, clean optical connectors with lint free cloth and IsoPropanol Alcohol (IPA) 97% pure or better. Use cotton swab moistened in IPA to clean out optical couplings on patch panels and blow out with clean canned air

c) If still low, check far end optical transmit power, if low replace far end FOCC, if correct check the fiber optic cables attenuation.

d) If receive level is ok, use a cotton swab moistened in IPA to clean out the R1 and R2 receptacles, blow out with clean canned air.

e) LED's still blinking, replace FOCC.

Note A can of *compressed clean air* must be used, not air from a compressed air line as this contains moisture and contaminants.

Protocol Card Level

1. **Check LED's.**

   a) At power on, LED(s) blink once for one second to signal initialization.

   b) Verify LED(s) are on continuously after initial one second blink, indicating a synchronized condition. This may take a few seconds.

   c) LED(s) do not blink at power on:

   d) Check seating of cards at both ends.

   e) Replace Card.

2. **LED(s) not on.**

   a) Check address setting (SW1) on both ends. These must match!

   b) Check that the ML4405 is set as a Master at the control end and all remotes are set as Slaves.

   c) Make sure channel parameters are duplicated at each end.

   d) Replace the card at one end, if this does not help, replace the card at the other end.

   e) Call Opcom if still not working.

3. **LED(s) on**

a) Use a BERT tester to verify data integrity over the network by transmitting and receiving valid data. When connecting to the ML4405 cards use a different hook-up cable to perform these tests.

Results:

Data is good, check original hook-up cable and then external equipment.

Data is bad, replace card at one end, if this does not help, replace the card at the other end.

b) Call Opcom if still not working.

SPECIFICATIONS

MECHANICAL

Size Single Slot.

ELECTRICAL

Connector Type RJ-49 Modular 8 Pin

Data Rates 110, 300, 600, 1200, 2400, 4800, 9600, 19.2Kbps.

Parity Odd, Even or None

Stop 1 or 2

Indicators Link Established, Green LED (1 per channel)

Interface

Pin 1	Chassis	GND
Pin 2	RX Data	Output
Pin 3	TX Data	Input
Pin 4	RTS	Output
Pin 5	CTS	Input
Pin 6	Unassigned	
Pin 7	Signal	GND
Pin 8	DCD	Input

Switches

Operating Mode	SB2	8 Position DIP Switch
Address	SB1	10 Position DIP Switch

Jumpers

JP 9-6	Single/Four Channel Mode Selector
JP 10	Point to Point or Point to Multi-point

(All others factory assigned)

ENVIRONMENTAL

Temperature 0 to 60 Degrees Celsius.
Humidity 5 to 90% Non-Condensing.

ML4417/18

Three Channel Telephone Card

User Guide

OPCOM

Document Number: 764-0017-001
Rev D
Date 5/15/95

Table of Contents

INTRODUCTION

The ML4417 and ML4418 channel cards provide three independent voice grade telephone channels per card set. The ML4417 provides a 2-wire interface for connection to an analog telephone. The ML4418 accepts a 2-wire interface from a PBX or the central office (C.O.). Each card uses three RJ-11 modular 6 pin connectors for independent cabling to each channel.

The ML4417 functionally emulates the station interface side of a PBX, providing an analog 2-wire tip and ring signal. An on-board ringing generator provides the ringing signal for each of the three channels. The ML4417 communicates through the MUXLAN/ SONET system with the ML4418.

The ML4418 functionally emulates a standard analog telephone. Two-wire tip and ring is accepted from the C.O. or PBX. Ringing and voice signals are passed via the system to the ML4417.

Each card uses one slot position in a chassis and is position independent.

Each card uses two of the possible 128 addresses, allowing 192 possible voice channels in a system.

Optionally, two ML4417s can be connected allowing a "hotline" telephone to telephone connection between systems.

CAUTION! Turn the front panel switch OFF on the ML4417 when inserting or removing the card from the chassis. Failure to do so could destroy the ML4417 card.

SPECIFICATIONS

Mechanical

Size	3.94" X 8.66" (100mm X 220mm)
Front Panel	.788" (20mm) 1 chassis slot
Connector Type	RJ-11 (6 position modular, 3 per card)

Electrical

Tip and Ring	ML4417: 2-wire analog, -48 VDC 80 VAC superimposed ringing signal connection to a standard analog telephone.	
	ML4418: 2-wire analog input accepts -48 VDC input with superimposed AC ring voltage. Input protected against lead reversal.	
LED	(3) Green	(1) for each channel
Interface	Pin 3 T Pin 4 R	

Environmental

Temperature	0 to 60 Degrees Celsius (other temperature ranges available)
Humidity	5 to 90% Non-Condensing

INSTALLATION

CAUTION! Card is not hot pluggable. Power down chassis before inserting or removing card.

Before installation and powering on, configure the ML4417/ ML4418 for proper operation. For switch SB1, ON is 1 and OFF is 0.

1. Locate SB1 (see Figure 1).

   SB1 is a 10 position switch located near the bottom of the board.

2. Set the base address of the card using SB1-1 through SB1-7 (see Figure 2 for switch settings).

   Switch positions SB1-1 through SB1-7 set the address of the card in a binary encoded format. Since the card uses two addresses, it will automatically use the next higher address. Care should be taken when addressing multiple cards in the system to allow for the next address.

   Example: Setting SB1-1 through SB1-7 to OFF, OFF, OFF, OFF, OFF, OFF, ON selects address 2. The card will also automatically use address 3.

   The corresponding card at the other end of the link or drop off point must have the same address.

3. Set SB1-8 to ON for slave and OFF for master.

   Set the ML4418 to master and ML4417 to slave.

4. Set SB1-9 for the ring cadence signal.

   SB1-9 should be OFF if an ML4417 is addressed to an ML4418 and ON if an ML4417 is addressed to another ML4417 (telephone to telephone, no connection to a PBX or C.O.).

5. Set SB1-10 to ON for MUXLAN and OFF for SONET.

6. Seat the card in the chassis and make the appropriate

6. Seat the card in the chassis and make the appropriate connections (Plug telephone link into ML4418; plug standard telephone into ML4417).

CAUTION! Place the front panel switch on the ML4417 in the OFF position when inserting or removing the card from the chassis. Failure to do so could destroy the ML4417card.

7. Apply chassis power.

Figure 1 Voice Switch Location

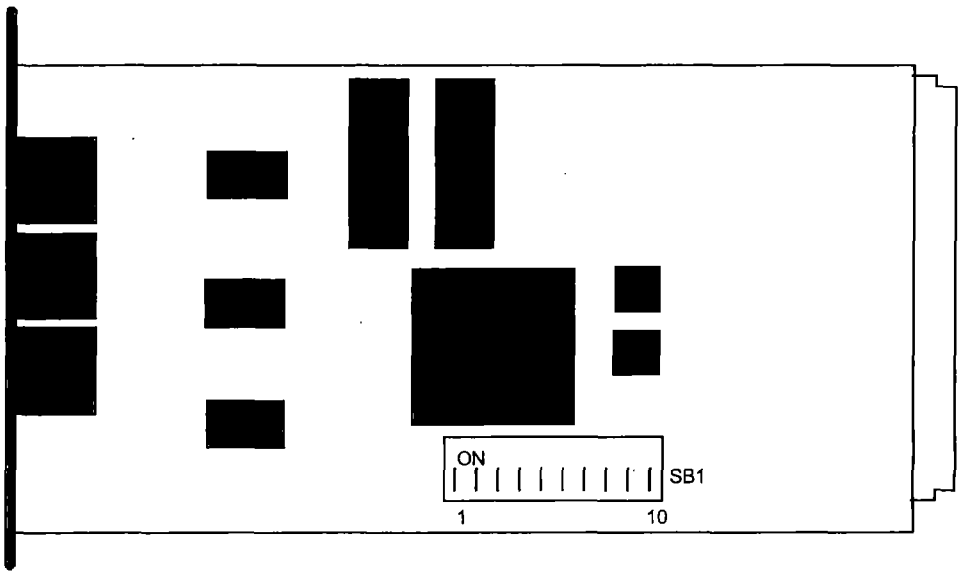
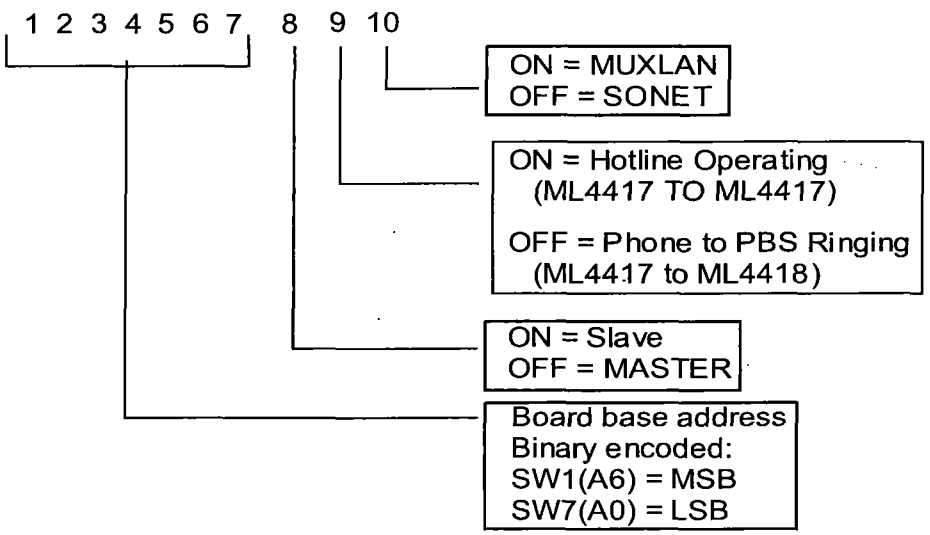


Figure 2 ML4417/4418 Switch Settings

SB1 Address/Mode Switch (10 Position Dip Switch)

ON = 1
OFF = 0



OFF OFF OFF OFF OFF OFF OFF = ADDRESS 0
OFF OFF OFF OFF OFF OFF ON = ADDRESS 2
ON ON ON ON ON ON ON = ADDRESS 255

Figure 3 Voice Interface Pinout

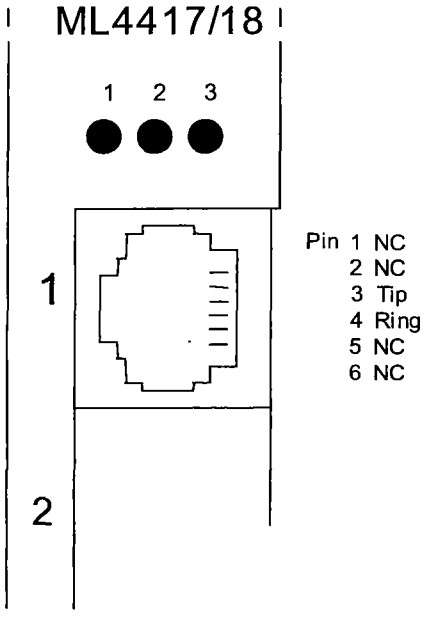
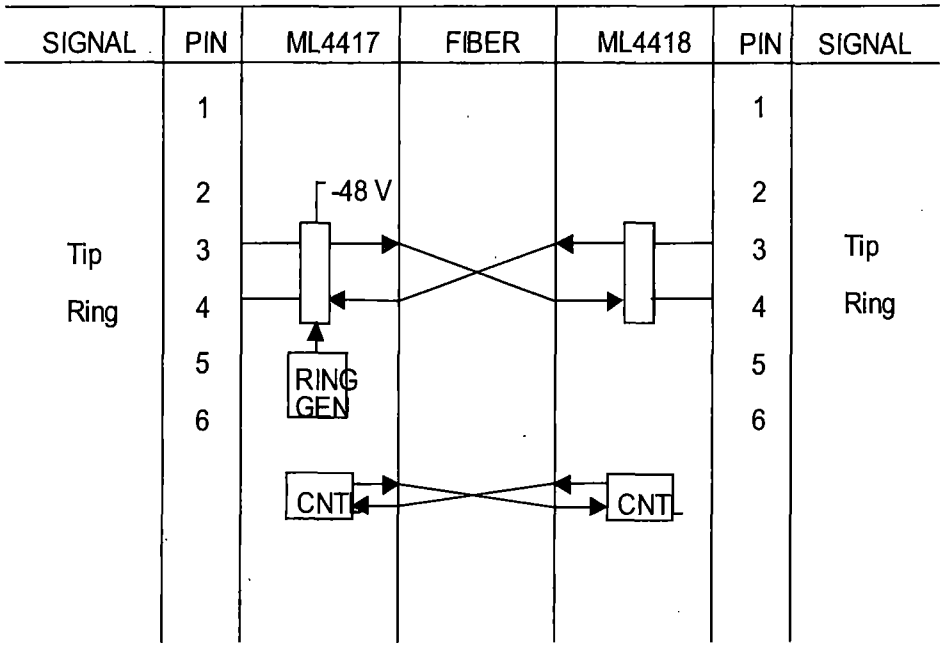


Figure 4 Voice Link Signal Flow



OPERATION

General Theory

The ML4417 uses a 16 bit microprocessor as the controlling function of the card. The subscriber line interface circuit provides line balancing and positive and negative input transient protection. The recovered low level audio is amplified, filtered and digitized. The microprocessor multiplexes the three audio channels and presents the data to the controller card bus for further multiplexing.
It also takes data from the bus and demultiplexes the three channels to become audio to the user.

The ML4418 is essentially the same in operation except the user interface emulates a telephone. Analog voice data from a PBX or central office is converted to an audio signal, amplified, digitized and multiplexed onto the system data bus. The process is reversed for data from the bus.

Figure 4 shows signal flow in and out of a typical voice link signal on an ML4417 and ML4418.

Status Indication

A few seconds after power on, all three LEDs will blink on for a second, then extinguish to indicate power on initialization complete (LEDs operate in unison).
The cards will then attempt to sync up with an appropriate card, if the address and master/slave bit switches have been correctly set. If there is a link or system problem, the LEDs will either stay off, or momentarily illuminate and go off. If synchronization has been achieved, the LEDs will stay lit. This may take approximately 10 seconds. An off-hook condition, i.e., active voice, is indicated by a steady 1Hz blink of the LED. After synchronization, operation is transparent to the user.

Redundancy

Each ML4417 and ML4418 voice card allows full redundant operation. With the system connected for redundant fiber paths, each card transmits user voice data over both the primary and secondary fiber loops.

When a card receives data from the remote end, it detects synchronization and selects the data from either the primary or secondary channel. The default channel at power-up is the primary channel.

If a fiber is cut or broken and the card was receiving data from that channel, the card loses synchronization (connection with the other end) and switches to the alternate channel.

The LEDs extinguish at loss of sync and illuminate when sync is reestablished. Momentary data loss may occur when switching from primary to secondary channel, or vice versa.

For SONET, the SO4202 control module handles redundancy.

MAINTENANCE

Cleaning

The ML4400 chassis requires no periodic maintenance. Clean the front panel labeled surfaces, as well as other unlabeled surfaces, using a soft cloth dampened with a mild cleanser or alcohol. Clean the fiber optic receptacles using a cotton-tipped applicator and alcohol if it appears that signal is being attenuated. Be careful to avoid sharp bends of less than 3" radius in the fiber optic cable, as this will attenuate the signal and/or break the glass fiber.

Troubleshooting

The following section lists some basic troubleshooting hints. The user should confirm that the basic system is working, i.e., the ML4400 chassis, the ML4401 power supply and the ML4402/ML4403 or SO4202 fiber optic control card, before proceeding to the protocol cards. The user should also keep in mind that the problem could be at either the local or remote end.

System Level

1. Verify that the chassis is connected to AC power or optional DC (-48V) input.

2. Verify power supply (ML4401) and fiber optic control card (FOCC) are securely seated in the chassis.

3. Switch on ML4401 power supply and verify that the +5V, +12V and -12V LEDs are illuminated.

   No Power: Check line fuses at rear panel.

4. Verify ML4402/ML4403 or SO4202 FOCC has fiber cable attached and the T1, T2, R1 and R2 LEDs are illuminated.

   LEDs not on:

   A. Check fiber cable.
   B. Check ML4402/ML4403 or SO4202 FOCC chassis seating.
   C. Replace ML4402/ML4403 or SO4202 FOCC.

   LEDs blinking:

   A. Check optical power into R1 and R2.
   B. Check ML4402/ML4403 switch settings. (Ref.ML4402/ML4403 User Guide)
   C. Check optical power out of T1 and T2.

Protocol Card Level

1. At power on, verify LED(s) blink once for one second to signal initialization.

   LED(s) do not blink at power on:

   A. Check seating of cards at both ends.
   B. Replace card.

2. Verify LED(s) are on continuously after an initial one second blink, indicating a synchronized condition. This may take a few seconds.

   LED(s) not on:

   A. Check address setting (SW1) on both ends. These must match.
   B. Check that one card is set to master and the other card is set to slave.
   C. Replace card at one end; if this does not help, replace the other.
   D. Call OPCOM.

3. Verify audio integrity by lifting handset.

   Audio not good:

   A. Check cable wiring to front panel connection.
   B. Replace card at one end; if no help, replace the other.
   C. Call OPCOM.

. An addressing problem exists at address 0 and 1 for the ML4417 and ML4418 cards. Current revision cards

ML4420

Four Channel RS422/RS485 Card

User Guide

OPCOM

Document Number: 764-0006-001
Rev D
Date 5/15/95

Table of Contents

INTRODUCTION

The ML4420 card provides four independent RS422/RS485 channels. Each channel may be user configured to operate in asynchronous, internal clock source mode at 110 to 19.2K bps data rates. The card provides four RJ-45 modular eight pin connectors for independent shielded cabling of each channel.

Each card uses one slot position in a chassis and is position independent. One of 128 addresses may be selected to allow up to 512 possible channels (128 addresses X 4 channels/card) in a MUXLAN system. In a SONET system, 256 addresses may be selected to allow up to 1024 possible channels.

The ML4420 uses command/response software that allows multiple RS422/RS485 cards to operate in parallel. One master talking with multiple remote slaves allows data to be broadcast to many remote sites, with the appropriate site responding.

SPECIFCATIONS

Mechanical

Size	3.94" X 8.66" (100mm X 220mm)
Front Panel	.788" (20mm) 1 chassis slot
Connector Type	RJ-45 (8 pin modular, 4 per card)

Electrical

Data Rates		110, 300, 600, 1200, 2400, 4800 9600, 19.2 Kbps
Parity		odd, even, or none
Indicators		Green LED (1 per channel) Link Established
Interface	Pin1	GND
	Pin2	Not Connected
	Pin3	Not Connected
	Pin4	Diff I/O 1(+)
	Pin5	Diff I/O 1(-)
	Pin6	Not Connected
	Pin7	Diff I/O 2(+)
	Pin8	Diff I/O 2(-)
Switches		
	SW1	Mode (8 position)
	SW2	Address (10 position)
	JP4	Sets I/O pins for drivers and receivers
	JP5-8	Sets 485 (Tristate)/422 driver output mode

Environmental

Temperature	0 to 60 Degrees Celsius (other temperature ranges available)
Humidity	5 to 90% Non-Condensing

INSTALLATION

CAUTION! Card is not hot pluggable. Power down the chassis before inserting and removing card.

Before installing and powering on, configure the ML4420 for proper operation.

1. Locate SW1 and SW2 and JP1-JP9 (See Figure 1).

   SW1 is a 10 position switch located above the assembly number. Its function is to select one of 128 addresses for MUXLAN and one of 256 addresses for SONET. It also sets the master/slave mode for the card.

   SW2 is an eight position switch located above SW1 address switch. SW2 sets the baud, bits/character, handshake type, number of stop bits and odd, even or no parity.

2. Select the card address by setting switches SW1-1 through SW1-7 (See Figure 2).

   Example: Settings SW1-1 through SW1-7 to ON, ON ON, ON, ON, OFF, OFF selects address 3.

3. Set the corresponding card(s) to the same address.

4. While setting the address switches, set SW1-8 ON or master or OFF for slave. (see Figure 2)

   This sets the cards to the same address and allows one card (master) to talk to the other card(s) (slave) at the same address. (With optional command/response firmware, multiple cards are set to the same address with one card set as master, and the rest set as slaves.)

5. Set SW1-9 to ON for MUXLAN and OFF for SONET.

6. For SONET, set SW1-10 to ON for low addressing (0-127) and OFF for high addressing (128-255). For MUXLAN, this switch setting does not matter.

7. If JP9-6 is jumpered, SW2 will set the mode (baud, bits/ character, etc.) for all four channels. With JP9-6 open, SW sets the mode for Channel 1 only. Channel 2, 3, 4 are set by SW3, SW4 and SW5, respectively. SW3 , SW4 and SW5 are located on the optional daughter card (see Figure 1).

   The following steps assume JP9-6 is jumpered, so SW2 will

8. Set the baud rate of the card using SW2-6 through SW2-8 (see Figure 2).

   Example: Setting SW2-6 through SW2-8 to OFF, OFF, ON selects a baud rate of 9600 bps.

9. Set SW2-5 to ON for 7 bits/character and OFF for for 8 bits/character.

10. Set SW2-4 is not used at this time.

11. Set SW2-3 to ON for 1 stop bit and OFF for 2 stop bits.

12. Set SW2-2 to ON for no parity and OFF to enable parity.

13. IF SW2-1 is OFF, set SW2-1 to ON for even parity and OFF for odd parity.

14. Set JP1-JP4 (see Figure 3).

    JP1-JP4 are two position jumpers, corresponding to each of the four channels, used in setting different input

    and output functions of pins 4,5,7, and 8 of each channel connector. Leaving all four jumpers open causes pins 4 and 5 to be outputs transmitting data and pins 7 and 8 to be inputs receiving data. Shunting the

15. Set JP5-JP8.

JP5-JP8 are three position jumpers used in selecting RS422 or RS485 mode for each of the four channels. Shunting A/B on each selects RS485 mode for each channel. Shunting B/C on each selects RS422 mode for each channel.

Note: Take notice of jumper lettering position in Figure 1. The lettering is not consistent for all jumpers.

Figure 4 shows the user interface connector along with pinout information. When looking at the front of the card, pin 1 is in the upper right corner. The connector is an RJ-45 modular connector for high density pin connections.

Figure 5 shows signal flow in and out of the ML4420 and across the fiber link. Data is fed into the ML4420 on pins 7 and 8 of the master end and appears at the slave end of the fiber link on pins 4 and 5. Likewise, data input at the slave end of the links on pins 7 and 8 is seen on pins 4 and 5 of master end.

16. With the appropriate connections made and the ML4420 configured, apply chassis power.

Figure 1 RS422/RS485 Switch and Jumper Location

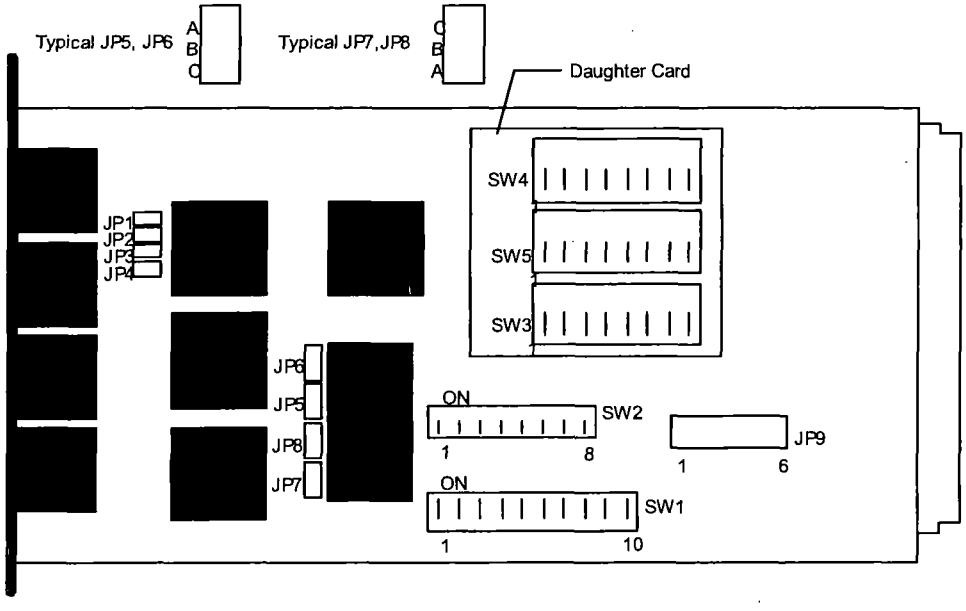
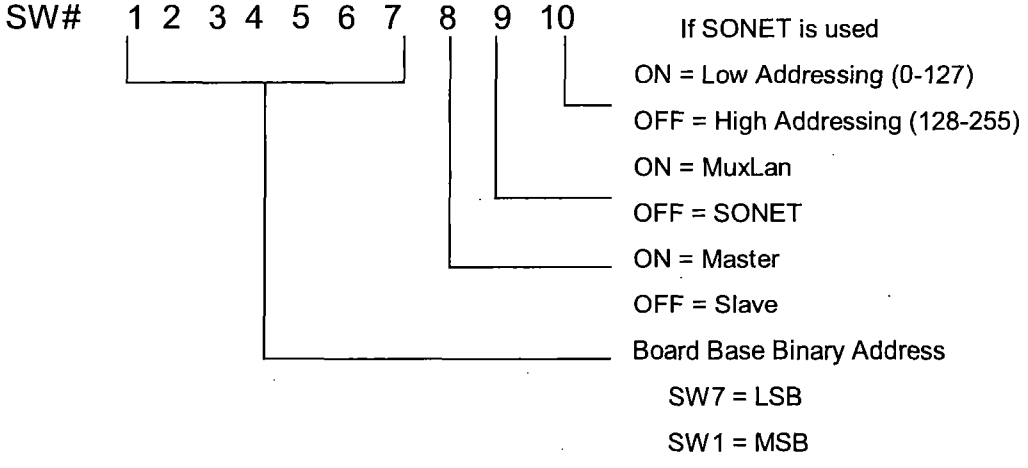


Figure 2 Switch Definition

SW1 Address Switch (10 Position Dip Switch)



ON ON ON ON ON ON ON	= Address 0
ON ON ON ON ON ON OFF	= Address 1
ON ON ON ON ON OFF ON	= Address 2
ON ON ON ON ON OFF OFF	= Address 3
OFF OFF OFF OFF OFF OFF OFF	= Address 127

SW2 Mode Switch (8 Position Dip Switch)

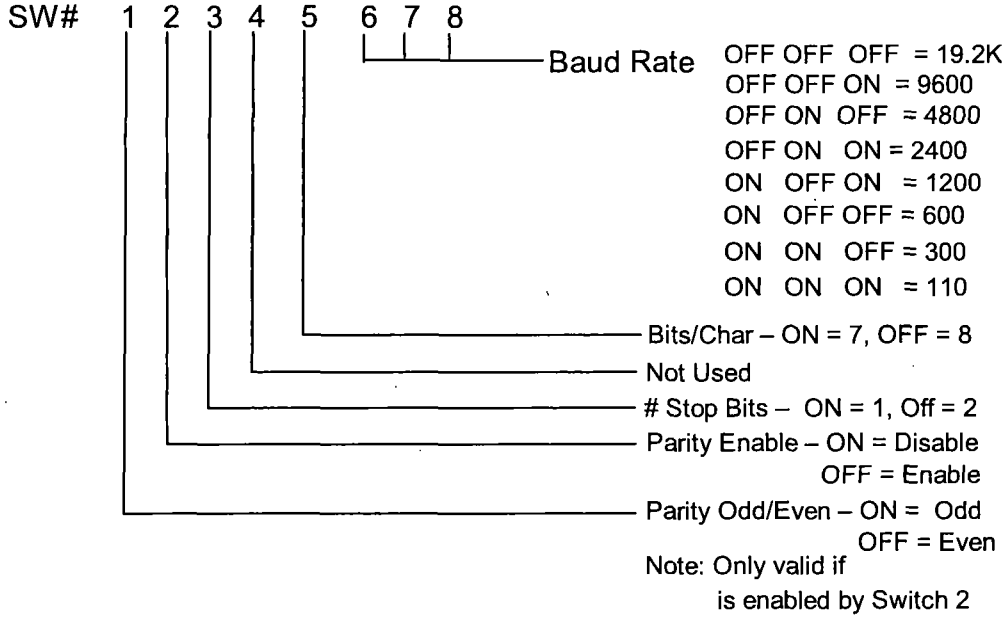


Figure 3 Jumper Definition

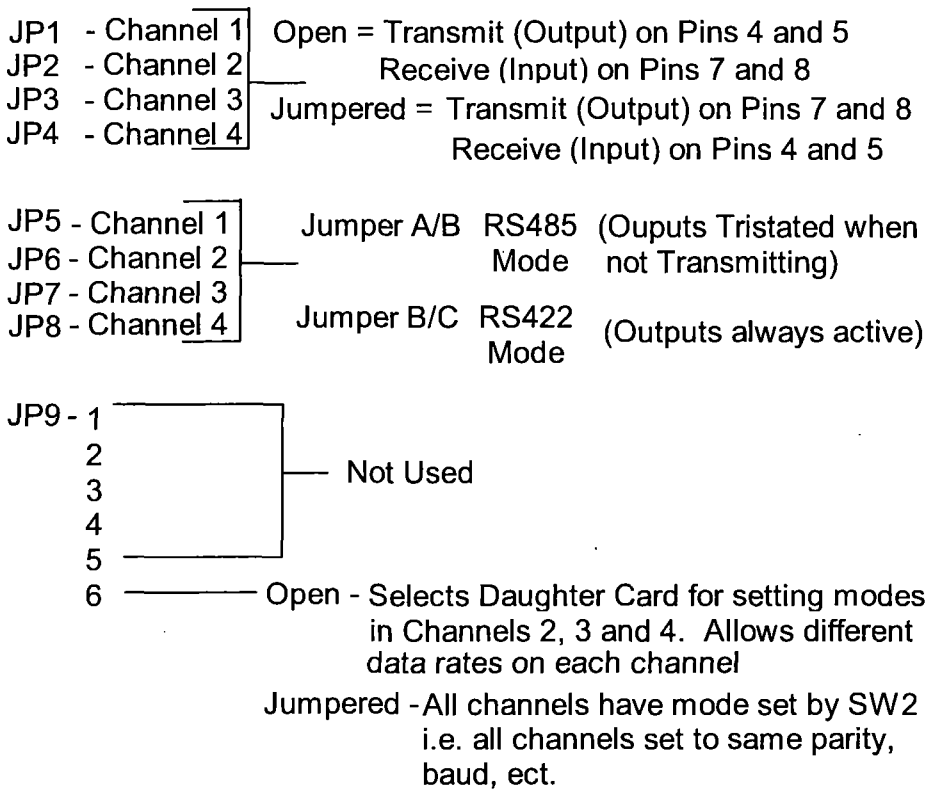


Figure 4 RS422/RS485 Interface Pinout

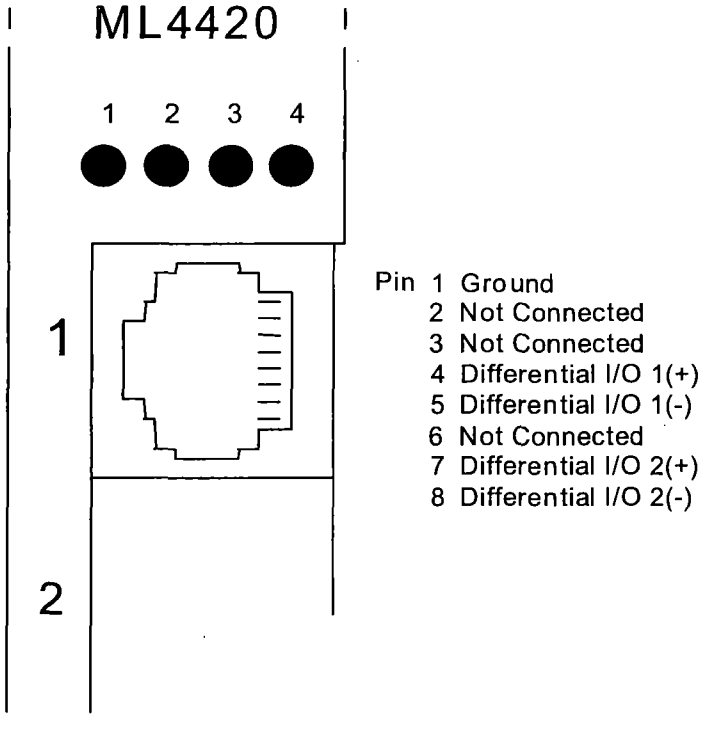
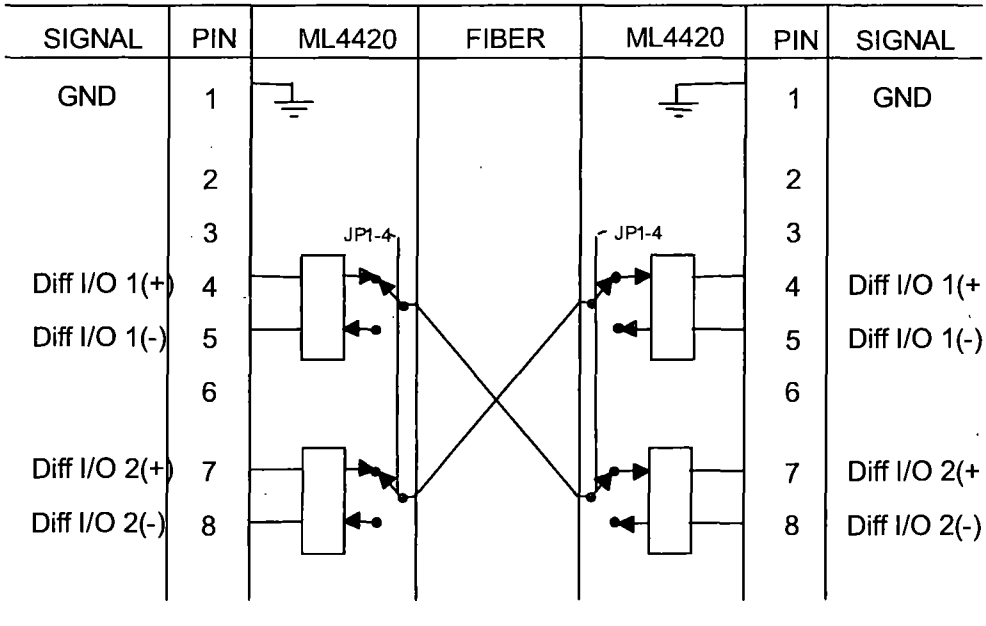


Figure 5 RS422/RS485 Link Signal Flow



OPERATION

General Theory

The ML4420 uses an eight bit microprocessor as the controlling function of the card. The microprocessor handles up to four 19.2Kbps channels per card. User data presented in a compatible async format, framed with start and stop bit(s), is decoded using a Universal Async Receiver Transmitter (UART) pre-set to the user's frame protocol. The microprocessor multiplexes the four channels and presents the data to the backplane bus for further multiplexing. Data from the system bus (slave end) is de-multiplexed in reverse order. Each channel contains a 256 byte buffer on the de-mux side that allows different speeds of operation at each end.

Once configured, operation of the ML4420 card is transparent to the user. All four channels are independent, with no restrictions on data format in the asynchronous mode.

Since data is received and transmitted in each end of the link, there is no jitter of the output signal that is typically associated with other types of multiplexers.

Status Indication

Once the ML4420s are configured, insert the cards in the chassis (cards are position independent) and apply power to the system. After a few seconds, all four LEDs will blink on for a second, then off to indicate power on initialization complete.

The cards attempt to sync up with an appropriate card, if the address and master/slave bit switches have been correctly set. If there is a link or system problem, the LEDs either stay off, or momentarily illuminate and go off. If synchronization is achieved, the LEDs stay lit. This indicates that the channels have the ability to transmit and receive data. This may take several seconds.

Note: Using command/response firmware, if there is a fiber path that allows the master to see its own status returned, all four LEDs on the master card illuminate whether a slave is there or not and, if a slave is there, whether it is in sync or not.

Redundancy

Each ML4420 RS422/RS485 card allows full redundant operation. For MUXLAN, with the system connected for redundant fiber paths, each card transmits identical user input data over both the primary and secondary fiber loops. When a card receives data from the remote end, it detects synchronization and selects the data from either the primary or secondary channel. The default channel at power-up is the primary channel.

If a fiber is cut or broken and the card was receiving data from that channel, the card loses synchronization and switches to the alternate channel. The LEDs extinguish at loss of sync and illuminate when sync is reestablished. Momentary data loss may occur when switching from primary to secondary, or vice versa.

For SONET, the SO4202 control module handles redundancy.

MAINTENANCE

Cleaning

The ML4400 chassis requires no periodic maintenance. Clean the front panel labeled surfaces, as well as other unlabeled surfaces, using a soft cloth dampened with a mild cleanser or alcohol. Clean the fiber optic receptacles using a cotton-tipped applicator and alcohol if it appears that signal is being attenuated. Be careful to avoid sharp bends of less than 3" radius in the fiber optic cable, as this will attenuate the signal and/or break the glass fiber.

Troubleshooting

The following section lists some basic troubleshooting hints. The user should confirm that the basic system is working, i.e., the ML4400 chassis, the ML4401 power supply and the ML4402/ML4403 or SO4202 fiber optic control card, before proceeding to the protocol cards. The user should also keep in mind that the problem could be at either the local or remote end.

System Level

1. Verify that the chassis is connected to AC power or optional DC (-48V) input.
2. Verify power supply (ML4401) and fiber optic control card (FOCC) are securely seated in the chassis.
3. Switch on ML4401 power supply and verify that the +5V, +12V and -12V LEDs are illuminated.

   No Power: Check line fuses at rear panel.

4. Verify ML4402/ML4403 or SO4202 FOCC has fiber cable attached and the T1, T2, R1 and R2 LEDs are illuminated.

LEDs not on:

A. Check fiber cable.
B. Check ML4402/ML4403 or SO4202 FOCC chassis seating.
C. Replace ML4402/ML4403 or SO4202 FOCC.

LEDs blinking:

A. Check optical power into R1 and R2.
B. Check ML4402/ML4403 switch settings. (Ref. ML4402/ML4403 User Guide)
C. Check optical power out of T1 and T2.

Protocol Card Level

1. At power on, verify LED(s) blink once for one second to signal initialization.

LED(s) do not blink at power on:

A. Check seating of cards at both ends.
B. Replace card.

2. Verify LED(s) are on continuously after an initial one second blink, indicating a synchronized condition. This may take a few seconds.

LED(s) not on:

A. Verify address setting (SW1) on both ends match.
B. Check that one card is set to master and the other card is set to slave.
C. Replace card at one end; if this does not help, replace the other.
D. Call OPCOM.

3. Verify data integrity by transmitting and receiving data.

Data not good:

A. Check data protocol switch settings (SW2 and/or jumpers)
B. Check cable wiring to front panel connection.
C. Replace card at one end; if no help, replace the other.
D. Call OPCOM.

SECTION 645 – WORK ZONE TRAFFIC CONTROL

Make the following amendment to said Section:

(I) Amend the second paragraph of **645.03 Construction** to read as follows:

"Furnish two police officers for each location that requires lane closure. Furnish one police officer for each location that requires shoulder closure. If TCP is included in the contract documents, furnish these quantities or number of police officers indicated in TCP, whichever is greater."

(II) Amend **645.04 Measurement**, by revising line 396 thru 398:

(A) The Engineer will not measure work zone traffic control for payment."

(III) Amend **645.05 Payment**, by revising line 405 thru 408:

"**645.05 Payment**. The Engineer will pay for additional police officers and additional traffic control devices at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will not pay for accepted traffic control and advertisement separately and will consider the cost for accepted traffic control and advertisement as included in the contract prices for the various contract pay items. The cost is for the work prescribed in this section and the contract documents."

(IV) Amend Subsection **645.05 Payment**, by replacing line 415 with the following:

"Traffic Control – Shoulder Closures along Interstate Route H-3 Lump Sum

Traffic Control – Full Closure of Interstate Route H-3 Force Account"

END SECTION 645

General Decision Number: HI100001 10/14/2011 HI1

Superseded General Decision Number: HI20080001

State: Hawaii

Construction Types: Building, Heavy (Heavy and Dredging), Highway and Residential

Counties: Hawaii Statewide.

BUILDING CONSTRUCTION PROJECTS; RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories); HEAVY AND HIGHWAY CONSTRUCTION PROJECTS AND DREDGING

Modification Number	Publication Date
0	03/12/2010
1	04/30/2010
2	05/07/2010
3	06/04/2010
4	06/11/2010
5	07/09/2010
6	07/16/2010
7	07/23/2010
8	08/13/2010
9	08/20/2010
10	09/03/2010
11	09/24/2010
12	10/08/2010
13	10/15/2010
14	10/29/2010
15	11/05/2010
16	11/19/2010
17	11/26/2010
18	12/03/2010
19	01/21/2011
20	03/04/2011
21	03/11/2011
22	03/18/2011
23	04/08/2011
24	05/13/2011
25	06/24/2011
26	07/08/2011
27	07/22/2011
28	08/05/2011
29	08/12/2011
30	08/19/2011
31	09/02/2011
32	09/09/2011
33	09/23/2011
34	09/30/2011
35	10/14/2011

ASBE0132-001 08/29/2010

	Rates	Fringes
Asbestos Workers/Insulator Includes application of all insulating materials,		

protective coverings, coatings and finishes to all types of mechanical systems. Also the application of firestopping material for wall openings and penetrations in walls, floors, ceilings and curtain walls	$ 36.65	22.24

BOIL0627-005 04/01/2010

	Rates	Fringes
BOILERMAKER	$ 31.92	21.42

BRHI0001-001 08/29/2011

	Rates	Fringes
BRICKLAYER		
Bricklayers and Stonemasons	$ 33.90	22.62
Pointers, Caulkers and Weatherproofers	$ 34.15	22.62

BRHI0001-002 08/29/2011

	Rates	Fringes
Tile, Marble & Terrazzo Worker		
Terrazzo Base Grinders	$ 32.34	22.62
Terrazzo Floor Grinders and Tenders	$ 30.79	22.62
Tile, Marble and Terrazzo Workers	$ 34.15	22.62

CARP0745-001 08/29/2011

	Rates	Fringes
Carpenters:		
Carpenters; Hardwood Floor Layers; Patent Scaffold Erectors (14 ft. and over); Piledrivers; Pneumatic Nailers; Wood Shinglers and Transit and/or Layout Man	$ 38.00	19.62
Millwrights and Machine Erectors	$ 38.25	19.62
Power Saw Operators (2 h.p. and over)	$ 38.15	19.62

CARP0745-002 08/29/2011

	Rates	Fringes
Drywall and Acoustical Workers and Lathers	$ 38.25	19.62

ELEC1186-001 02/20/2011

	Rates	Fringes
Electricians:		
Cable Splicers	$ 44.33	26.41
Electricians	$ 40.30	25.18
Telecommunication worker	$ 23.20	17%+6.35

ELEC1186-002 02/20/2011

	Rates	Fringes
Line Construction:		
Cable Splicers	$ 44.33	24.67
Groundmen/Truck Drivers	$ 30.22	20.89
Heavy Equipment Operators	$ 36.27	22.50
Linemen	$ 40.30	23.57
Telecommunication worker	$ 23.20	17%+$6.35

ELEV0126-001 01/01/2011

	Rates	Fringes
ELEVATOR MECHANIC	$ 49.48	21.79

a. VACATION: Employer contributes 8% of basic hourly rate for 5 years service and 6% of basic hourly rate for 6 months to 5 years service as vacation pay credit.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day and Christmas Day.

* ENGI0003-002 08/29/2011

	Rates	Fringes
Diver (Aqua Lung) (Scuba)		
Diver (Aqua Lung) (Scuba) (over a depth of 30 feet)	$ 58.75	23.94
Diver (Aqua Lung) (Scuba) (up to a depth of 30 feet)	$ 49.38	23.94
Stand-by Diver (Aqua Lung) (Scuba)	$ 40.00	23.94
Diver (Other than Aqua Lung)		
Diver (Other than Aqua Lung)	$ 58.75	23.94
Diver Tender (Other than Aqua Lung)	$ 36.97	23.94
Stand-by Diver (Other than Aqua Lung)	$ 40.00	23.94
Helicopter Work		
Airborne Hoist Operator for Helicopter	$ 38.55	23.94
Co-Pilot of Helicopter	$ 38.69	23.94
Pilot of Helicopter	$ 38.86	23.94
Power equipment operator - tunnel work		
GROUP 1	$ 34.99	23.94
GROUP 2	$ 35.10	23.94
GROUP 3	$ 35.27	23.94
GROUP 4	$ 35.54	23.94
GROUP 5	$ 35.85	23.94
GROUP 6	$ 36.50	23.94

GROUP 7	$ 36.82	23.94
GROUP 8	$ 36.93	23.94
GROUP 9	$ 37.04	23.94
GROUP 9A	$ 37.27	23.94
GROUP 10	$ 37.33	23.94
GROUP 10A	$ 37.48	23.94
GROUP 11	$ 37.63	23.94
GROUP 12	$ 37.99	23.94
GROUP 12A	$ 38.35	23.94
Power equipment operators:		
GROUP 1	$ 34.69	23.94
GROUP 2	$ 34.80	23.94
GROUP 3	$ 34.97	23.94
GROUP 4	$ 35.24	23.94
GROUP 5	$ 35.55	23.94
GROUP 6	$ 36.20	23.94
GROUP 7	$ 36.52	23.94
GROUP 8	$ 36.63	23.94
GROUP 9	$ 36.74	23.94
GROUP 9A	$ 36.97	23.94
GROUP 10	$ 37.03	23.94
GROUP 10A	$ 37.18	23.94
GROUP 11	$ 37.33	23.94
GROUP 12	$ 37.69	23.94
GROUP 12A	$ 38.05	23.94
GROUP 13	$ 34.97	23.94
GROUP 13A	$ 35.24	23.94
GROUP 13B	$ 35.55	23.94
GROUP 13C	$ 36.20	23.94
GROUP 13D	$ 36.52	23.94
GROUP 13E	$ 36.63	23.94

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Fork Lift (up to and including 10 tons); Partsman (heavy duty repair shop parts room when needed).

GROUP 2: Conveyor Operator (Handling building material); Hydraulic Monitor; Mixer Box Operator (Concrete Plant).

GROUP 3: Brakeman; Deckhand; Fireman; Oiler; Oiler/Gradechecker; Signalman; Switchman; Highline Cableway Signalman; Bargeman; Bunkerman; Concrete Curing Machine (self-propelled, automatically applied unit on streets, highways, airports and canals); Leveeman; Roller (5 tons and under); Tugger Hoist.

GROUP 4: Boom Truck or dual purpose "A" Frame Truck (5 tons or less); Concrete Placing Boom (Building Construction); Dinky Operator; Elevator Operator; Hoist and/or Winch (one drum); Straddle Truck (Ross Carrier, Hyster and similar).

GROUP 5: Asphalt Plant Fireman; Compressors, Pumps, Generators and Welding Machines ("Bank" of 9 or more, individually or collectively); Concrete Pumps or Pumpcrete Guns; Lubrication and Service Engineer (Grease Rack); Screedman.

GROUP 6: Boom Truck or Dual Purpose "A"Frame Truck (over 5 tons); Combination Loader/Backhoe (up to and including 3/4 cu. yd.); Concrete Batch Plants (wet or dry); Concrete Cutter, Groover and/or Grinder (self-propelled unit on streets, highways, airports, and canals); Conveyor or

Concrete Pump (Truck or Equipment Mounted); Drilling Machinery (not to apply to waterliners, wagon drills or jack hammers); Fork Lift (over 10 tons); Loader (up to and including 3 and 1/2 cu. yds); Lull High Lift (under 40 feet); Lubrication and Service Engineer (Mobile); Maginnis Internal Full Slab Vibrator (on airports, highways, canals and warehouses); Man or Material Hoist; Mechanical Concrete Finisher (Large Clary, Johnson Bidwell, Bridge Deck and similar); Mobile Truck Crane Driver; Portable Shotblast Concrete Cleaning Machine; Portable Boring Machine (under streets, highways, etc.); Portable Crusher; Power Jumbo Operator (setting slip forms, etc., in tunnels); Rollers (over 5 tons); Self-propelled Compactor (single engine); Self-propelled Pavement Breaker; Skidsteer Loader with attachments; Slip Form Pumps (Power driven by hydraulic, electric, air, gas, etc., lifting device for concrete forms); Small Rubber Tired Tractors; Trencher (up to and including 6 feet); Underbridge Personnel Aerial Platform (50 feet of platform or less).

GROUP 7: Crusher Plant Engineer, Dozer (D-4, Case 450, John Deere 450, and similar); Dual Drum Mixer, Extend Lift; Hoist and/or Winch (2 drums); Loader (over 3 and 1/2 cu. yds. up to and including 6 yards.); Mechanical Finisher or Spreader Machine (asphalt), (Barber Greene and similar) (Screedman required); Mine or Shaft Hoist; Mobile Concrete Mixer (over 5 tons); Pipe Bending Machine (pipelines only); Pipe Cleaning Machine (tractor propelled and supported); Pipe Wrapping Machine (tractor propelled and supported); Roller Operator (Asphalt); Self-Propelled Elevating Grade Plane; Slusher Operator; Tractor (with boom) (D-6, or similar); Trencher (over 6 feet and less than 200 h.p.); Water Tanker (pulled by Euclids, T-Pulls, DW-10, 20 or 21, or similar); Winchman (Stern Winch on Dredge).

GROUP 8: Asphalt Plant Operator; Barge Mate (Seagoing); Cast-in-Place Pipe Laying Machine; Concrete Batch Plant (multiple units); Conveyor Operator (tunnel); Deckmate; Dozer (D-6 and similar); Finishing Machine Operator (airports and highways); Gradesetter; Kolman Loader (and similar); Mucking Machine (Crawler-type); Mucking Machine (Conveyor-type); No-Joint Pipe Laying Machine; Portable Crushing and Screening Plant; Power Blade Operator (under 12); Saurman Type Dragline (up to and including 5 yds.); Stationary Pipe Wrapping, Cleaning and Bending Machine; Surface Heater and Planer Operator, Tractor (D-6 and similar); Tri-Batch Paver; Tunnel Badger; Tunnel Mole and/or Boring Machine Operator Underbridge Personnel Aerial Platform (over 50 feet of platform).

GROUP 9: Combination Mixer and Compressor (gunite); Do-Mor Loaderand Adams Elegrader; Dozer (D-7 or equal); Wheel and/or Ladder Trencher (over 6 feet and 200 to 749 h.p.).

GROUP 9A: Dozer (D-8 and similar); Gradesetter (when required by the Contractor to work from drawings, plans or specifications without the direct supervision of a foreman or superintendent); Push Cat; Scrapers (up to and including 20 cu. yds); Self-propelled Compactor with Dozer; Self-Propelled, Rubber-Tired Earthmoving Equipment (up to and including 20 cu. yds) (621 Band and similar); Sheep's Foot; Tractor (D-8 and similar); Tractors with boom (larger than D-6, and similar).

GROUP 10: Chicago Boom; Cold Planers; Heavy Duty Repairman or Welder; Hoist and/or Winch (3 drums); Hydraulic Skooper (Koehring and similar); Loader (over 6 cu. yds. up to and including 12 cu. yds.); Saurman type Dragline (over 5 cu. yds.); Self-propelled, rubber-tired Earthmoving Equipment (over 20 cu. yds. up to and including 31 cu. yds.) (637D and similar); Soil Stabilizer (P & H or equal); Sub-Grader (Gurries or other automatic type); Tractors (D-9 or equivalent, all attachments); Tractor (Tandem Scraper); Watch Engineer.

GROUP 10A: Boat Operator; Cable-operated Crawler Crane (up to and including 25 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (up to and including 1 cu. yd.); Dozer D9-L; Dozer (D-10, HD41 and similar) (all attachments); Gradall (up to and including 1 cu. yd.); Hydraulic Backhoe (over 3/4 cu. yds. up to and including 2 cu. yds.); Mobile Truck Crane Operator (up to and including 25 tons) (Mobile Truck Crane Driver Required); Self-propelled Boom Type Lifting Device (Center Mount) (up to and including 25 tons) (Grove, Drott, P&H, Pettibone and similar; Trencher (over 6 feet and 750 h.p. or more); Watch Engineer (steam or electric).

GROUP 11: Automatic Slip Form Paver (concrete or asphalt); Band Wagon (in conjunction with Wheel Excavator); Cable-operated Crawler Cranes (over 25 tons but less than 50 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (over 1 cu. yd. up to 7 cu. yds.); Gradall (over 1 cu. yds. up to 7 cu. yds.); DW-10, 20, etc. (Tandem); Earthmoving Machines (multiple propulsion power units and 2 or more Scrapers) (up to and including 35 cu. yds.," struck" m.r.c.); Highline Cableway; Hydraulic Backhoe (over 2 cu. yds. up to and including 4 cu. yds.); Leverman; Lift Slab Machine; Loader (over 12 cu. yds); Master Boat Operator; Mobile Truck Crane Operator (over 25 tons but less than 50 tons); (Mobile Truck Crane Driver required); Pre-stress Wire Wrapping Machine; Self-propelled Boom-type Lifting Device (Center Mount) (over 25 tons m.r.c); Self-propelled Compactor (with multiple-propulsion power units); Single Engine Rubber Tired Earthmoving Machine (with Tandem Scraper); Tandem Cats; Trencher (pulling attached shield).

GROUP 12: Clamshell or Dipper Operator; Derricks; Drill Rigs; Multi-Propulsion Earthmoving Machines (2 or more Scrapers) (over 35 cu. yds "struck"m.r.c.); Operators (Derricks, Piledrivers and Cranes); Power Shovels and Draglines (7 cu. yds. m.r.c. and over); Self-propelled rubber-tired Earthmoving equipment (over 31 cu. yds.) (657B and similar); Wheel Excavator (up to and including 750 cu. yds. per hour); Wheel Excavator (over 750 cu. yds. per hour).

GROUP 12A: Dozer (D-11 or similar or larger); Hydraulic Excavators (over 4 cu. yds.); Lifting cranes (50 tons and over); Pioneering Dozer/Backhoe (initial clearing and excavation for the purpose of providing access for other equipment where the terrain worked involves 1-to-1 slopes that are 50 feet in height or depth, the scope of this work does not include normal clearing and grubbing on usual hilly terrain nor the excavation work once the access is provided); Power Blade Operator (Cat 12 or equivalent or

over); Straddle Lifts (over 50 tons); Tower Crane, Mobile; Traveling Truss Cranes; Universal, Liebher, Linden, and similar types of Tower Cranes (in the erection, dismantling, and moving of equipment there shall be an additional Operating Engineer or Heavy Duty Repairman); Yo-Yo Cat or Dozer.

GROUP 13: Truck Driver (Utility, Flatbed, etc.)

GROUP 13A: Dump Truck, 8 cu.yds. and under (water level); Water Truck (up to and including 2,000 gallons).

GROUP 13B: Water Truck (over 2,000 gallons); Tandem Dump Truck, over 8 cu. yds. (water level).

GROUP 13C: Truck Driver (Semi-trailer. Rock Cans, Semi-Dump or Roll-Offs).

GROUP 13D: Truck Driver (Slip-In or Pup).

GROUP 13E: End Dumps, Unlicensed (Euclid, Mack, Caterpillar or similar); Tractor Trailer (Hauling Equipment); Tandem Trucks hooked up to Trailer (Hauling Equipment)

BOOMS AND/OR LEADS (HOURLY PREMIUMS):

The Operator of a crane (under 50 tons) with a boom of 80 feet or more (including jib), or of a crane (under 50 tons) with leads of 100 feet or more, shall receive a per hour premium for each hour worked on said crane (under 50 tons) in accordance with the following schedule:

Booms of 80 feet up to but not including 130 feet or Leads of 100 feet up to but not including 130 feet	0.50
Booms and/or Leads of 130 feet up to but not including 180 feet	0.75
Booms and/or Leads of 180 feet up to and including 250 feet	1.15
Booms and/or Leads over 250 feet	1.50

The Operator of a crane (50 tons and over) with a boom of 180 feet or more (including jib) shall receive a per hour premium for each hour worked on said crane (50 tons and over) in accordance with the following schedule:

Booms of 180 feet up to and including 250 feet	1.25
Booms over 250 feet	1.75

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* ENGI0003-004 08/29/2011

	Rates	Fringes
Dredging: (Boat Operators)		
Boat Deckhand	$ 34.97	23.94
Boat Operator	$ 37.18	23.94
Master Boat Operator	$ 37.33	23.94
Dredging: (Clamshell or Dipper Dredging)		
GROUP 1	$ 37.69	23.94

GROUP 2	$ 37.03	23.94
GROUP 3	$ 36.63	23.94
GROUP 4	$ 34.97	23.94
Dredging: (Derricks)		
GROUP 1	$ 37.69	23.94
GROUP 2	$ 37.03	23.94
GROUP 3	$ 36.63	23.94
GROUP 4	$ 34.97	23.94
Dredging: (Hydraulic Suction Dredges)		
GROUP 1	$ 37.33	23.94
GROUP 2	$ 37.18	23.94
GROUP 3	$ 37.03	23.94
GROUP 4	$ 36.97	23.94
Group 5	$ 36.63	23.94
Group 6	$ 36.52	23.94
Group 7	$ 34.97	23.94

CLAMSHELL OR DIPPER DREDGING CLASSIFICATIONS

GROUP 1: Clamshell or Dipper Operator.
GROUP 2: Mechanic or Welder; Watch Engineer.
GROUP 3: Barge Mate; Deckmate.
GROUP 4: Bargeman; Deckhand; Fireman; Oiler.

HYDRAULIC SUCTION DREDGING CLASSIFICATIONS

GROUP 1: Leverman.
GROUP 2: Watch Engineer (steam or electric).
GROUP 3: Mechanic or Welder.
GROUP 4: Dozer Operator.
GROUP 5: Deckmate.
GROUP 6: Winchman (Stern Winch on Dredge)
GROUP 7: Deckhand (can operate anchor scow under direction of Deckmate); Fireman; Leveeman; Oiler.

DERRICK CLASSIFICATIONS

GROUP 1: Operators (Derricks, Piledrivers and Cranes).
GROUP 2: Saurman Type Dragline (over 5 cubic yards).
GROUP 3: Deckmate; Saurman Type Dragline (up to and including 5 yards).
GROUP 4: Deckhand, Fireman, Oiler.

ENGI0003-044 08/30/2010

	Rates	Fringes
Power Equipment Operators (PAVING)		
(10) Cold Planer	$ 36.03	23.43
(10)Loader (2 1/2 cu. yds. and under)	$ 36.03	23.43
(10)Soil Stabilizer	$ 36.03	23.43
(11)Loader (over 2 1/2 cu. yds. to and including 5 cu. yds.)	$ 36.33	23.43
(3)Roller Operator (five tons and under)	$ 33.97	23.43
(5)Screed Person	$ 34.55	23.43
(6)Combination Loader/Backhoe (up to 3/4 cu.yd.)	$ 35.20	23.43

(6)Concrete Saws and/or Grinder (self-propelled unit on streets, highways, airports and canals)	$ 35.20	23.43
(6)Roller Operator (over five tons)	$ 35.20	23.43
(7)Combination Loader/Backhoe (over 3/4 cu.yd.)	$ 35.52	23.43
(8) Asphalt Plant Operator	$ 35.63	23.43
Asphalt Concrete Material Transfer	$ 34.87	23.18
Asphalt Raker	$ 33.91	23.18
Asphalt Spreader Operator	$ 35.39	23.18
Grader	$ 35.70	23.18
Laborer, Hand Roller	$ 31.14	23.18

IRON0625-001 09/01/2009

	Rates	Fringes
Ironworkers:	$ 32.50	26.01

a. Employees will be paid $.50 per hour more while working in tunnels and coffer dams; $1.00 per hour more when required to work under or are covered with water (submerged) and when they are required to work on the summit of Mauna Kea, Mauna Loa or Haleakala.

LABO0368-001 08/29/2011

	Rates	Fringes
Laborers:		
Driller	$ 31.30	15.91
Final Clean Up	$ 21.70	11.47
Gunite Operator & High Scaler	$ 30.80	15.91
Laborer I	$ 30.30	15.91
Laborer II	$ 27.70	15.91
Powderman	$ 31.30	15.91
Window Washer (bosun chair)	$ 29.80	15.91

LABORERS CLASSIFICATIONS

Laborer I: Asbestos Removal Worker (EPA certified workers); Asphalt Laborer, Ironer, Raker, Luteman, and Handroller, and all types of Asphalt Spreader Boxes; Asphalt Shoveler; Assembly and Installation of Multiplates, Liner Plates, Rings, Mesh, Mats; Batching Plant (portable and temporary); Boring Machine Operator (under streets and sidewalks); Buggymobile; Burning, Welding, Signalling, Choke Setting, and Rigging in connection with Laborers' work (except demolition); Chainsaw, Faller, Logloader, and Bucker; Compactors (Jackson Jumping Jack and similar); Concrete Bucket Dumpman; Concrete Chipping; Concrete Chuteman/Hoseman (pouring concrete) (the handling of the chute from ready-mix trucks for such jobs as walls, slabs, decks, floors, foundations, footings, curbs, gutters, and sidewalks); Concrete Core Cutter (Walls, Floors, and Ceiling); Concrete Grinding or Sanding; Concrete: Hooking on, signaling, dumping of concrete for treme work over water on caissons, pilings, abutments, etc.; Concrete: Mixing, handling, conveying, pouring, vibrating, otherwise

placing of concrete or aggregates or by any other process; Concrete: Operation of motorized wheelbarrows or buggies or machines of similar character, whether run by gas, diesel, or electric power; Concrete Placement Machine Operator: operation of Somero Hammerhead, Copperheads, or similar machines; Concrete Pump Machine (laying, coupling, uncoupling of all connections and cleaning of equipment); Concrete and/or Asphalt Saw (Walking or Handtype) (cutting walls or flatwork) (scoring old or new concrete and/or asphalt) (cutting for expansion joints) (streets and ways for laying of pipe, cable or conduit for all purposes); Concrete Shovelers/Laborers (Wet or Dry); Concrete Screeding for Rough Strike-Off: Rodding or striking-off, by hand or mechanical means prior to finishing; Concrete Vibrator Operator; Coring Holes: Walls, footings, piers or other obstructions for passage of pipes or conduits for any purpose and the pouring of concrete to secure the hole; Curbing (Concrete and Asphalt); Curing of Concrete (impervious membrane and form oiler) mortar and other materials by any mode or method; Cut Granite Curb Setter (setting, leveling and grouting of all precast concrete or stone curbs); Cutting and Burning Torch (demolition); Dri Pak-It Machine; Falling, bucking, yarding, loading or burning of all trees or timber on construction site; Fence and/or Guardrail Erector; Forklift (9 ft. and under); Grating and Grill work for drains or other purposes; Green Cutter of concrete or aggregate in any form, by hand, mechanical means, grindstone or air and/or water; Grout: Spreading for any purpose; Guinea Chaser (Grade Checker) for general utility trenches, sitework, and excavation; Headerboard Man (Asphalt or Concrete); Heat Welder of Plastic (Laborers' AGC certified workers) (when work involves waterproofing for waterponds, artificial lakes and reservoir, or heat welding for sewer pipes); Heavy Highway Laborer (Rigging, signaling, handling, and installation of pre-cast catch basins, manholes, curbs and gutters); High Pressure Nozzleman - Hydraulic Monitor (over 100# pressure); Installation of lightweight backfill; Jackhammer Operator; Jacking of slip forms: All semi and unskilled work connected therewithin; Laying of all multi-cell conduit or multi-purpose pipe; Lead base paint abatement laborers (EPA certified workers); Magnesite and Mastic Workers (Wet or Dry)(including mixer operator); Mason Tender,Mortar Man; Mortar Mixer (Block, Brick, Masonry, and Plastering); Nozzleman (Sandblasting and/or Water Blasting): handling, placing and opertion of nozzle; Operation, Manual or Hydraulic jacking of shields and the use of such other mechanical equipment as may be necessary; Pavement Breakers; Paving, curbing and surfacing of streets, ways, courts, under and overpasses, bridges, approaches, slope walls, and all other labor connected therewith; Pilecutters; Pipe Accessment in place, bolting and lining up of sectional metal or other pipe including corrugated pipe; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit, and any other stationary-type of tubular device used for conveying of any substance or element, whether water, sewage, solid, gas, air, or other product whatsoever and without regard to the nature of material from which tubular material is fabricated; No-joint pipe and stripping of same,

Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, treating Creosote and similar-type materials (6-inch) pipe and over); Piping: resurfacing and paving of all ditches in preparation for laying of all pipes; Pipe laying of lateral sewer pipe from main or side sewer to buildings or structure (except Contactor may direct work be done under proper supervision); Pipe laying, leveling and marking of the joint used for main or side sewers and storm sewers; Laying of all clay, terra cotta, ironstone, vitrified concrete or other pipe for drainage; Placing and setting of water mains, gas mains and all pipe including removal of skids; Plaster Mortar Mixer/Pump; Pneumatic Impact Wrench; Portable Sawmill Operation: Choker setters, off bearers, and lumber handlers connected with clearing; Posthole Digger (Hand Held, Gas, Air and Electric); Power Broom Sweepers (Small); Preparation and Compaction of roadbeds for railroad track laying, highway construction, and the preparation of trenches, footings, etc., for cross-country transmission by pipelines, electrical transmission or underground lines or cables (by mechanical means); Raising of structure by manual or hydraulic jacks or other methods and resetting of structure in new locations, including all concrete work; Ramming or compaction; Riprap, Stonepaver, and Rock Slinger (includes placement of stacked concrete, wet or dry and loading, unloading, signaling, slinging and setting of other similar materials); Rotary Scarifier (including multiple head concrete chipping Scarifier); Salamander Heater, Drying of plaster, concrete mortar or other aggregate; Scaffold Erector Leadman; Scaffolds: (Swing and hanging) including maintenance thereof; Scaler; Septic Tank/Cesspool and Drain Fields Digger and Installer; Shredder/Chipper (tree branches, brush, etc.); Stripping and Setting Forms; Stripping of Forms: Other than panel forms which are to be re-used in their original form, and stripping of forms on all flat arch work; Tampers (Barko, Wacker, and similar type); Tank Scaler and Cleaners; Tarman; Tree Climbers and Trimmers; Trencher (includes hand-held, Davis T-66 and similar type); Trucks (flatbed up to and including 2 1/2 tons when used in connection with on-site Laborers'work; Trucks (Refuse and Garbage Disposal) (from job site to dump); Vibra-Screed (Bull Float in connection with Laborers' work); Well Points, Installation of or any other dewatering system.

Laborer II: Air Blasting; Appliance Handling (job site) (after delivery and unloading in storage area); Asphalt Plant Laborer; Backfilling, Grading and all other labor connected therewith; Boring Machine; Bridge Laborer; Burning of all debris (crates, boxes, packaging waste materials); Chainman, Rodmen, and Grade Markers; Cleaning and Clearing of all debris; Cleaning, clearing, grading and/or removal for streets, highways, roadways, aprons, runways, sidewalks, parking areas, airports, approaches, and other similar installations; Cleaning or reconditioning of streets, ways, sewers and waterlines, all maintenance work and work of an unskilled and semi-skilled nature; Cleanup of Grounds and Buildings (other than "Light Clean-Up") (Janitorial Laborer); Clean-up of right-of-way; Clearing and slashing of brush or trees by hand or mechanical cutting; Concrete Bucket Tender (Groundman) hooking and unhooking of bucket; Concrete Forms; moving, cleaning, oiling and carrying to the next point of erection

of all forms; Concrete Products Plant Laborers; Conveyor Tender (conveying of building materials); Cribbers, Shorer, Lagging, Sheeting, and Trench Jacking and Bracing, Hand-Guided Lagging Hammer Whaling Bracing; Crushed Stone Yards and Gravel and Sand Pit Laborers and all other similar plants; Demolition, Wrecking and Salvage Laborers: Wrecking and dismantling of buildings and all structures, with use of cutting or wrecking tools, burning or cutting, breaking away, cleaning and removal of all masonry, wood or metal fixtures for salvage or scrap, All hooking, unhooking, signaling of materials for salvage or scrap removed by crane or derrick; Digging under streets, roadways, aprons or other paved surfaces; Chuck Tender, Outside Nipper; Dry-packing of concrete (plugging and filling of she-bolt holes); Excavation, Preparation of street ways and bridges; Fence and/or Guardrail Erector: Dismantling and/or re-installation of all fence; Finegrader; Firewatcher; Flagman (Coning, preparing, stablishing and removing portable roadway barricade devices); Signal Men on all construction work defined herein, including Traffic Control Signal Men at construction site; Garbage and Debris Handlers and Cleaners; Gas, Pneumatic, and Electric Tools, not listed Group 1 (except Rototiller); General Clean-up: sweeeping, cleaning, washdown, wiping of construction facility, and equipment (other than "Light Clean-up" [Janitorial] Laborer); General Excavation and Grading (all labor connected therewith); Digging of trenches, ditches and manholes and the leveling, grading and other preparation prior to laying pipe or conduit for any purpose; Excavations and foundations for buildings, piers, foundations and holes, and all other construction; General Laborer; Ground and Soil Treatment Work (Pest Control); Junk Yard Laborers (same as Salvage Yard); Landscape Nursery Laborers; Laser Beam "Target Man" in connection with Laborers' work; Layout Person for Plastic (when work involves waterproofing for waterponds, artificial lakes and reservoirs); Limbers, Brush Loaders, and Pilers; Loading, Unloading, carrying, distributing and handling of all rods and material for use in reinforcing concrete construction (except when a derrick or outrigger operated by other than hand power is used); Loading, unloading, sorting, stockpiling, handling and distribution of water mains, gas mains and all pipes; Loading and unloading of all materials, fixtures, furnishings and appliances from point of delivery to stockkpile to point of installation; hooking and signalling from truck, conveyance or stockpile; Material Yard Laborers; Pipelayer Tender; Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, Creosote, and similar-type materials (pipe under 6 inches); Plasterer Laborer (including Hod Carrier); Preparation, construction and maintenance of roadbeds and sub-grade for all paving, including excavation, dumping, and spreading of sub-grade material; Prestressed or precast concrete slabs, walls, or sections: all loading, unloading, stockpiling, hooking on of such slabs, walls or sections; Quarry Laborers; Railroad, Streetcar, and Rail Transit Maintenance and Repair; Removal of surplus material; Roustabout; Rubbish Trucks in connection with Building Construction Projects (excluding clearing, grubbing, and excavating); Salvage Yard: All work connected with cutting, cleaning, storing, stockpiling or handling of materials, all cleanup, removal of debris, burning, back-filling and

landscaping of the site; Sandblasting (Pot Tender): Hoses and pots or markers; Scaffolds: Erection, planking and removal of all scaffolds used for support for lathers, plasters, brick layers, masons, and other construction trades crafts; Scaffolds: (Specially designed by carpenters) laborers shall tend said carpenter on erection and dismantling thereof, preparation for foundation or mudsills, maintenance; Scraping of floors; Screeds: Handling of all screeds to be reused; handling, dismantling and conveyance of screeds; Setting, leveling and securing or bracing of metal or other road forms and expansion joints; Sheeting Piling/trench shoring (handling and placing of skip sheet or wood plank trench shoring); Ship Scalers; Sign Erector (subdivision traffic, regulatory, and street-name signs); Sloper; Slurry Seal Crews (Mixer Operator, Applicator, Squeegee Man, Shuttle Man, Top Man); Snapping of wall ties and removal of tie rods; Soil Test operations of semi and unskilled labor such as filling sand bags; Striper (Asphalt, Concrete or other Paved Surfaces); Tagging and Signaling of all building materials into high-rise units; Tool Room Attendant (Job Site); Traffic Delineating Device Applicator; Underpinning, lagging, bracing, propping and shoring, loading, signaling, right-of-way clearance along the route of movement, The clearance of new site, excavation of foundation when moving a house or structure from old site to new site; Utilities employees; Water Man; Waterscape/Hardscape Laborers; Wire Mesh Pulling (all concrete pouring operations); Wrecking, stripping, dismantling and handling concrete forms an false work.

LABO0368-002 08/29/2011

	Rates	Fringes
Landscape & Irrigation		
Laborers		
GROUP 1	$ 21.70	8.52
GROUP 2	$ 22.20	8.52
GROUP 3	$ 18.20	8.52

LABORERS CLASSIFICATIONS

GROUP 1: Installation of non-potable permanent or temporary irrigation water systems performed for the purposes of Landscaping and Irrigation architectural horticultural work; the installation of drinking fountains and permanent or temporary irrigation systems using potable water for Landscaping and Irrigation architectural horticultural purposes only. This work includes (a) the installation of all heads, risers, valves, valve boxes, vacuum breakers (pressure and non-pressure), low voltage electrical lines and, provided such work involves electrical wiring that will carry 24 volts or less, the installation of sensors, master control panels, display boards, junction boxes, conductors, including all other components for controllers, (b) and metallic (copper, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe including all work incidental thereto, i.e., unloading, handling and distribution of all pipes fittings, tools, materials and equipment, (c) all soldering work in connection with the above whether done by torch, soldering iron, or other means; (d) tie-in to main lines, thrust blocks (both

precast and poured in place), pipe hangers and supports incidental to installation of the entire irrigation system, (e) making of pressure tests, start-up testing, flushing, purging, water balancing, placing into operation all irrigation equipment, fixtures and appurtenances installed under this agreement, and (f) the fabrication, replacement, repair and servicing oflandscaping and irrigation systems. Operation of hand-held gas, air, electric, or self-powered tools and equipment used in the performance of Landscape and Irrigation work in connection with architectural horticulture; Choke-setting, signaling, and rigging for equipment operators on job-site in the performance of such Landscaping and Irrigation work; Concrete work (wet or dry) performed in connection with such Landscaping and Irrigation work. This work shall also include the setting of rock, stone, or riprap in connection with such Landscape, Waterscape, Rockscape, and Irrigation work; Grubbing, pick and shovel excavation, and hand rolling or tamping in connection with the performance of such Landscaping and Irrigation work; Sprigging, handseeding, and planting of trees, shrubs, ground covers, and other plantings and the performance of all types of gardening and horticultural work relating to said planting; Operation of flat bed trucks (up to and including 2 1/2 tons).:

GROUP 2. Layout of irrigation and other non-potable irrigation water systems and the layout of drinking fountains and other potable irrigation water systems in connection with such Landscaping and Irrigation work. This includes the layout of all heads, risers, valves, valve boxes, vacuum breakers, low voltage electrical lines, hydraulic and electrical controllers, and metallic (coppers, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe. This work also includes the reading and interpretation of plans and specifications in connection with the layout of Landscaping, Rockscape, Waterscape, and Irrigation work; Operation of Hydro-Mulching machines (sprayman and driver), Drillers, Trenchers (riding type, Davis T-66, and similar) and fork lifts used in connection with the performance of such Landscaping and Irrigation work; Tree climbers and chain saw tree trimmers, Sporadic operation (when used in connection with Landscaping, Rockscape, Waterscape, and Irrigation work) of Skid-Steer Loaders (Bobcat and similar), Cranes (Bantam, Grove, and similar), Hoptos, Backhoes, Loaders, Rollers, and Dozers (Case, John Deere, and similar), Water Trucks, Trucks requiring a State of Hawaii Public Utilities Commission Type 5 and/or type 7 license, sit-down type and "gang" mowers, and other self-propelled, sit-down operated machines not listed under Landscape & Irrigation Maintenance Laborer; Chemical spraying using self-propelled power spraying equipment (200 gallon capacity or more).

GROUP 3: Maintenance of trees, shrubs, ground covers, lawns and other planted areas, including the replanting of trees, shrubs, ground covers, and other plantings that did not "take" or which are damaged; provided, however, that re-planting that requires the use of equipment, machinery, or power tools shall be paid for at the rate of pay specified under Landscape and Irrigation Laborer, Group 1; Raking, mowing, trimming, and runing, including the use of "weed eaters", hedge trimmers, vacuums, blowers, and other

hand-held gas, air, electric, or self-powered tools, and the operation of lawn mowers (Note: The operation of sit-down type and "gang" mowers shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer, Group 2); Guywiring, staking, propping, and supporting trees; Fertilizing, Chemical spraying using spray equipment with less than 200 gallon capacity, Maintaining irrigation and sprinkler systems, including the staking, clamping, and adjustment of risers, and the adjustment and/or replacement of sprinkler heads, (Note: the cleaning and gluing of pipe and fittings shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer(Group 1); Watering by hand or sprinkler system and the peformance of other types of gardening, yardman, and horticultural-related work.

LABO0368-003 08/29/2011

	Rates	Fringes
Underground Laborer		
GROUP 1	$ 30.90	15.91
GROUP 2	$ 32.40	15.91
GROUP 3	$ 32.90	15.91
GROUP 4	$ 33.90	15.91
GROUP 5	$ 34.15	15.91
GROUP 6	$ 34.25	15.91
GROUP 7	$ 34.50	15.91

GROUP 1: Watchmen; Change House Attendant.

GROUP 2: Swamper; Brakeman; Bull Gang-Muckers, Trackmen; Dumpmen (any method); Concrete Crew (includes rodding and spreading); Grout Crew; Reboundmen

GROUP 3: Chucktenders and Cabletenders; Powderman (Prime House); Vibratorman, Pavement Breakers

GROUP 4: Miners - Tunnel (including top and bottom man on shaft and raise work); Timberman, Retimberman (wood or steel or substitute materials thereof); Blasters, Drillers, Powderman (in heading); Microtunnel Laborer; Headman; Cherry Pickerman (where car is lifted); Nipper; Grout Gunmen; Grout Pumpman & Potman; Gunite, Shotcrete Gunmen & Potmen; Concrete Finisher (in tunnel); Concrete Screed Man; Bit Grinder; Steel Form Raisers & Setters; High Pressure Nozzleman; Nozzleman (on slick line); Sandblaster-Potman (combination work assignment interchangeable); Tugger

GROUP 5: Shaft Work & Raise (below actual or excavated ground level); Diamond Driller; Gunite or Shotcrete Nozzleman; Rodman; Groundman

GROUP 6: Shifter

GROUP 7: Shifter (Shaft Work & Raiser)

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* PAIN1791-001 07/01/2011

	Rates	Fringes
Painters:		
Brush	$ 33.60	23.90
Sandblaster; Spray	$ 33.60	23.90

PAIN1889-001 07/01/2011

	Rates	Fringes
Glaziers	$ 32.05	24.22

PAIN1926-001 07/01/2011

	Rates	Fringes
Soft Floor Layers	$ 28.12	20.98

PAIN1944-001 01/01/2011

	Rates	Fringes
Taper	$ 39.00	16.40

PLAS0630-001 08/29/2011

	Rates	Fringes
PLASTERER	$ 34.69	22.62

PLAS0630-002 08/29/2011

	Rates	Fringes
Cement Masons:		
Cement Masons	$ 33.85	22.62
Trowel Machine Operators	$ 34.00	22.62

PLUM0675-001 07/03/2011

	Rates	Fringes
Plumber, Pipefitter, Steamfitter & Sprinkler Fitter	$ 36.10	22.26

ROOF0221-001 09/25/2011

	Rates	Fringes
Roofers (Including Built Up, Composition and Single Ply)	$ 36.10	16.13

SHEE0293-001 08/28/2011

	Rates	Fringes
Sheet metal worker	$ 34.65	21.71

SUHI1997-002 09/15/1997

	Rates	Fringes
Drapery Installer	$ 13.60	1.20

RIGGERS; WELDERS - Receive rate prescribed for craft performing operation to which rigging or welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
645.1010	Traffic Control – Shoulder Closures Along Interstate Route H-3	L.S.	L.S.	L.S.	$_____
645.1020	Traffic Control – Full Closure of Interstate Route H-3	F.A.	F.A.	F.A.	$80,000.00
645.2000	Additional Police Officers, Additional Traffic Control Devices, And Advertisement	F.A.	F.A.	F.A.	$20,000.00
697.1000	Communication Systems Upgrade	L.S.	L.S.	L.S.	$_____
697.2010	Splice Existing Non-Working Fibers	F.A.	F.A.	F.A.	$10,000.00
697.2020	Terminate Existing Non-Working Fibers	F.A.	F.A.	F.A.	$10,000.00

a. Sum of All Items ..... $ _____

b. Either Furnish Foreign Steel Not to Exceed Minimal Amount (Fill in '0') or
Furnish Foreign Steel in Excess of Minimal Amount (Fill in 25% x a) ..... $ _____

c. Amount for Comparison of Bids (a + b) ..... $ _____

All bidders must fill in b and complete c

NOTE: Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.

PRE-PROPOSAL CONFERENCE NOTES

Project: Freeway Management System, Phase 1B, Traffic Operations Center, Unit 5B: Communication Systems Upgrade, Island of Oahu. Federal-Aid Project No. IM-0300(119)-R.

Subject: Non-mandatory Pre-proposal Conference

Date/Time: October 26, 2011 / 9:00 AM – 11:00 AM

Held: State Department of Transportation, Highways Division, H-3 Traffic Operations Center

Present: See attached lists of attendees

Discussed:

A. HWY-TO opens meeting at 9:00 A.M.:

1. Pre-proposal conference is non-mandatory and is intended for clarification prior to bidding.
2. If you haven't done yet, please sign in.
3. Any discrepancies will be addressed by addendum.
4. Offerors have until November 3, 2011 to submit any written questions.
5. The minutes to this meeting will be distributed via an addendum.
6. Proposal due date is scheduled for 2:00 P.M., December 8, 2011.
7. This meeting will be held open until 9:30 A.M. to assure all prospective offerors have the opportunity to attend this Pre-proposal conference.
8. Brief project overview.
9. Visit equipment room (downstairs) to view Hub 14 Opcom equipment.
10. Visit Halawa IB Portal Hub 9 to view Opcom equipment.
11. Visit Crossover XP-1 Hub 4 to view Opcom equipment.
12. Visit approach Hub 8 to view cabinet condition and ease of access to cabinet.

B. Open discussion to prospective offerors:

Q: There are 2 pay items that total $20,000 for fiber work. What will happen if the budgets are exceeded?

A: The Proposal Schedule (page P-8) shows 2 force account pay items for fiber work. If more money than that allocated proves necessary, additional money may be added via change order. Note that force account items are in effect, time and material.
Additional information: Offerors should refer to Section 109.06 – Force Account Provisions and Compensation of the Hawaii Standard Specification for Road and Bridge Construction, 2005 for further information.

Q: Are the pinouts for the existing Opcom equipment and the new equipment the same? Do the cables that connect the new equipment (replacing the existing Opcom) and existing to remain equipment need to be replaced?

A: We will get back to you.
Additional information: Depending on the equipment proposed by the Contractor, new custom cables may be required. The different communication types are detailed in the table on page TP-8. Additional pinout information is also provided as part of the addendum. Lastly, per Technical Provision Section 2.06.01 – Task 1: Communications Migration Plan the Contractor is required to submit a communications migration plan which requires pinout diagrams.

Q: Will the State be providing existing fiber infrastructure information as part of an addendum or are we expected to get that information ourselves today?

A: Exhibits A, C and D show the existing fiber infrastructure.

Q: Do all the hubs have clean power with UPS?

A: All hubs have clean power with UPS back up. The UPS batteries are replaced on a regular schedule.

Q: Are the hub UPS' sized for a parallel system?

A: We will get back to you.
Additional information: Offerors should refer to revisions made via addendum to Technical Provisions Section 2.06.03, Overall Installation Requirements.

Q: We notice that hardened equipment is specified. Do the hub cabinets have HVAC?

A: Most hub cabinets are not in an air-conditioned room nor do they have air-conditioning for the cabinets.

Q: We notice that some hub cabinets are identified with no space for new equipment. Are we visiting one of those cabinets today?

A: Yes.

Q: What is the allowable down time for cut over?

A: We will need to get back to you.

Additional information: Offerors should refer to revisions made via addendum to Technical Provisions Section 2.06.03, Edge Device Migration.

Q: Will the software we provide be only for new equipment?
A: Yes.

Q: What are the training requirements? Do we need to fully identify the training program in the proposal?
A: Training is identified in Technical Provision Section 2.06.08 – Task 8: Training and System Documentation. It will be part of the proposal evaluation, scored as part of the work plan. Offerors should refer to Technical Provision Section 3.03 – Work Plan.

Q: At Hub 14: Is this one of the cabinets without space?
A: Yes.

Q: At Hub 14: Where can the temporary cabinet sit?
A: We will get back to you.
Additional information: Offerors should refer to revisions made to Technical Provisions Section 2.06.03.

Q: At Hub 9: Do we know if new fiber might need to be pulled in?
A: There might be a need for splicing and/or termination of existing fibers. We have force account pay items to pay for that, should it prove necessary. New fiber optic cable should not be needed.

Q: At Hub 4: Is there ventilation in this room (CP 1-101)?
A: There is an exhaust fan with a thermostat. Fan switches on at a set temperature – no humidity gauge.

Meeting Adjourned at 10:30 A.M.

Prepared by: HWY-TO

sign in

PRE-PROPOSAL CONFERENCE
FREEWAY MANAGEMENT SYSTEM, PHASE 1B, TRAFFIC OPERATIONS CENTER,
UNIT 5B: COMMUNICATION SYSTEMS UPGRADE, ISLAND OF OAHU
F.A.P. No. IM-0300(119)-R
9:00 a.m. October 26, 2011
DOT H-3 Traffic Operations Center

Name	Company	E-mail Address
Glenn Kurashima	ICx	glenn.kurashima@icxt.com
Aaron Toma	Pacific Wireless	aaron.toma@pwchi.com
Adrian de la Garza	PWC	adrian.delagarza@pwchi.com
John Shin	State	john.so.shin@hawaii.gov
Miles K. Usui	HDOT	miles.usui@hawaii.gov
Harvey Heaton	Telvent	harvey.heaton@telvent
Benson Chow	HDOT	benson.chow@hawaii.gov
Arthur Sickels	HDOT	Arthur.Sickels@hawaii.gov
Terence Yoshida	HDOT	terence.h.yoshida@hawaii.gov
Bob Alamillo	AE	balamillo@american-electric.cc
Ed Luna	American Electric	eluna@american-electric.cc
Dale Adams	VT Milcom	dale.adams@vt-group.com
Margo Siler	VT Milcom	margo.siler@vt-group.com
Jim Montgomery	Transdyn	jmontgomery@transdyn.com
Tim Lew	ICx	tim.lew@icxt.com
Clyde Morita	HDOT	clyde.morita@hawaii.gov

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