

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	28	170

Key

CCTV Camera

Variable Message Sign

VMS

Fiber

Existing Fiber

Future Fiber

Ethernet Switch In Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

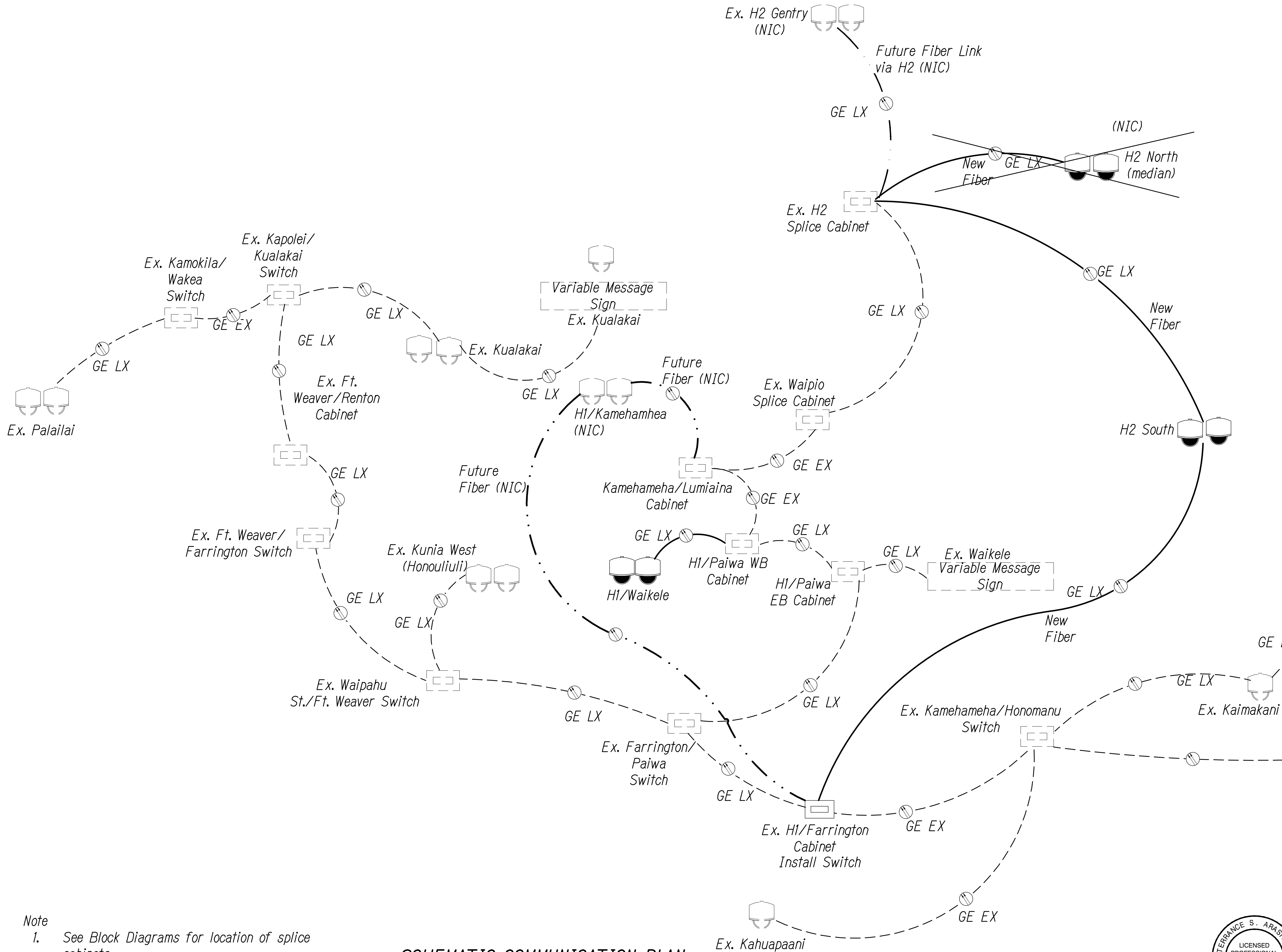
GE = Gigabit Ethernet

LX = LX SFP

EX = EX SFP

ZX = ZX SFP

100LX = 100Base



Note
1. See Block Diagrams for location of splice cabinets.

SCHEMATIC COMMUNICATION PLAN
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHIRO

LICENSED PROFESSIONAL ENGINEER

No. 6998-C

HAWAII, U.S.A.

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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-1 OF 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	CHECKED BY	" "

F:\A\ATA-HNL-ENG\2020\PROJECTS\19-201 FMS PHASE 3\UNIT 1\DWG\COMM PLANS\CM-1 COMMUNICATIONS PLAN.DWG Aug 04, 2021 - 10:53 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	29	170

Key

CCTV Camera

Variable Message Sign

VMS

Fiber

Existing Fiber

Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

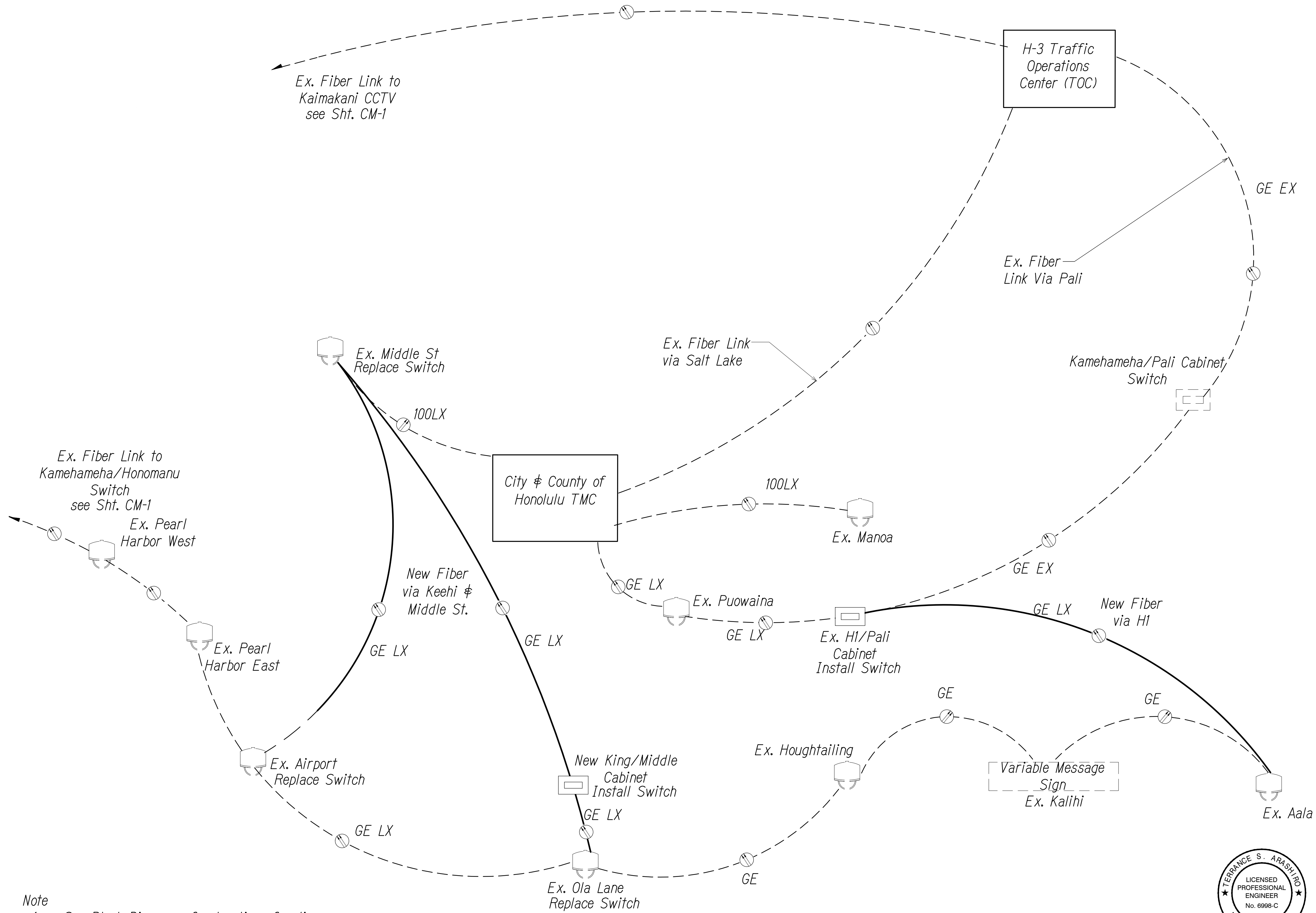
GE = Gigabit Ethernet

LX = LX SFP

EX = EX SFP

ZX = ZX SFP

100LX = 100Base



Note
1. See Block Diagrams for location of splice cabinets.

SCHEMATIC COMMUNICATION PLAN
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHIRO

LICENSED PROFESSIONAL ENGINEER

No. 6998-C

HAWAII, U.S.A.

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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-2 OF 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	CHECKED BY	" "

F:\N\2019\19-201 FMS PHASE 3\1\DWG\COMM PLANS\CM-2 COMMUNICATIONS PLAN.DWG, Jul 22, 2021-9:26 AM

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	31	170

Key

CCTV Camera

Variable Message Sign VMS

Fiber

= Number of Fibers Used

Existing Fiber

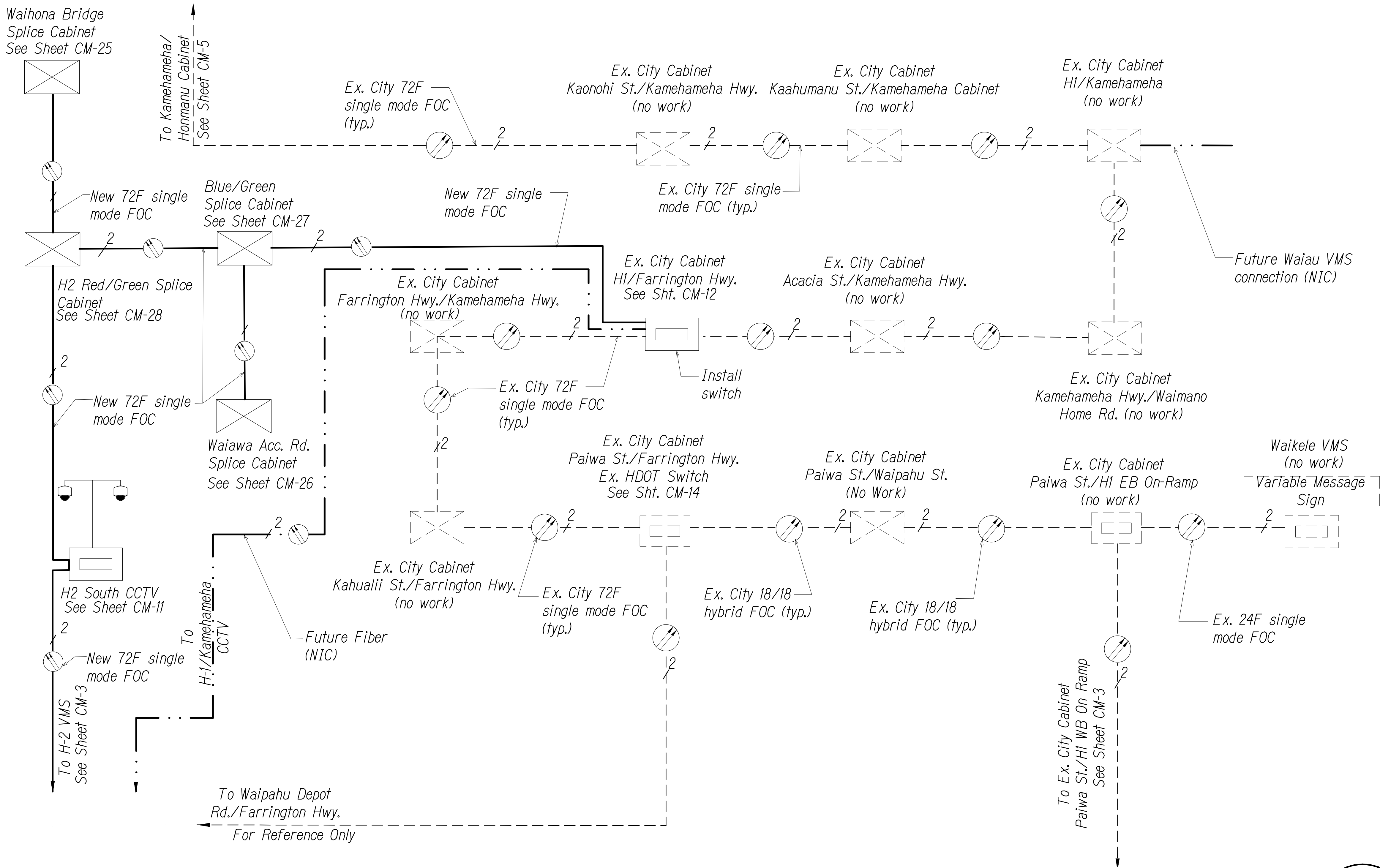
Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

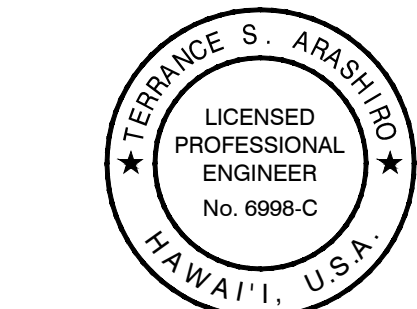
GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

- Note
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.



SYSTEM BLOCK DIAGRAM - Waikēle Connection
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

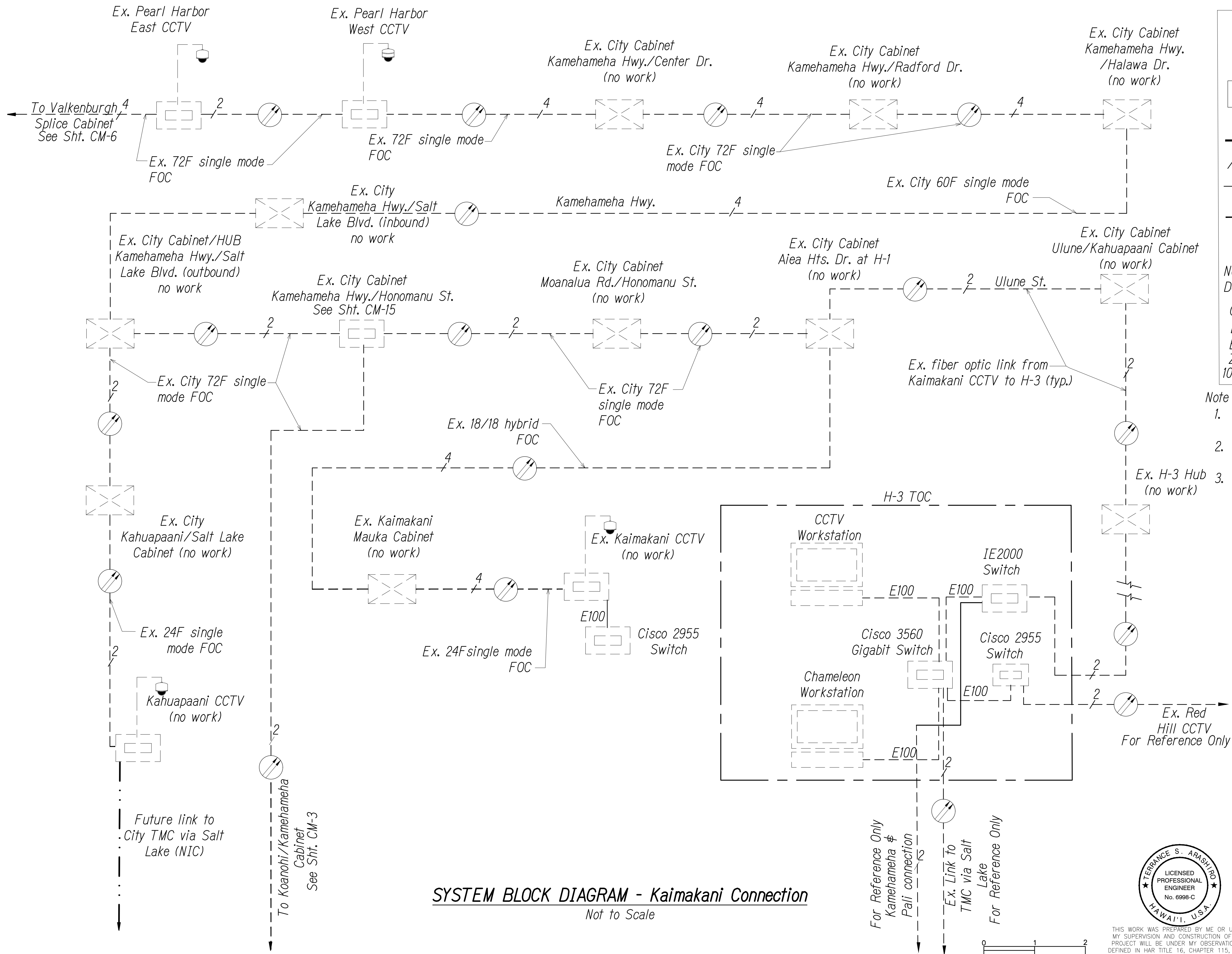
Scale: As Shown Date: June 25, 2021

SHEET No. CM-4 OF 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	32	170



Key

CCTV Camera

Variable Message Sign VMS

Fiber

= Number of Fibers Used

Existing Fiber

Future Fiber

Ethernet Switch In Cabinet

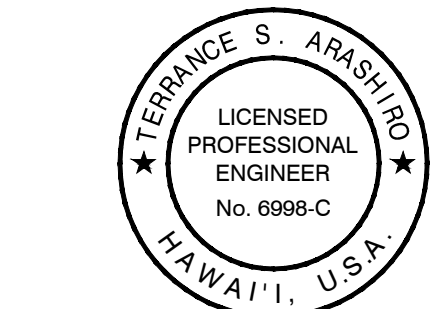
Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

- Note**
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
	CHECKED BY	
No.		

PNV\2019\19-201 FMS PHASE 3\1\UW\COMM PLANS\CM-5 COMMUNICATIONS PLAN.DWG Jul 22, 2021-9:27 AM



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Terence S. Arashiro
APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-5 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	33	170

Key

CCTV Camera

Variable Message Sign

VMS

Fiber

2 = Number of Fibers Used

Existing Fiber

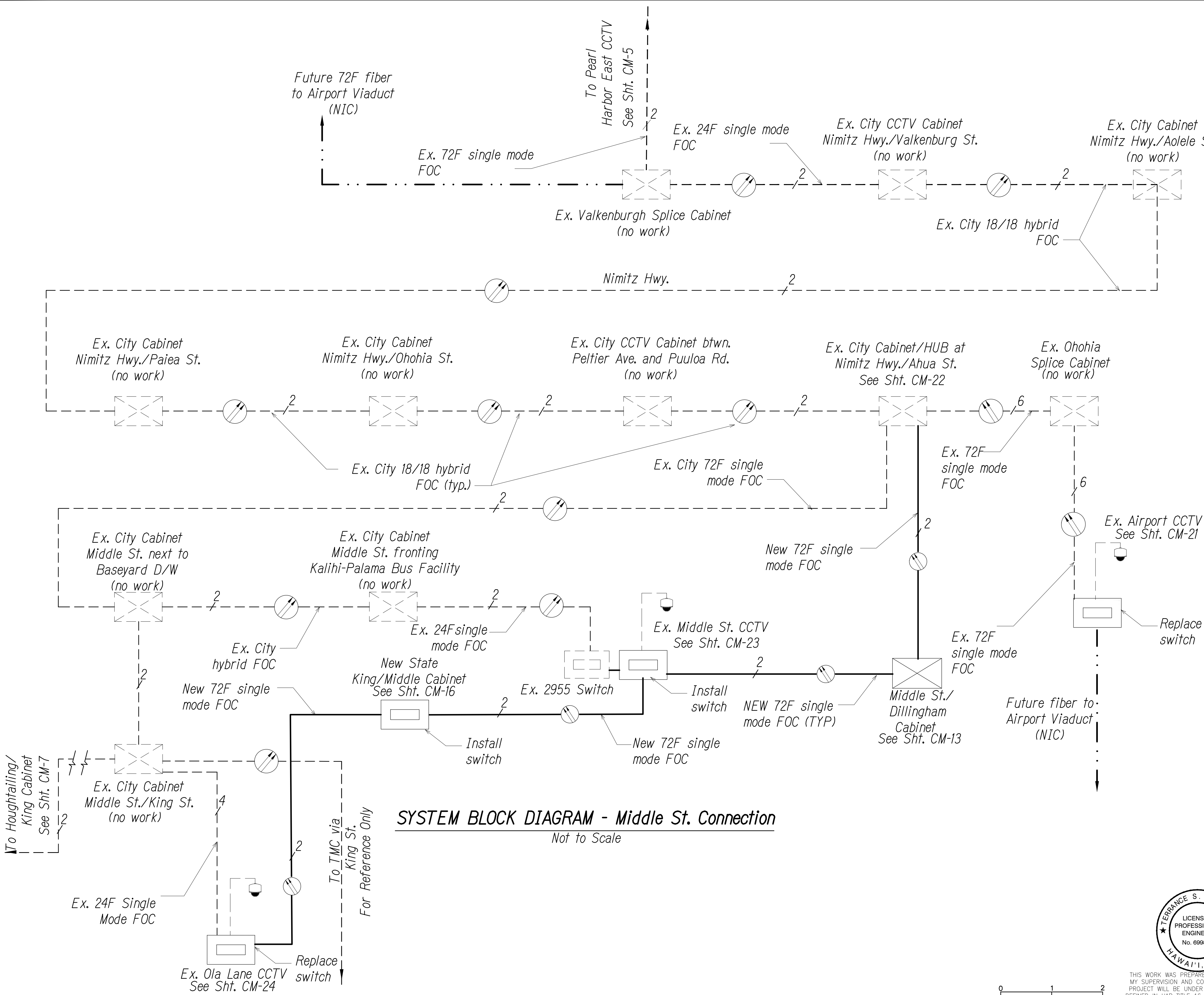
Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

- Note
1. Coordinate and verify with City DTS & Engineer before performing any splices.
 2. Contractor shall document all splices and assignments used.
 3. Install LX 1000Base SFP in each new switch connection unless noted otherwise.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	CHECKED BY	" "

F:\A\2019\19-201 FMS PHASE 3\1\UWG\COMM PLANS\CM-6 COMMUNICATIONS PLANNING Jul 22, 2021-9:27 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHIRO

LICENSED PROFESSIONAL ENGINEER

No. 6998-C

HAWAII, U.S.A.

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APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

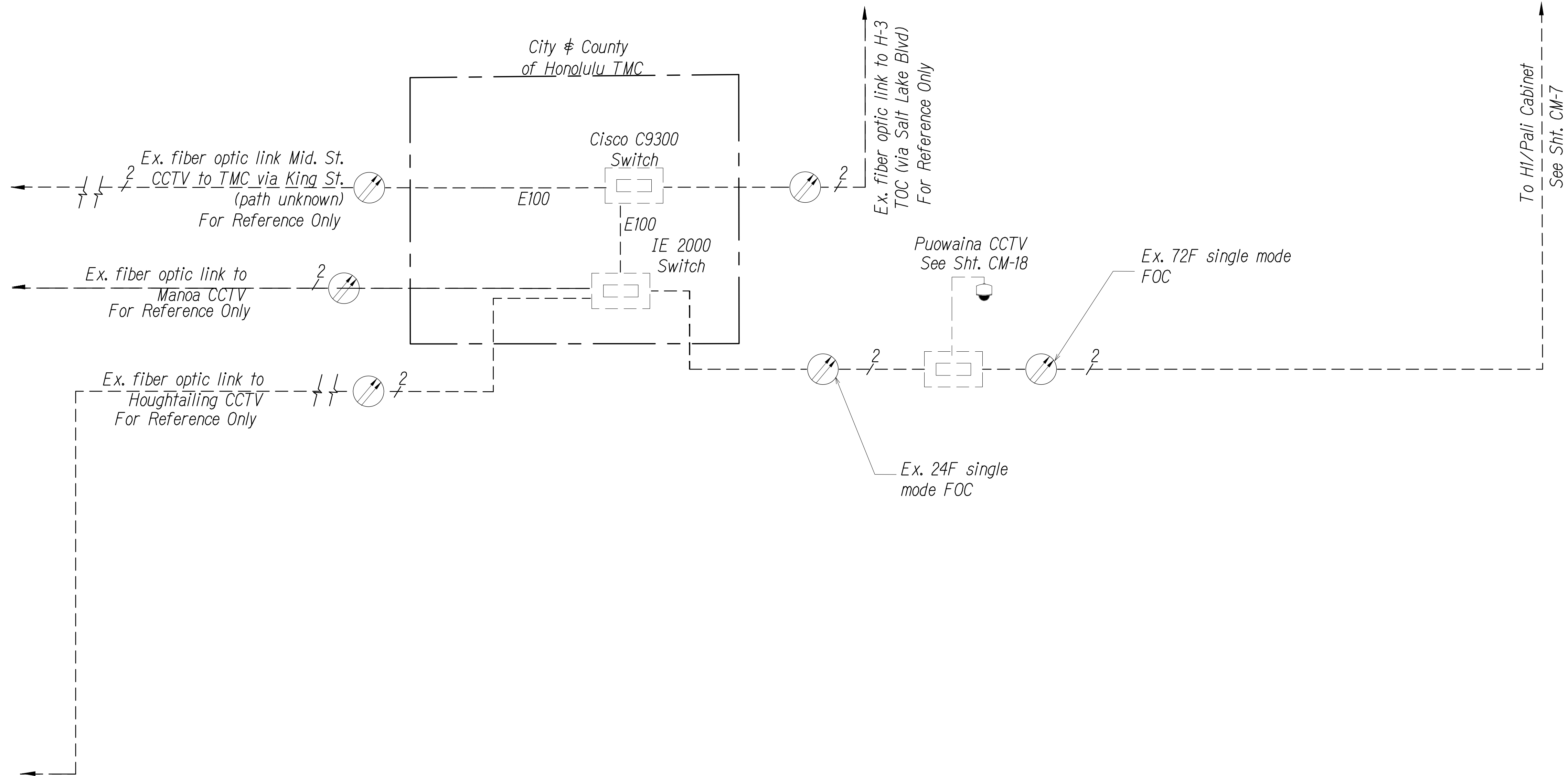
Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-6 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	35	170



Key

CCTV Camera

Variable Message Sign VMS

Fiber

Number of Fibers Used

Existing Fiber

Future Fiber

Ethernet Switch in Cabinet

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

GE = Gigabit Ethernet

LX = LX SFP

EX = EX SFP

ZX = ZX SFP

100LX = 100Base

- Note**
- Coordinate and verify with City DTS & Engineer before performing any splices.
 - Contractor shall document all splices and assignments used.
 - Install LX 1000Base SFP in each new switch connection unless noted otherwise.

SYSTEM BLOCK DIAGRAM - City TMC Connection

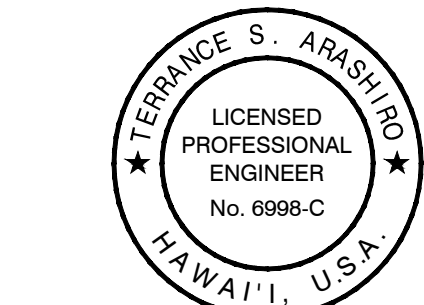
Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	"
No.	DESIGNED BY	"
	QUANTITIES BY	"
	CHECKED BY	"

F:\A\2019\19-201_FMS PHASE 3\1_UNIGIS\COMM PLANS\CM-8 COMMUNICATIONS PLAN.DWG, Jul 22, 2021-9:27 AM

0 1 2

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-8 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	36	170

Key

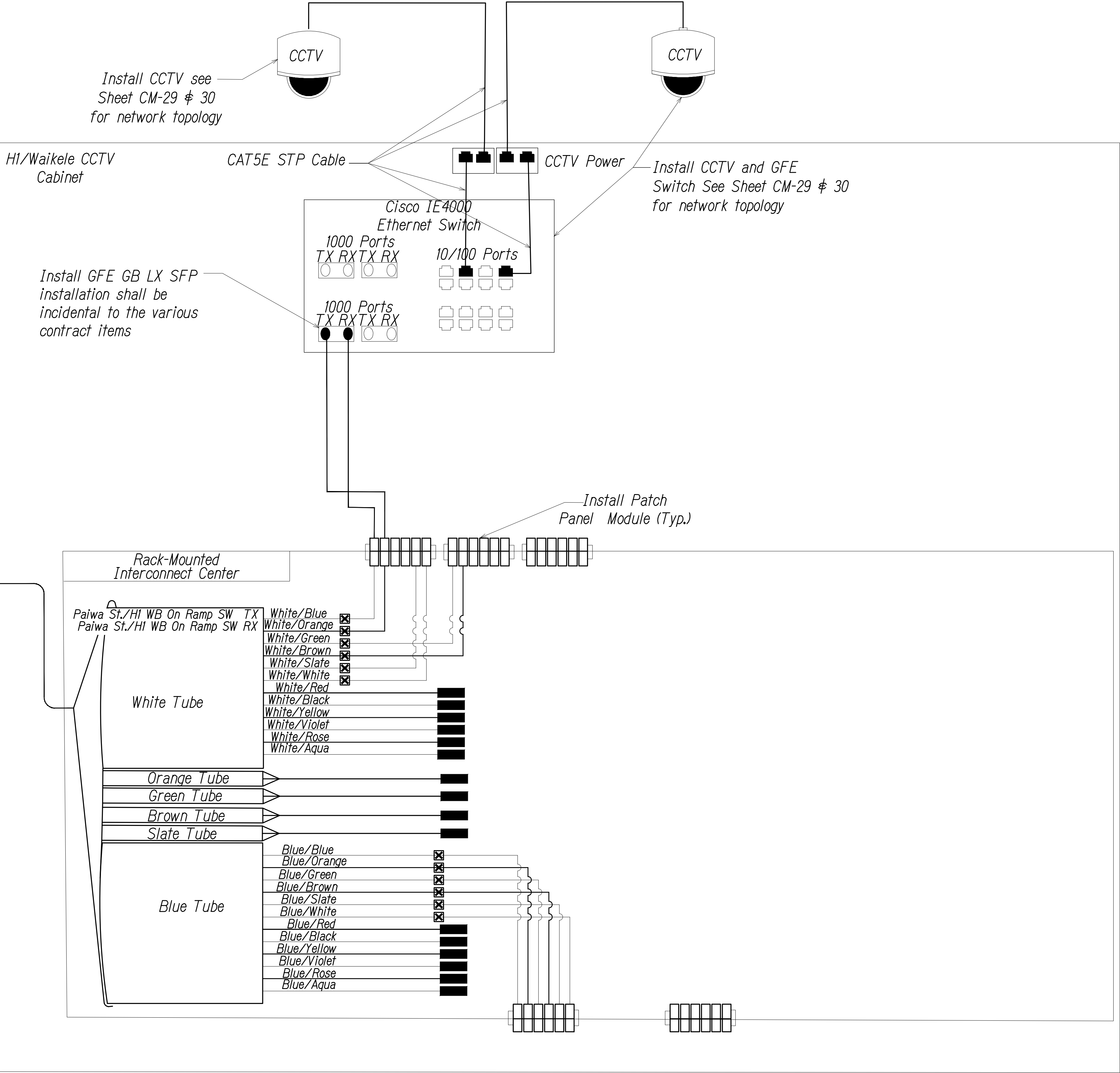
- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

F:\A\ATA-HNL-ENG\2020\PROJECTS\2019\19-201 FMS PHASE 3\UNIT 1\DWG COMM PLANS\CM-9 COMMUNICATIONS PLAN.DWG Aug 04, 2021-11:04 AM

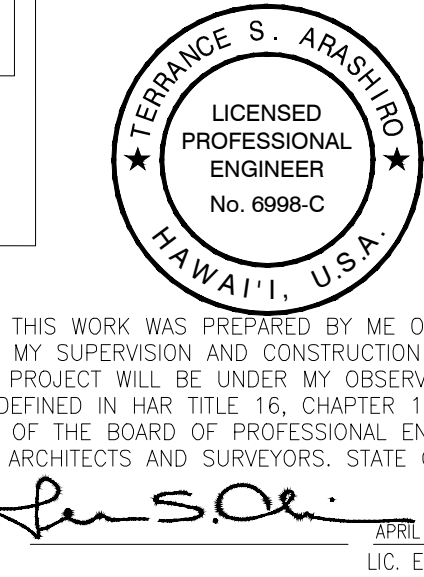
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

72F Single Mode
FOC to Ex.
Paiwa St./H1 WB On Ramp
Cabinet



SPLICING AND CONNECTION DETAIL - H1/Waialele CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

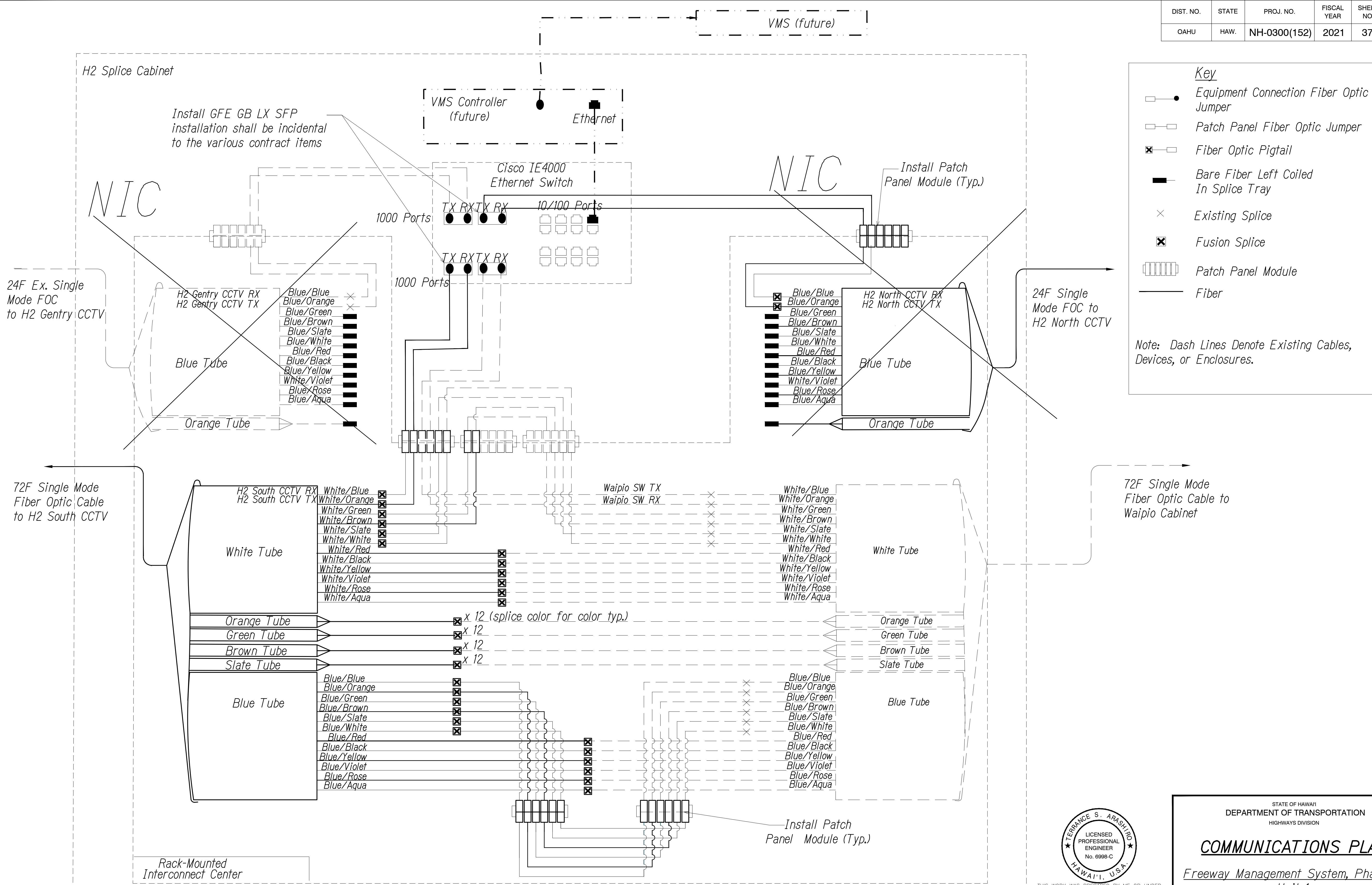
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

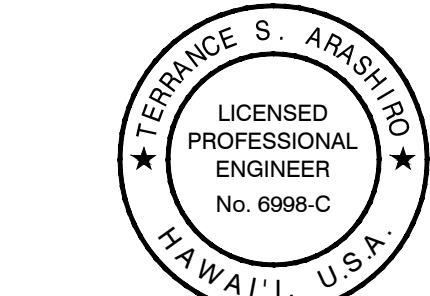
SHEET No. CM-9 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	37	170



SPLICING AND CONNECTION DETAIL - H2 Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

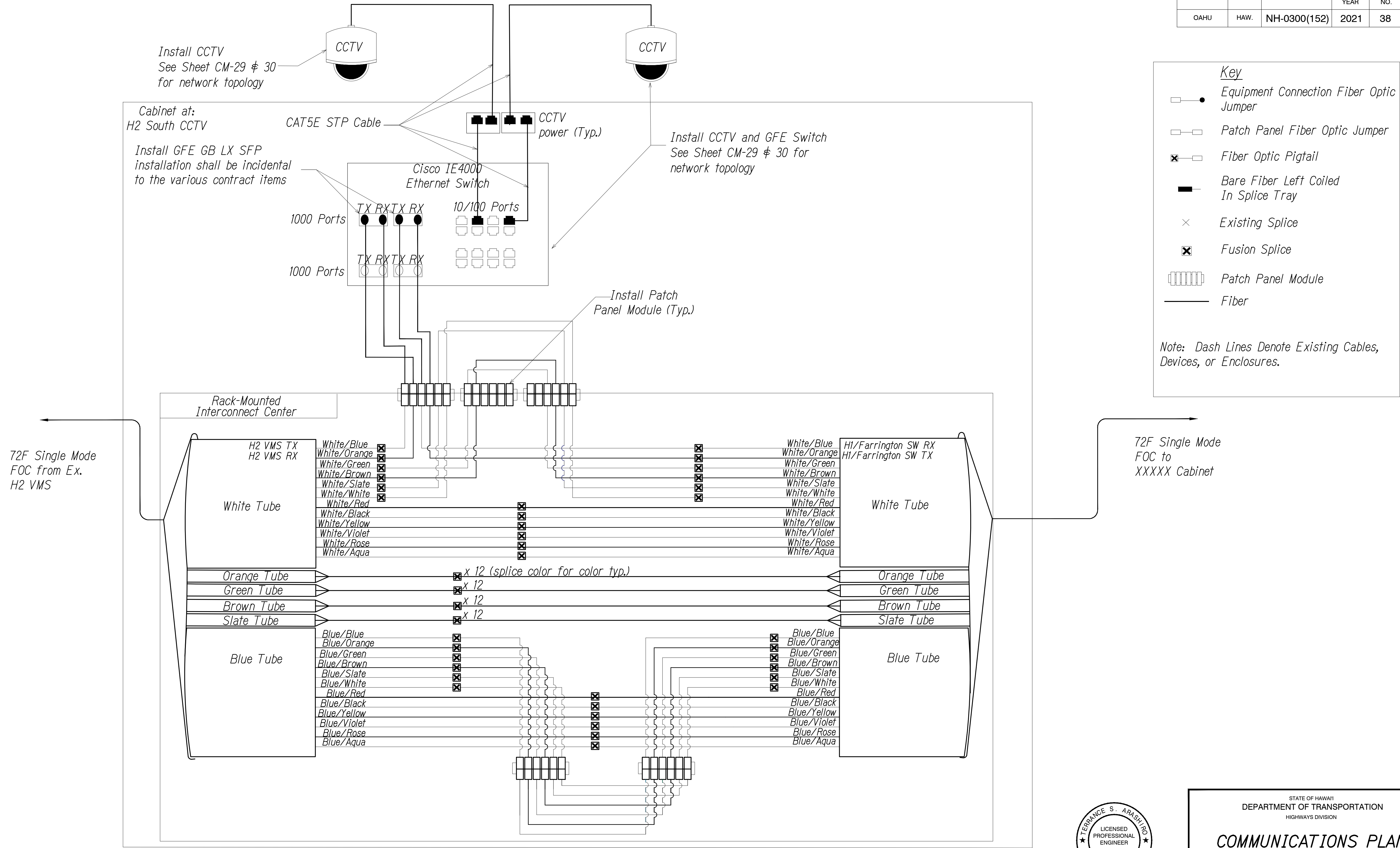
Scale: As Shown Date: June 25, 2021

SHEET No. CM-10 OF 30 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	" "
DRAWN BY	" "
TRACED BY	" "
DESIGNED BY	" "
QUANTITIES BY	" "
CHECKED BY	" "
No.	

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	38	170



72F Single Mode
FOC from Ex.
H2 VMS

72F Single Mode
FOC to
XXXXX Cabinet

SPlicing AND CONNECTION DETAIL - H2 South CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

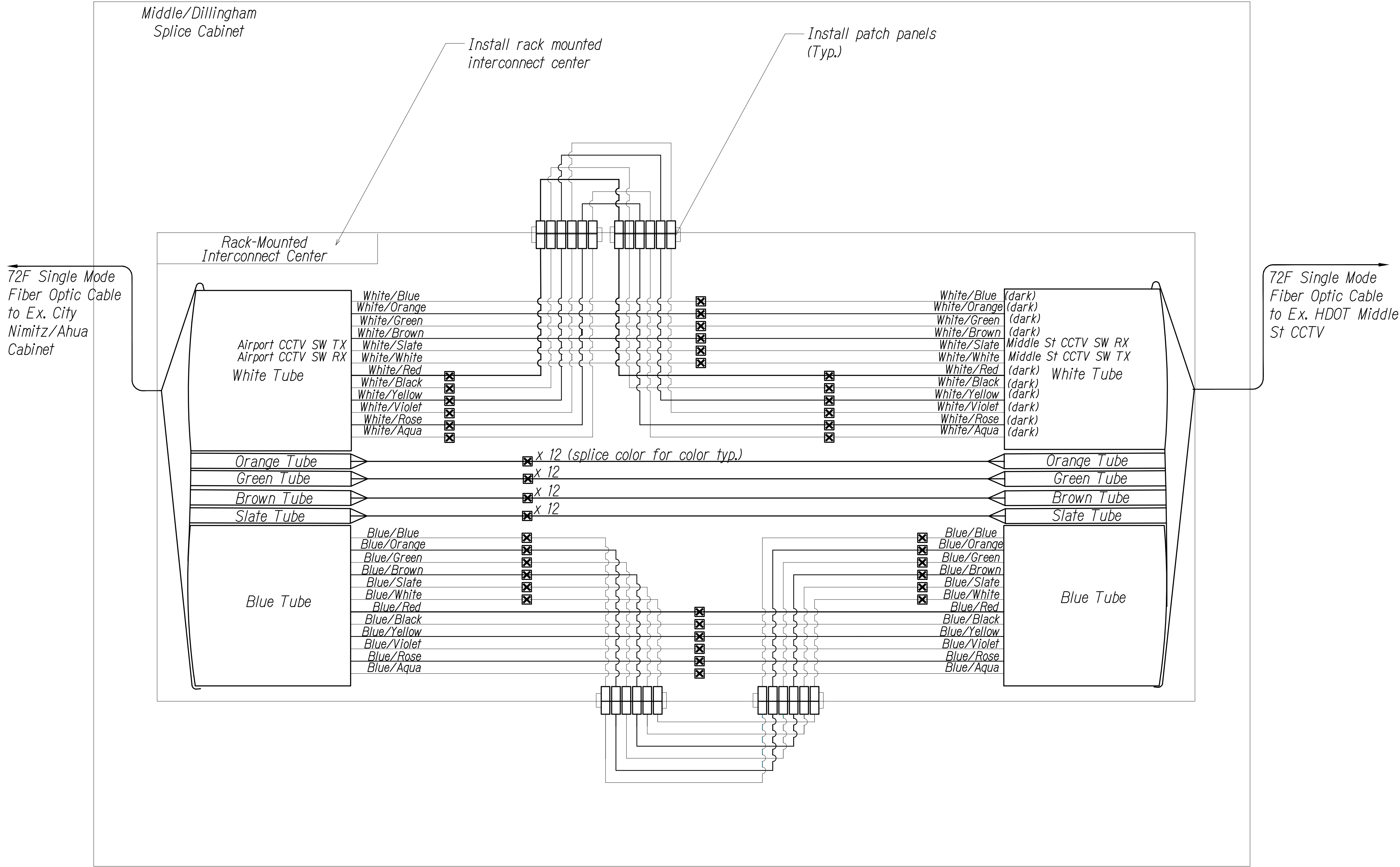
Scale: As Shown Date: June 25, 2021

SHEET No. CM-11 OF 30 SHEETS

SURVEY PLOTTED BY	DATE
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TRACED BY	"
DESIGNED BY	"
QUANTITIES BY	"
CHECKED BY	"
No.	

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	40	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

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SPLICING AND CONNECTION DETAIL - Middle St./Dillingham Blvd. Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)

TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

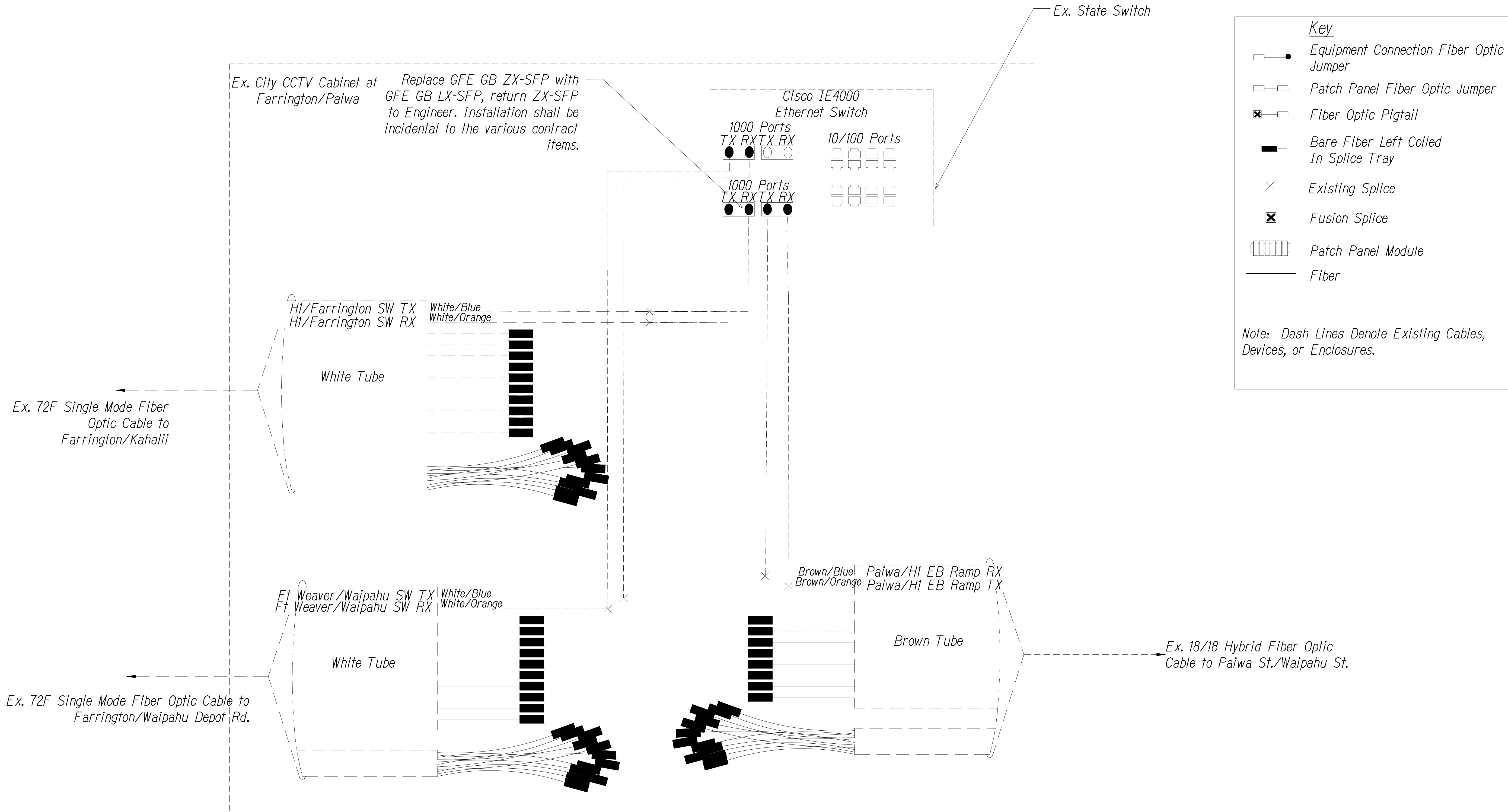
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-13 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	41	170



SPLICING AND CONNECTION DETAIL - Ex. Farrington/Paiwa
Not to Scale

- Notes:
- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	"
No.	DESIGNED BY	"
	CHECKED BY	"

P:\A\2019\19-201 FMS PHASE 3\UNIT 1\DWG\COMM PLANS\CM-14 COMMUNICATIONS PLANDWG Jul 22, 2021-9:28 AM

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

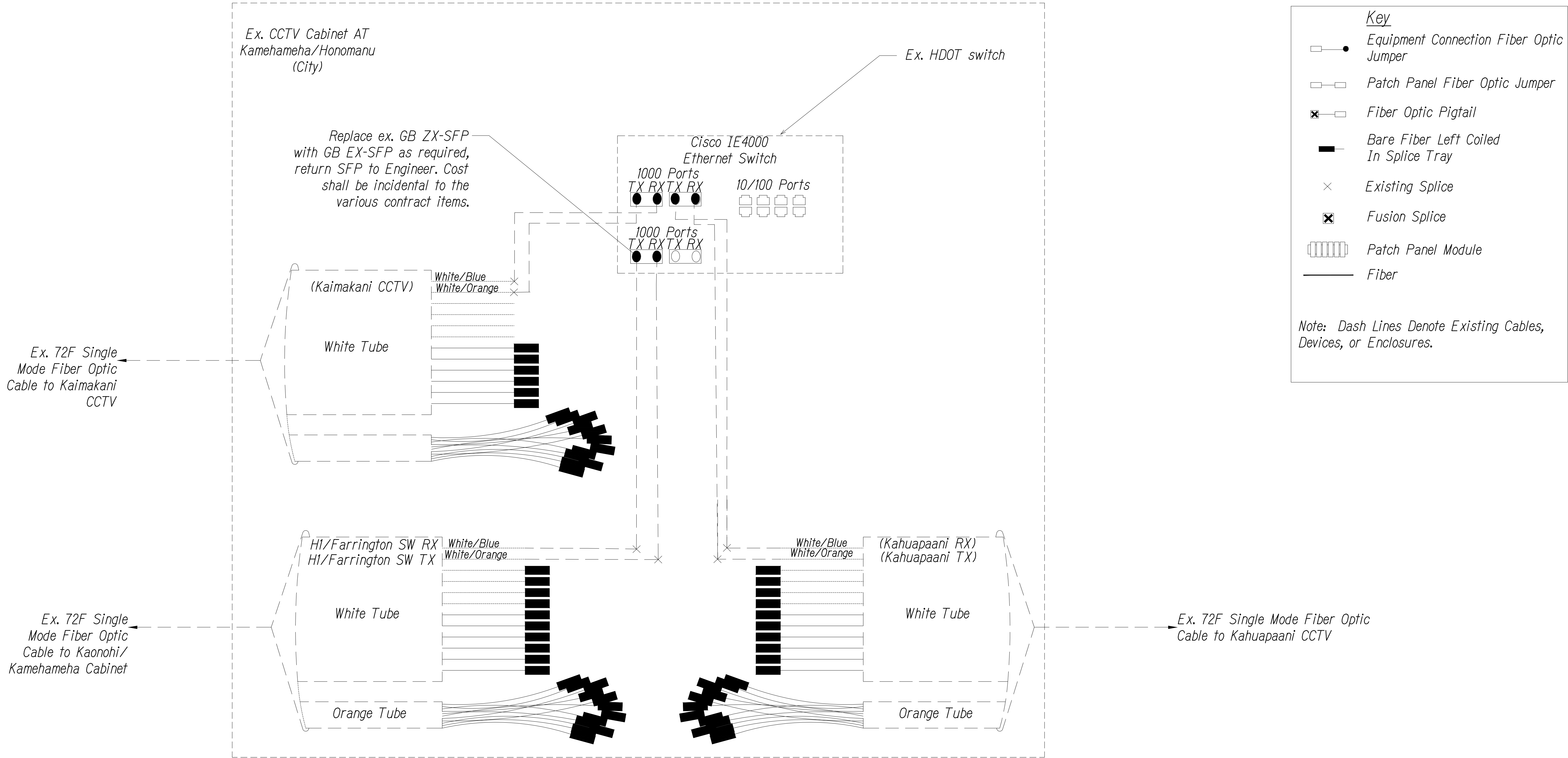
Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-14 OF 30 SHEETS

APRIL 30, 2022
LIC. EXP. DATE

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	42	170



SPLICING AND CONNECTION DETAIL - Ex. Kamehameha/Honomanu City Cabinet

Not to Scale

0 1 2

LINE IS 2 INCHES AT FULL SIZE (if not 2 inches: scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3, Unit 1

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-15 OF 30 SHEETS

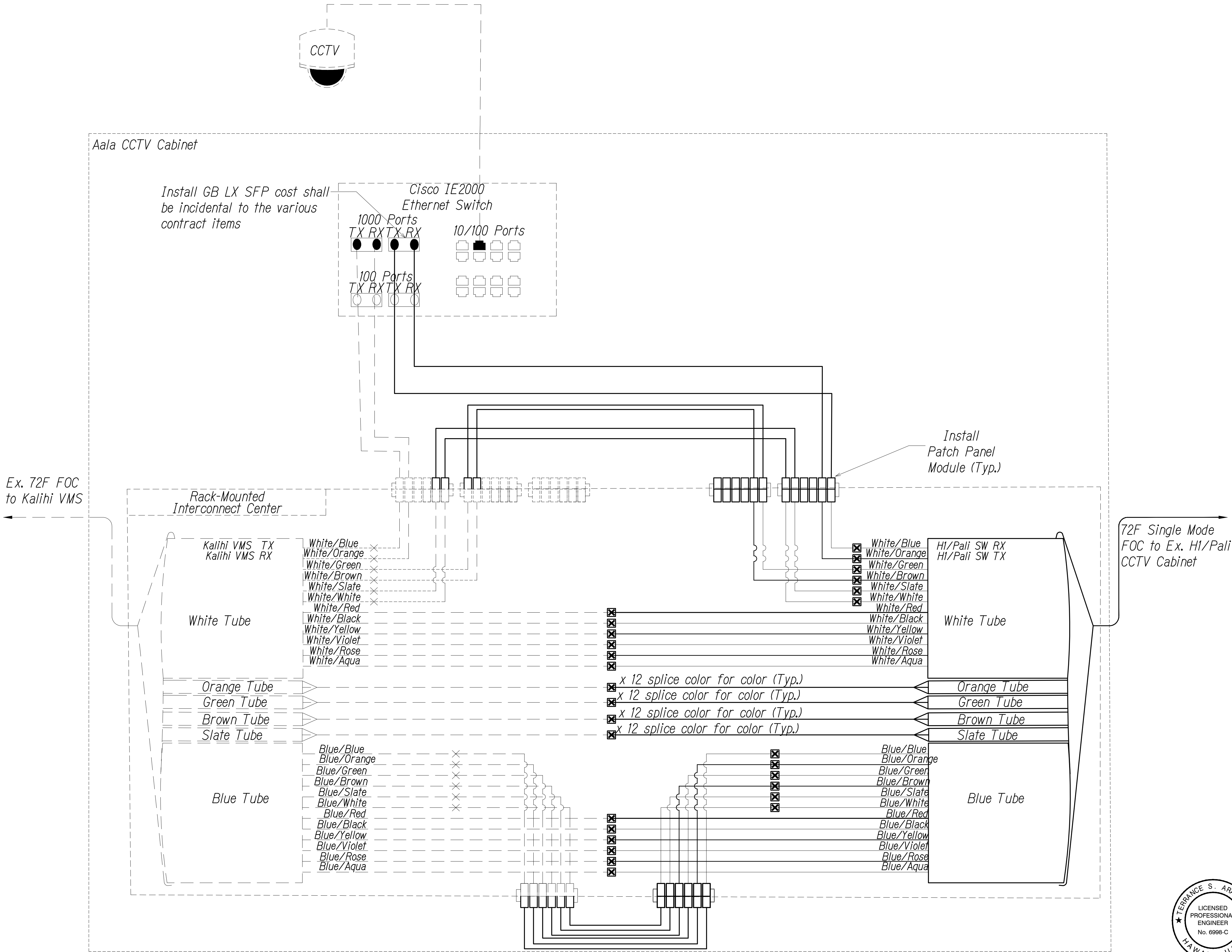
42

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	44	170

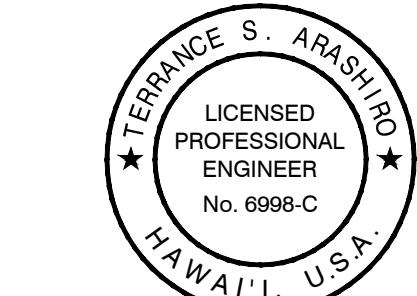
Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



SPLICING AND CONNECTION DETAIL - Ex. Aala CCTV
Not to Scale



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

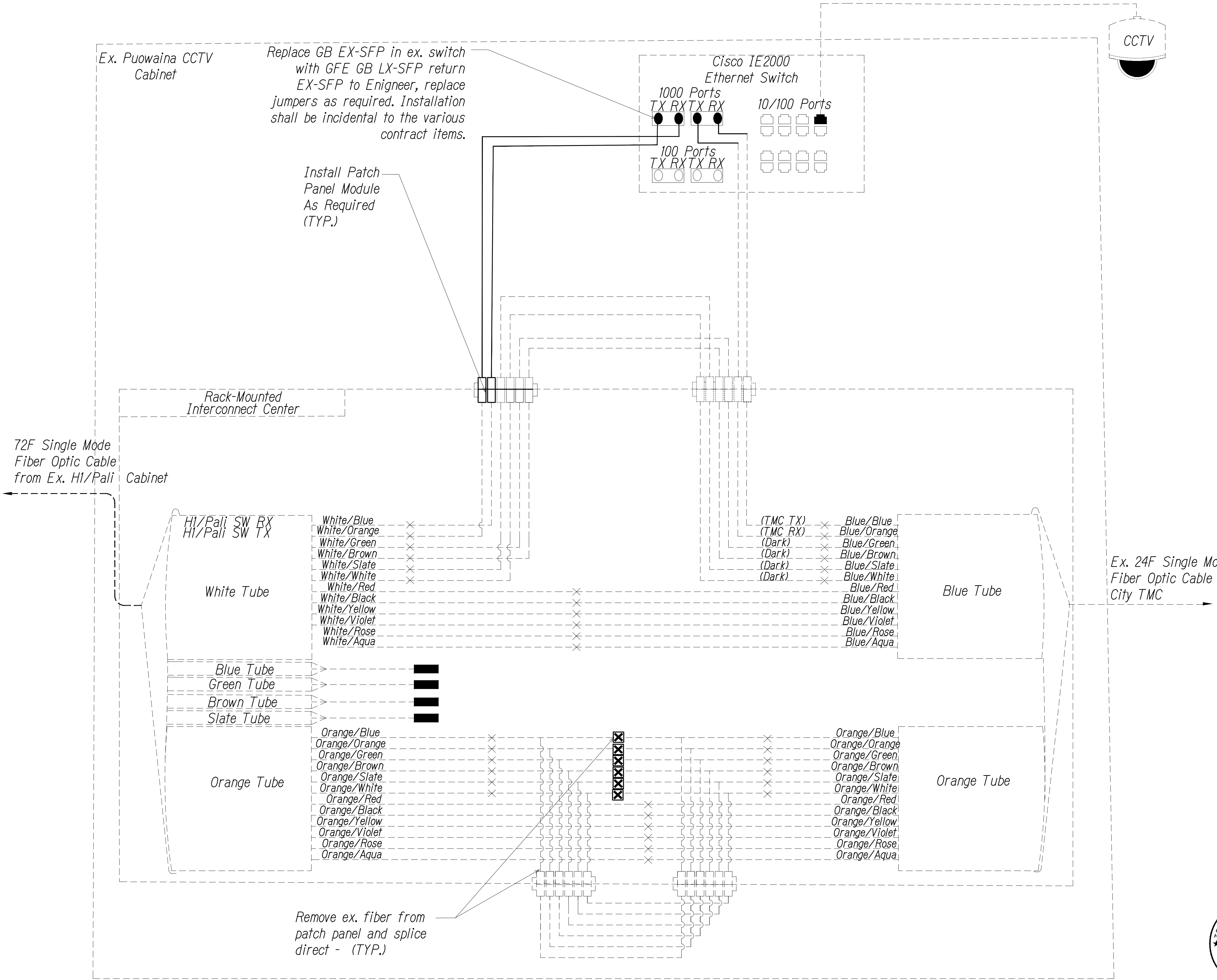
Scale: As Shown Date: June 25, 2021

SHEET No. CM-17 OF 30 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	"
DRAWN BY	"
TRACED BY	"
DESIGNED BY	"
QUANTITIES BY	"
CHECKED BY	"
No.	

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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	45	170



Key

- Equipment Connection Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

- Notes:**
- Coordinate with Engineer before performing any splicing or work.
 - Contractor shall document fiber assignments for splices made.
 - Replace or reconnect cables and jumpers as required

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

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SPLICING AND CONNECTION DETAIL - Ex. Puowaina CCTV Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

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TERENCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

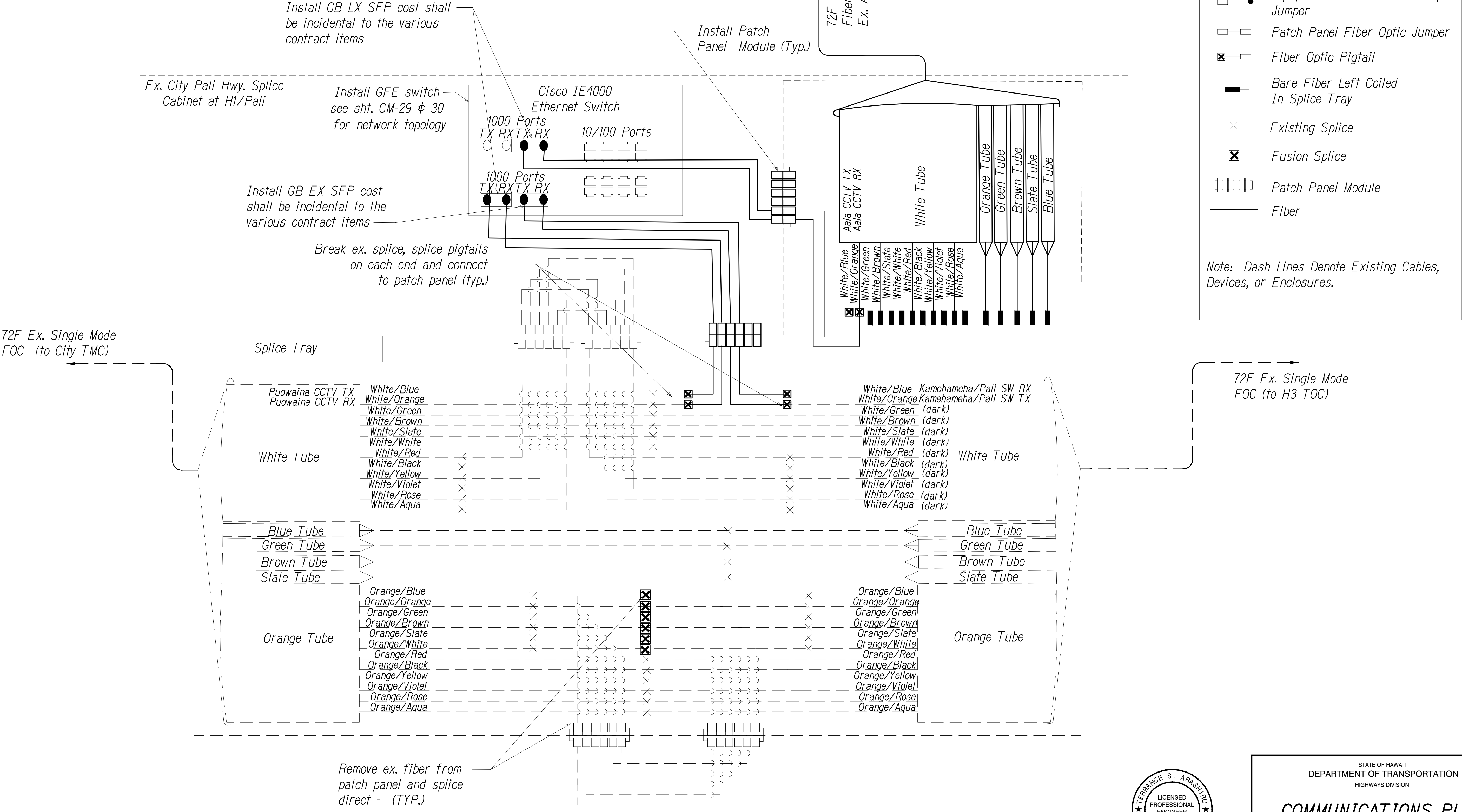
Scale: As Shown Date: June 25, 2021

SHEET No. CM-18 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	46	170

Notes:

1. Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.



SPLICING AND CONNECTION DETAIL - Ex. H1/Pali Cabinet

Not to Scale



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APRIL 30, 2022
LIC. EXP. DATE

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

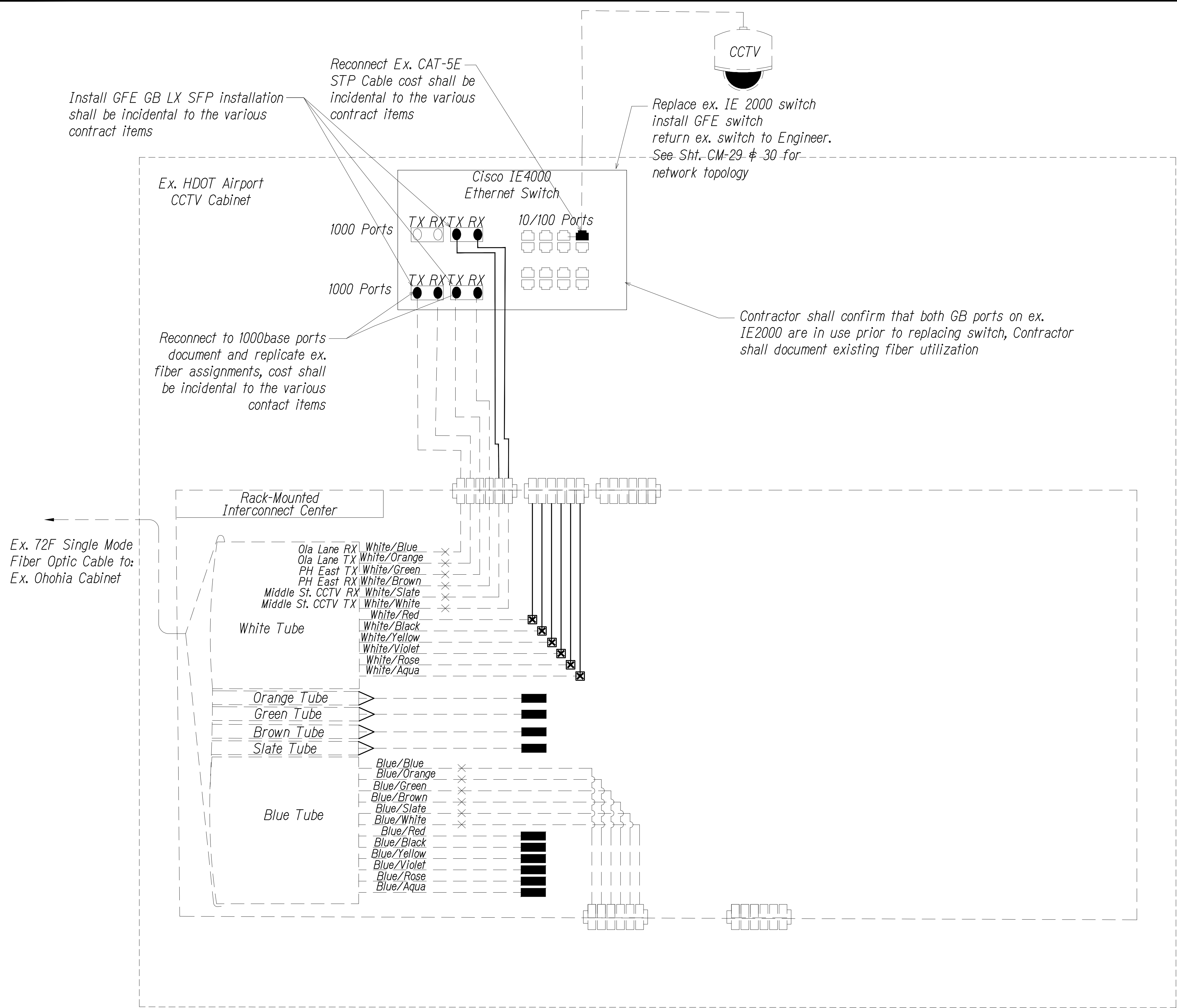
Scale: As Shown Date: June 25, 2021

SHEET No. CM-19 OF 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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No.	DESIGNED BY	" "
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	48	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	" "
No.	CHECKED BY	" "

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SPLICING AND CONNECTION DETAIL - Ex. Airport CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

*Freeway Management System, Phase 3,
Unit 1*

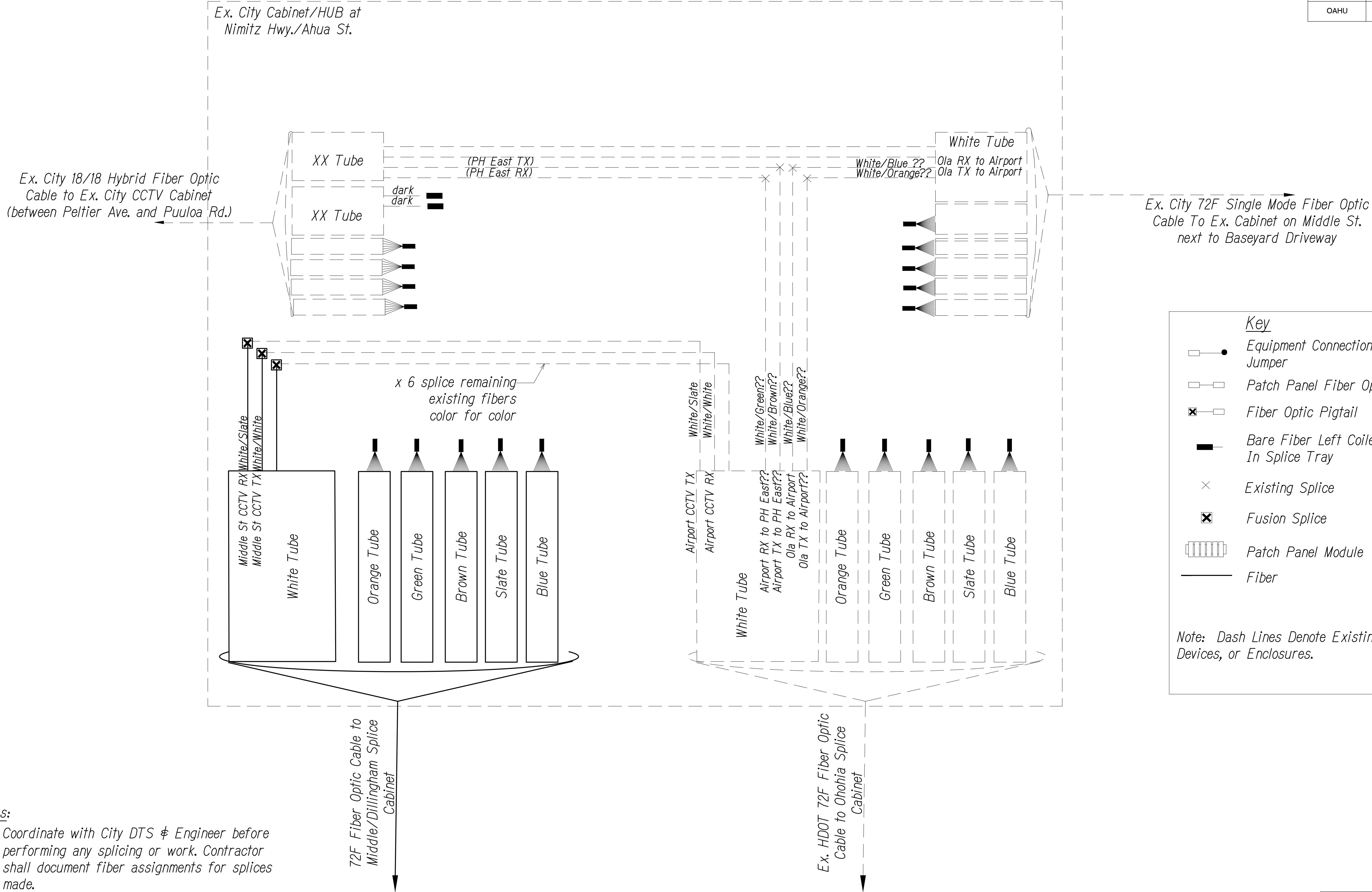
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-21 OF 30 SHEETS

48

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	49	170



Notes:

- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
- Fiber assignment to be verified, tested and documented by Contractor, to enable communication shown, cost shall be incidental to the various contract items.

SPLICING AND CONNECTION DETAIL - Ex. City Cabinet/HUB at Nimitz Hwy./Ahua St.

Not to Scale

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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APRIL 30, 2022
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,

Unit 1

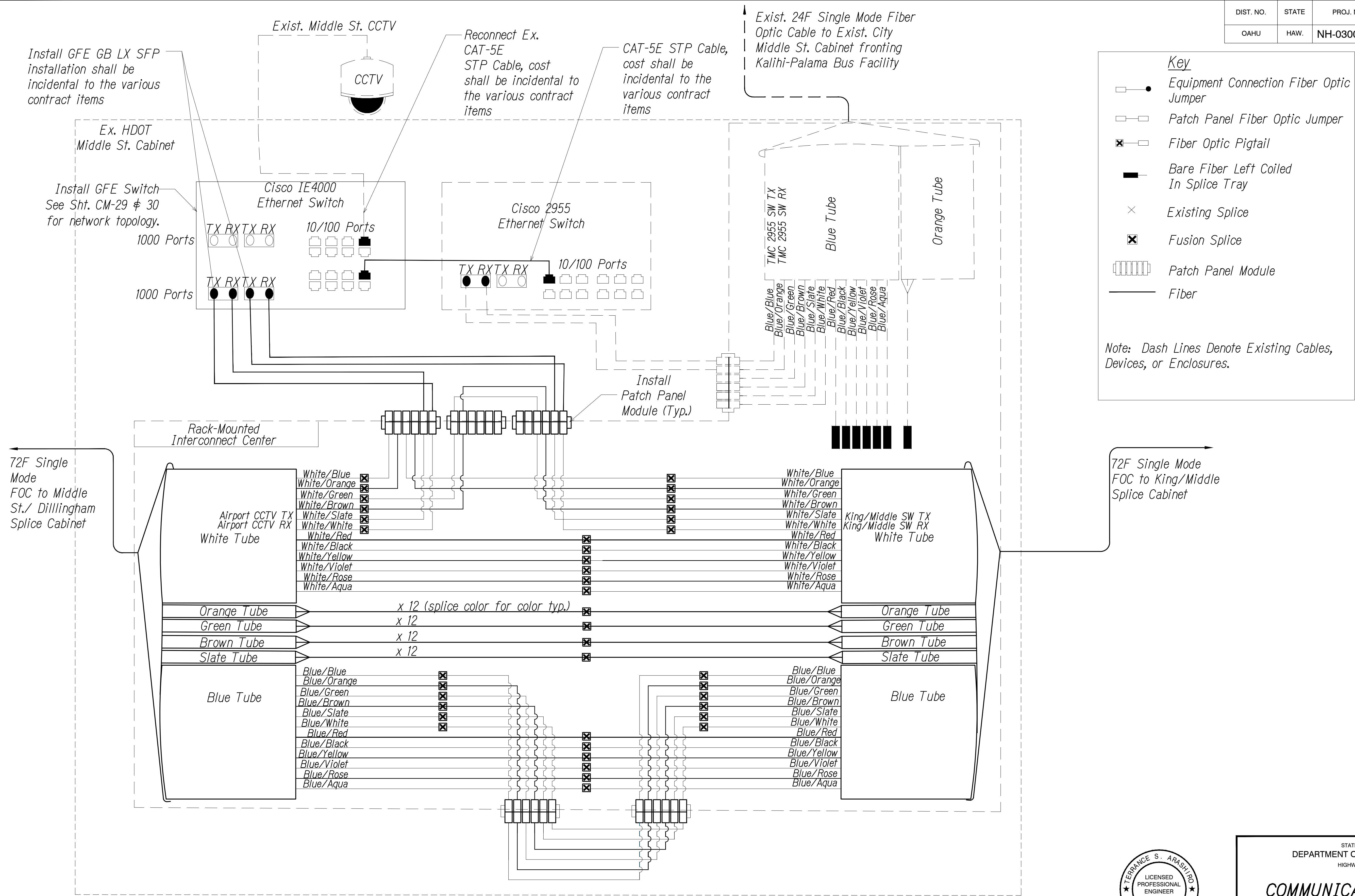
Federal Aid Project No. NH-0300(152)

Scale: As Shown

Date: June 25, 2021

SHEET No. CM-22 of 30 SHEETS

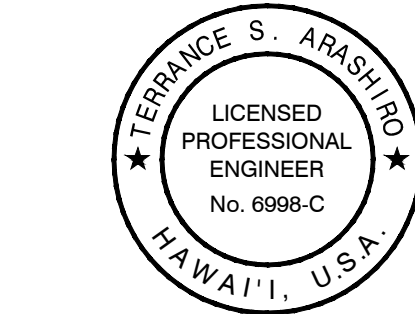
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	50	170



SPLICING AND CONNECTION DETAIL - MIDDLE ST. CCTV

Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-23 OF 30 SHEETS

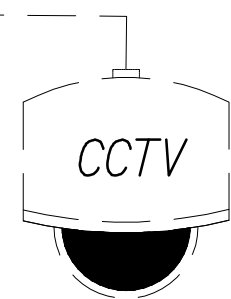
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SURVEY PLOTTED BY	"
DRAWN BY	"
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DESIGNED BY	"
QUANTITIES BY	"
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	51	170

Install GFE GB LX SFP installation shall be incidental to the various contract items

Reconnect Ex. CAT-5E STP Cable cost shall be incidental to the various contract items



Ex. HDOT Ola Lane CCTV Cabinet

Cisco IE4000 Ethernet Switch

Replace ex. IE 2000 switch install GFE switch return ex. switch to Engineer. See Sht. CM-29 & 30 for network topology

Reconnect to 1000base ports document and replicate ex. fiber assignments, cost shall be incidental to the various contact items

Contractor shall confirm that both GB ports on ex. IE2000 are in use prior to replacing switch, Contractor shall document existing fiber utilization

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

72F Single Mode FOC to: Middle/King Splice Cabinet

Rack-Mounted Interconnect Center

King/Middle SW TX
King/Middle SW RX
White Tube

Orange Tube
Green Tube
Brown Tube
Slate Tube

Blue Tube

White/Blue
White/Orange
White/Green
White/Brown
White/Slate
White/White
White/Red
White/Black
White/Yellow
White/Violet
White/Rose
White/Aqua

Blue/Blue
Blue/Orange
Blue/Green
Blue/Brown
Blue/Slate
Blue/White
Blue/Red
Blue/Black
Blue/Yellow
Blue/Violet
Blue/Rose
Blue/Aqua

Blue/Blue
Blue/Orange
Blue/Green
Blue/Brown
Blue/Slate
Blue/White
Blue/Red
Blue/Black
Blue/Yellow
Blue/Violet
Blue/Rose
Blue/Aqua

(Hogtailing)
(Hogtailing)
(Airport)
(Airport)

Blue Tube

Orange Tube

Ex. 24F Single Mode FOC to: Ex. City Middle St. Cabinet

SPLICING AND CONNECTION DETAIL - Ex. Ola Lane CCTV
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)



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APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

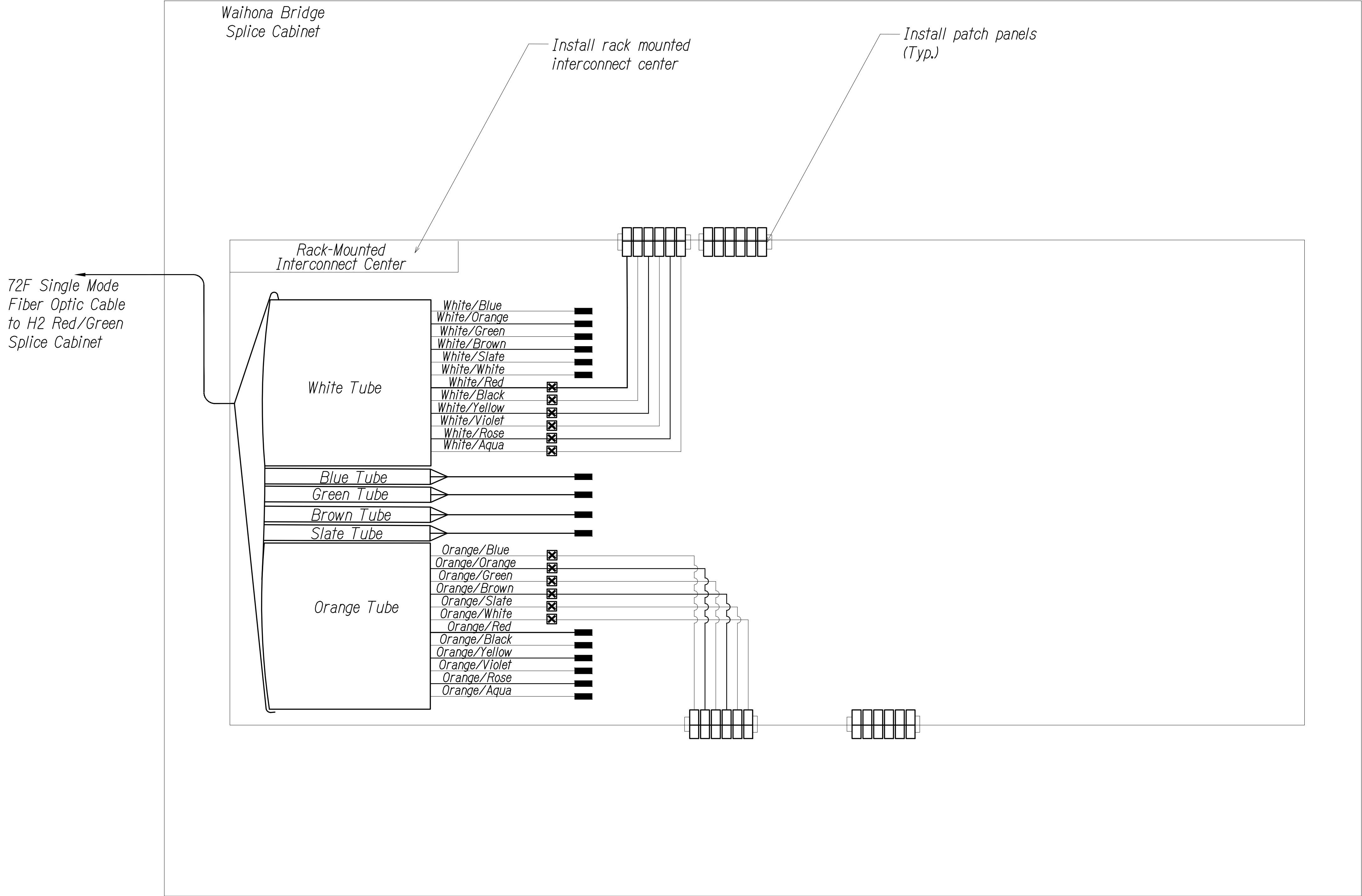
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SHEET No. CM-24 of 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	52	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	QUANTITIES BY	"
	CHECKED BY	"

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SPLICING AND CONNECTION DETAIL - Waihona Bridge Splice Cabinet

Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHIRO
★ LICENSED PROFESSIONAL ENGINEER No. 6998-C ★
HAWAII, U.S.A.

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Terence S. Arashiro
APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

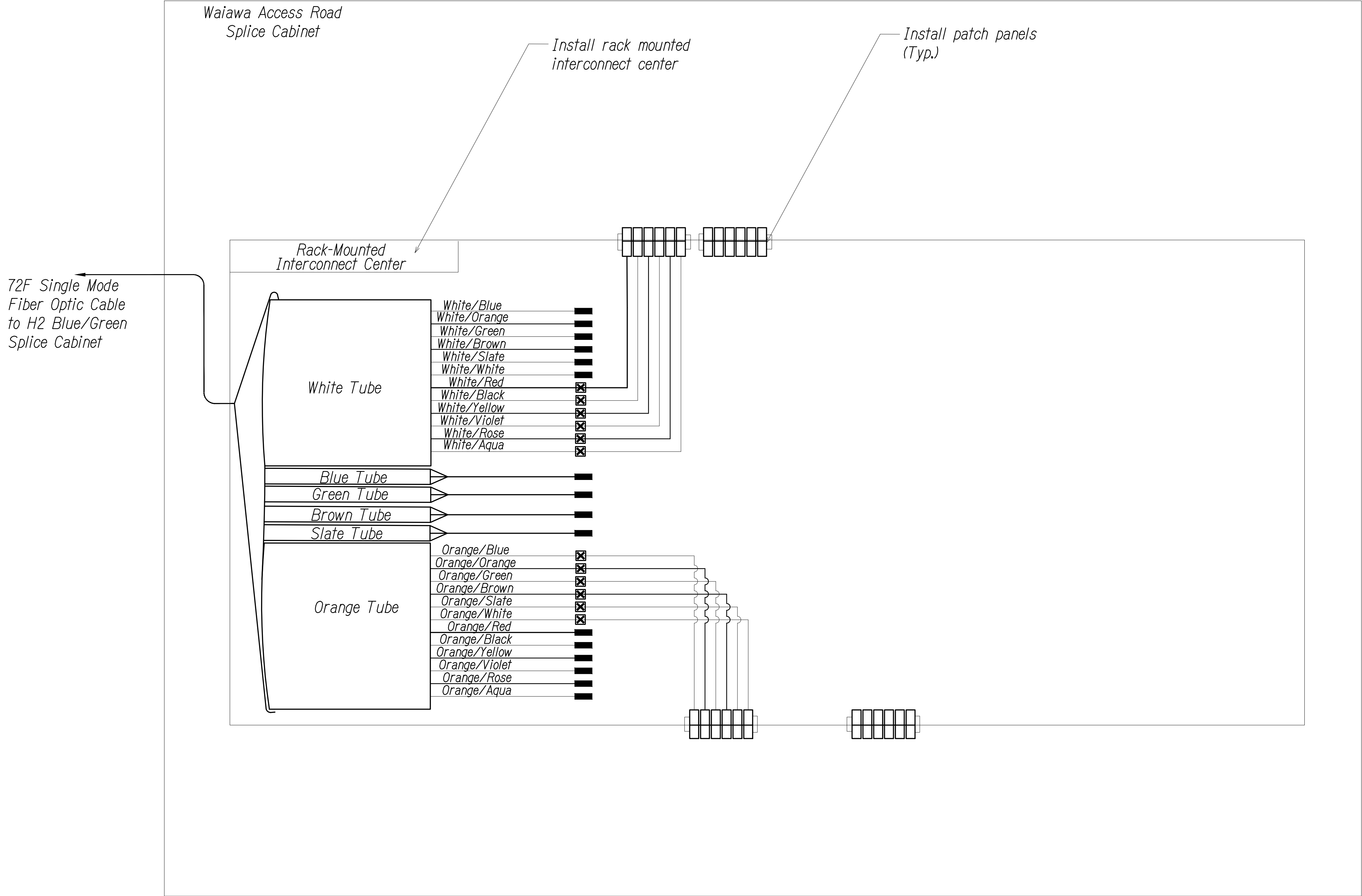
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-25OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	53	170



Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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SPLICING AND CONNECTION DETAIL - Waiawa Access Road Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

TERENCE S. ARASHIRO
★ LICENSED PROFESSIONAL ENGINEER No. 6998-C ★
HAWAII, U.S.A.

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HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

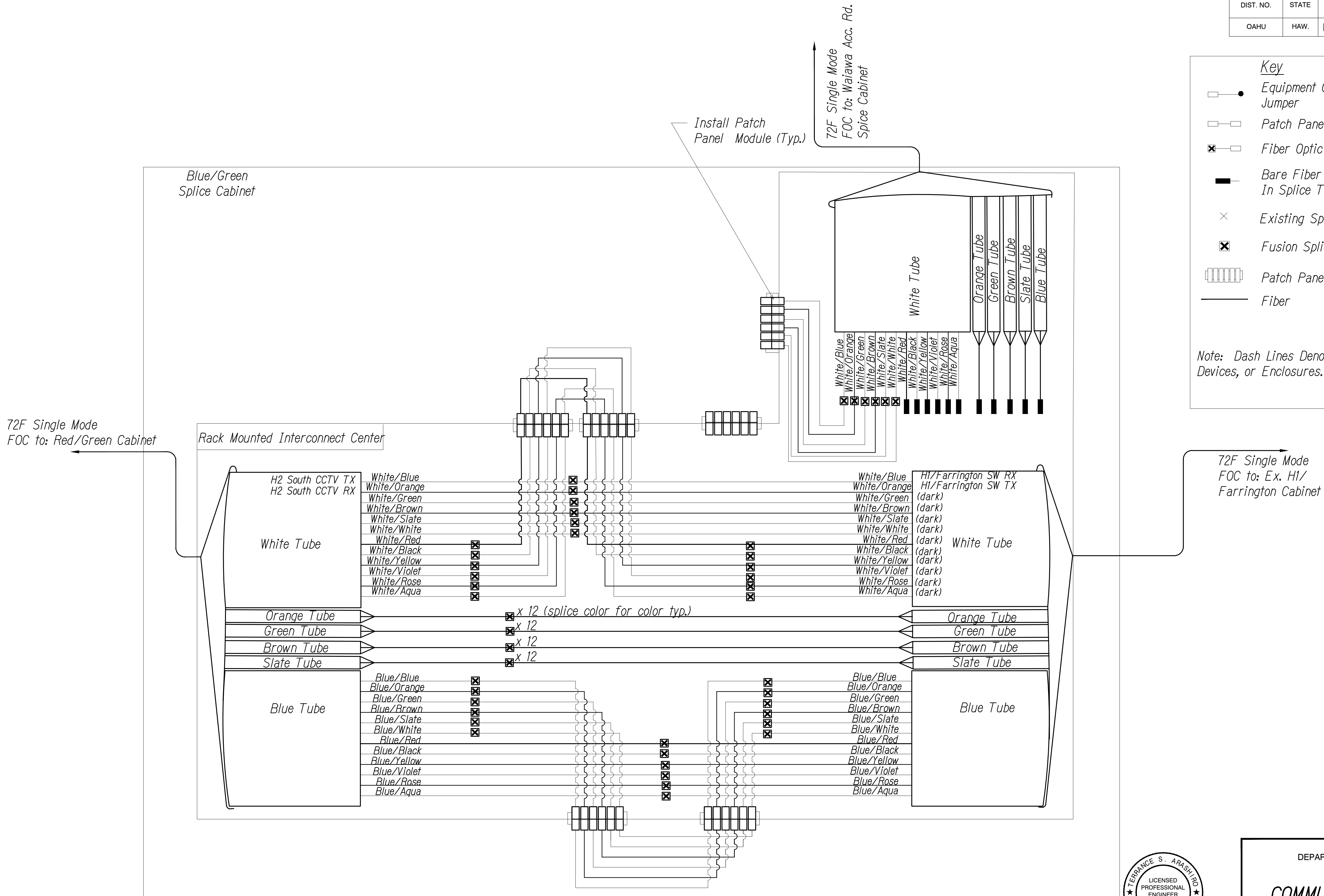
SHEET No. CM-26 OF 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	54	170

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



SPLICING AND CONNECTION DETAIL - Blue/Green Splice Cabinet

Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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Terence S. Arashi
APRIL 30, 2022
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

Scale: As Shown Date: June 25, 2021

SHEET No. CM-27 of 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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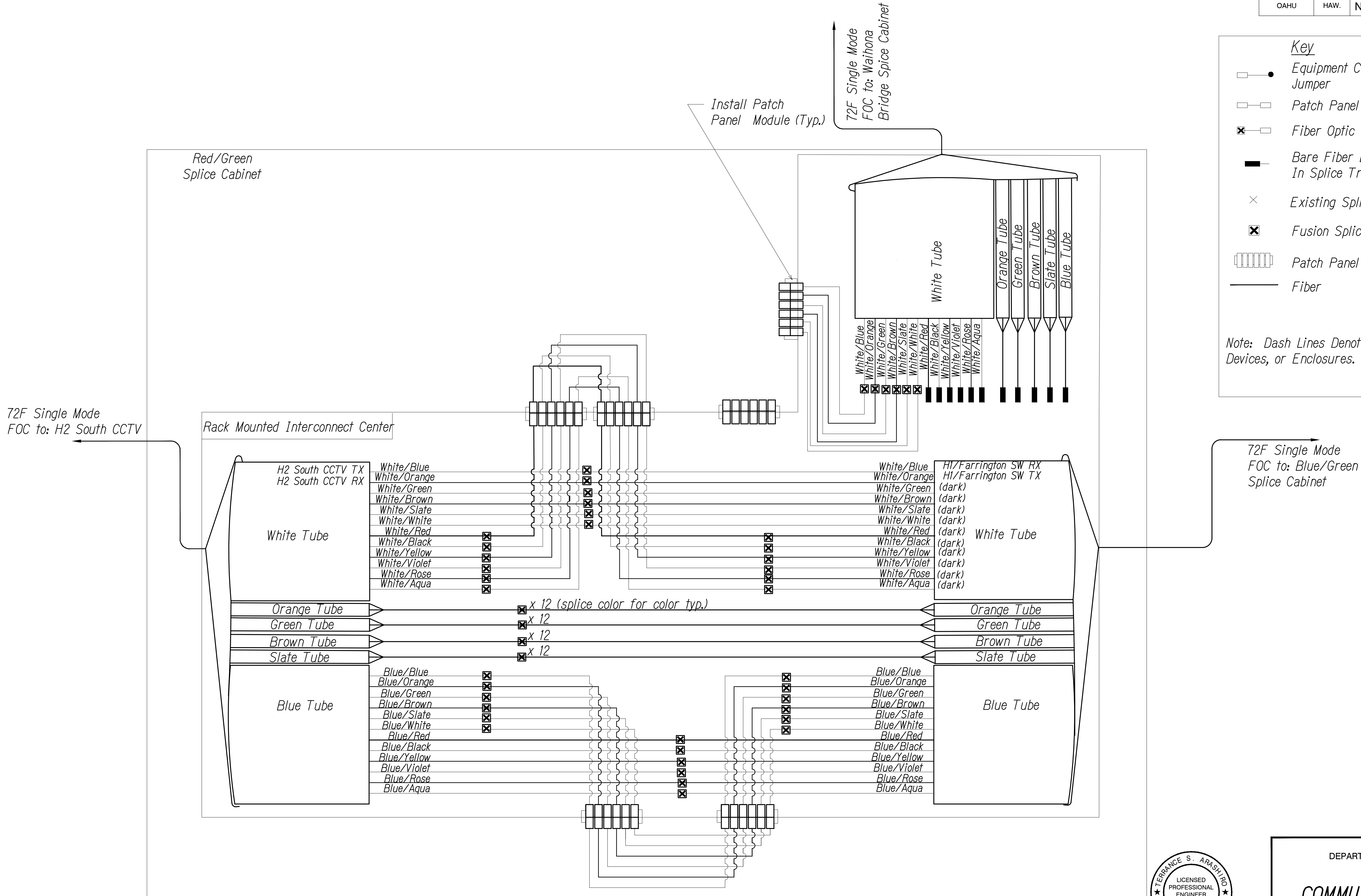
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	55	170

Key

- Equipment Connection Fiber Optic Jumper
- Patch Panel Fiber Optic Jumper
- Fiber Optic Pigtail
- Bare Fiber Left Coiled In Splice Tray
- Existing Splice
- Fusion Splice
- Patch Panel Module
- Fiber

Note: Dash Lines Denote Existing Cables, Devices, or Enclosures.



SPLICING AND CONNECTION DETAIL - Red/Green Splice Cabinet
Not to Scale

0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1

Federal Aid Project No. NH-0300(152)

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SHEET No. CM-28OF 30 SHEETS

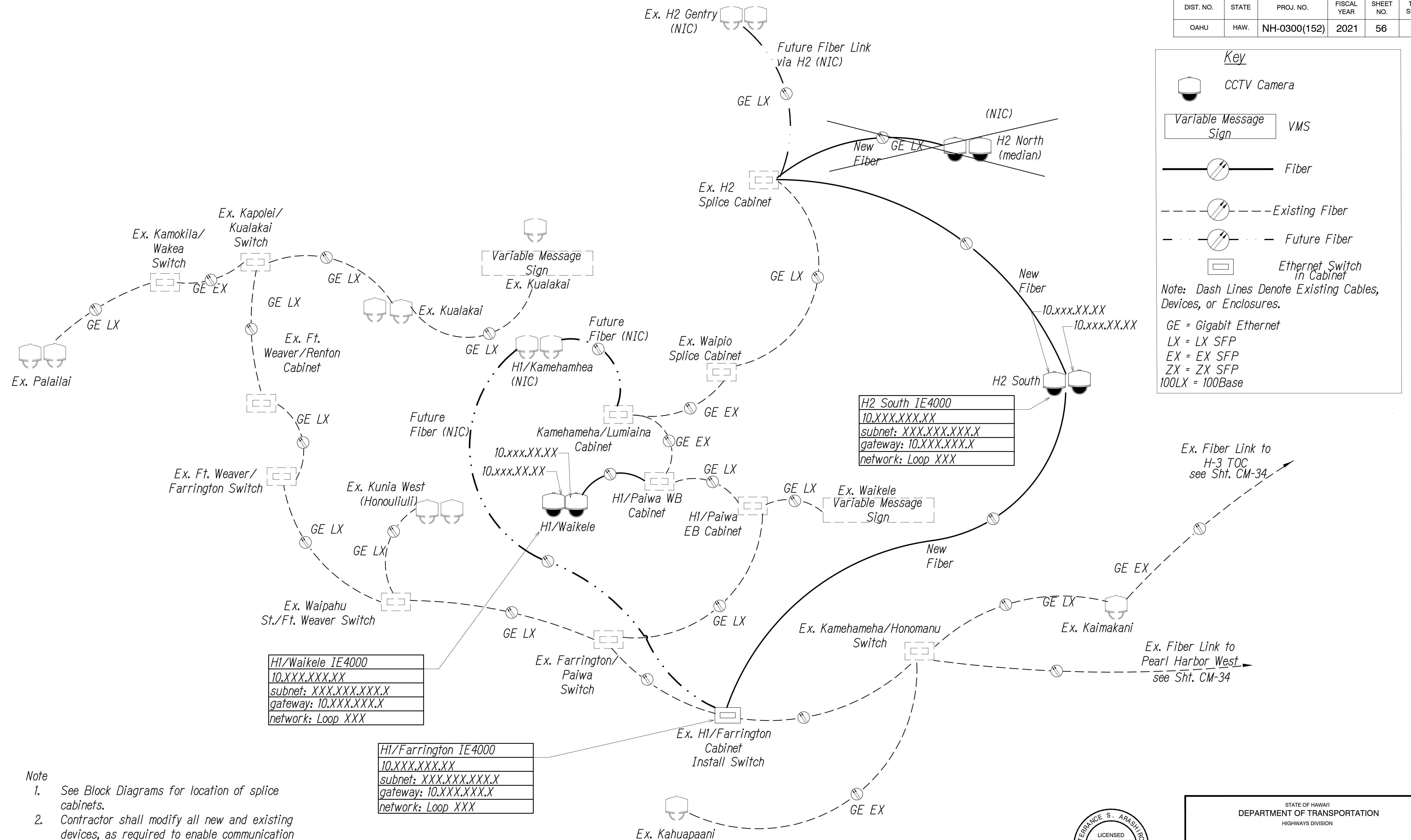
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Terrence S. Arashi, P.E.
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DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	56	170

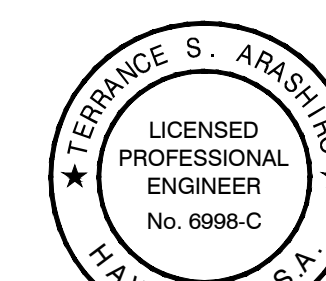


Note

1. See Block Diagrams for location of splice cabinets.
2. Contractor shall modify all new and existing devices, as required to enable communication as shown.
3. IP Addresses to be provided by the Engineer at later date.

NETWORK TOPOLOGY PLAN
Not to Scale

LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches: scale accordingly)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

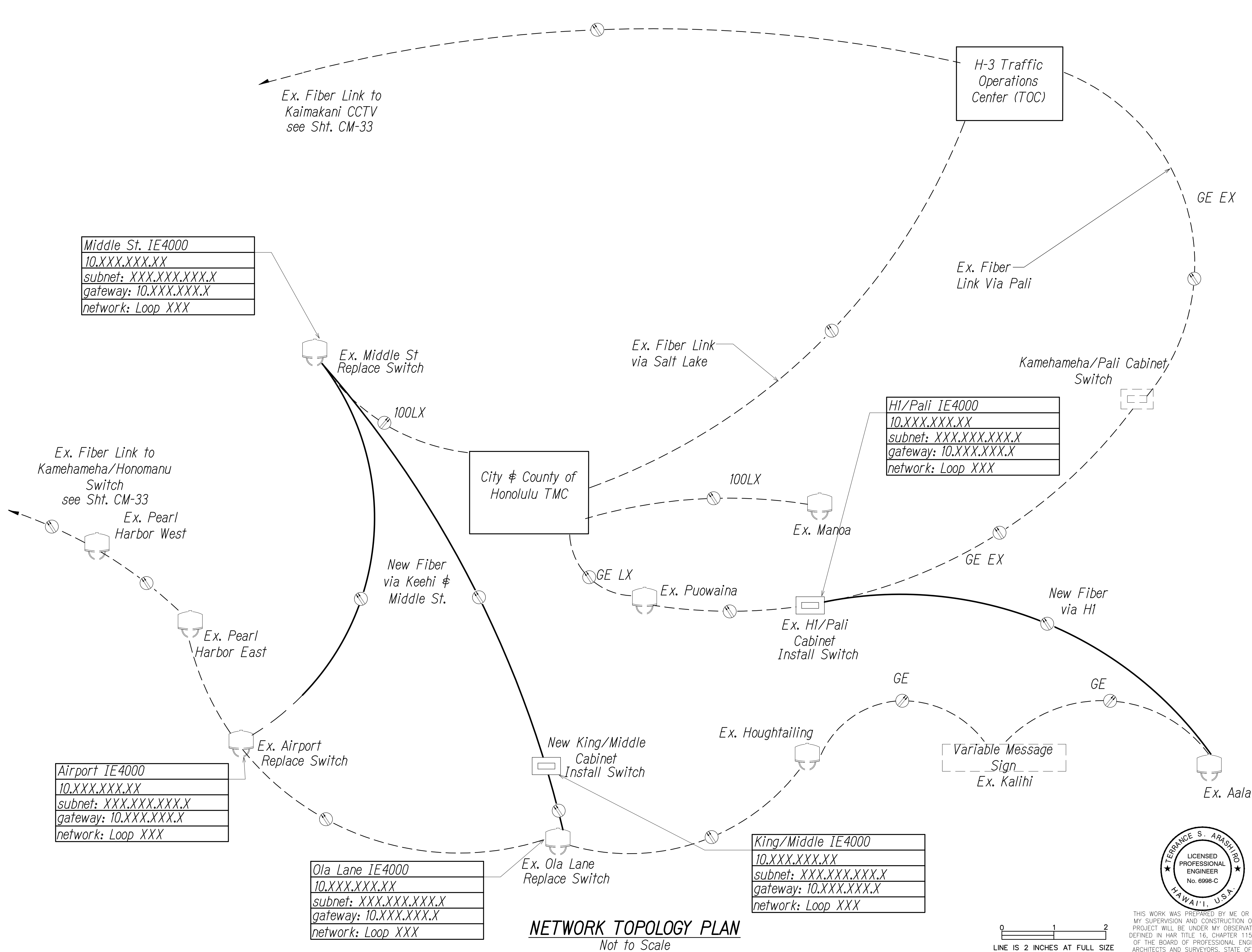
COMMUNICATIONS PLAN

Freeway Management System, Phase 3,
Unit 1
Federal Aid Project No. NH-0300(152)

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SHEET No. CM-290f 30 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(152)	2021	57	170



- Note**
- See Block Diagrams for location of splice cabinets.
 - Contractor shall modify all new and existing devices, as required to enable communication as shown.
 - IP Addresses to be provided by the Engineer at later date.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	TRACED BY	" "
	DESIGNED BY	" "
NOTE BOOK	QUANTITIES BY	" "
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		" "

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Terence S. Arashiro
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0 1 2
LINE IS 2 INCHES AT FULL SIZE
(if not 2 inches scale accordingly)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

*Freeway Management System, Phase 3,
Unit 1*

Federal Aid Project No. NH-0300(152)

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SHEET No. CM-30 of 30 SHEETS