

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	16	73

Key

CCTV Camera

Variable Message Sign

VMS

Fiber

Future Fiber

Existing Fiber

Ethernet Switch In Cabinet

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

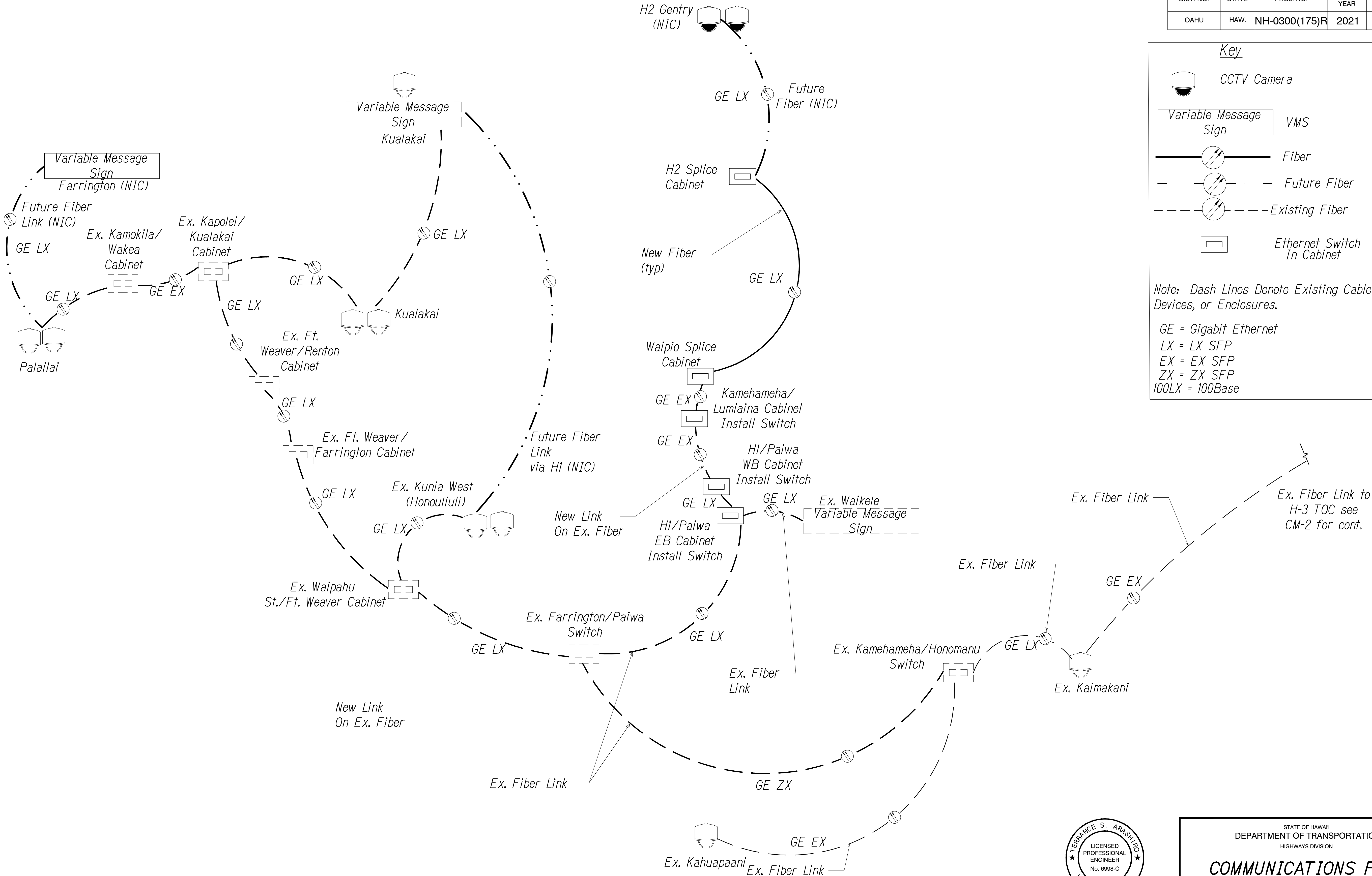
GE = Gigabit Ethernet

LX = LX SFP

EX = EX SFP

ZX = ZX SFP

100LX = 100Base



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

PNX\2016\16-049\16-049-1--H2 PKG\DWG\CM-1 COMMUNICATIONS PLAN.DWG Aug. 03, 2022-3:32 PM

SCHEMATIC COMMUNICATION PLAN
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, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

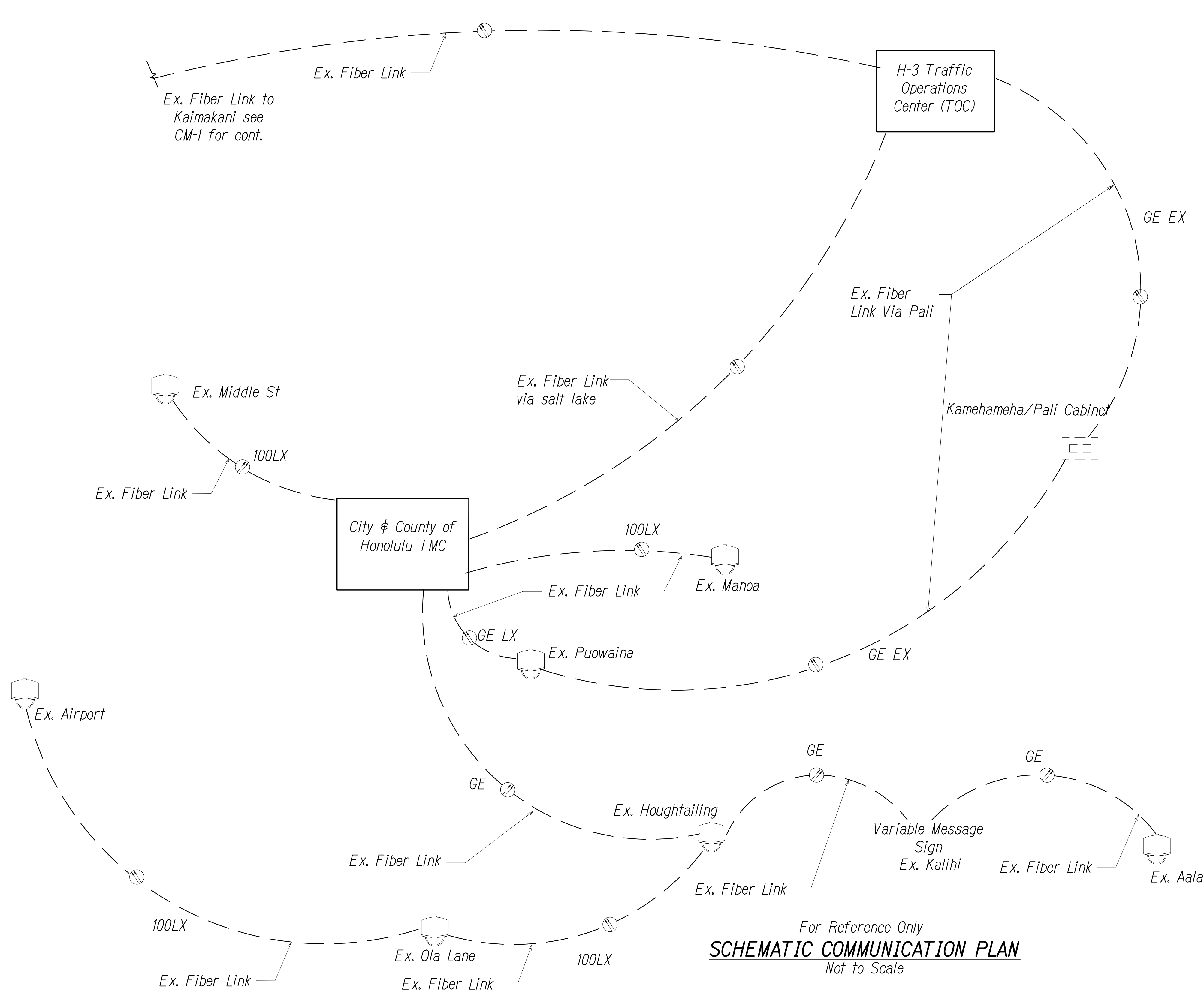
FREEWAY MANAGEMENT SYSTEM
Phase 3A

Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

SHEET No. CM-1 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	17	73



Key

CCTV Camera

Variable Message Sign VMS

Fiber

Future Fiber

Existing 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

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

PNX\2016\16-049\16-049-1-H2 PKG\DWG\CM-2 COMMUNICATIONS PLAN.DWG Aug. 03, 2022-3:32 PM

For Reference Only
SCHEMATIC COMMUNICATION PLAN
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, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

FREEWAY MANAGEMENT SYSTEM
Phase 3A

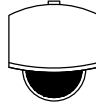
Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

SHEET No. CM-2 OF 12 SHEETS

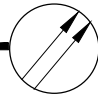
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	18	73

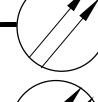
Key


 CCTV Camera


Variable Message Sign

VMS

 Fiber

 Future Fiber

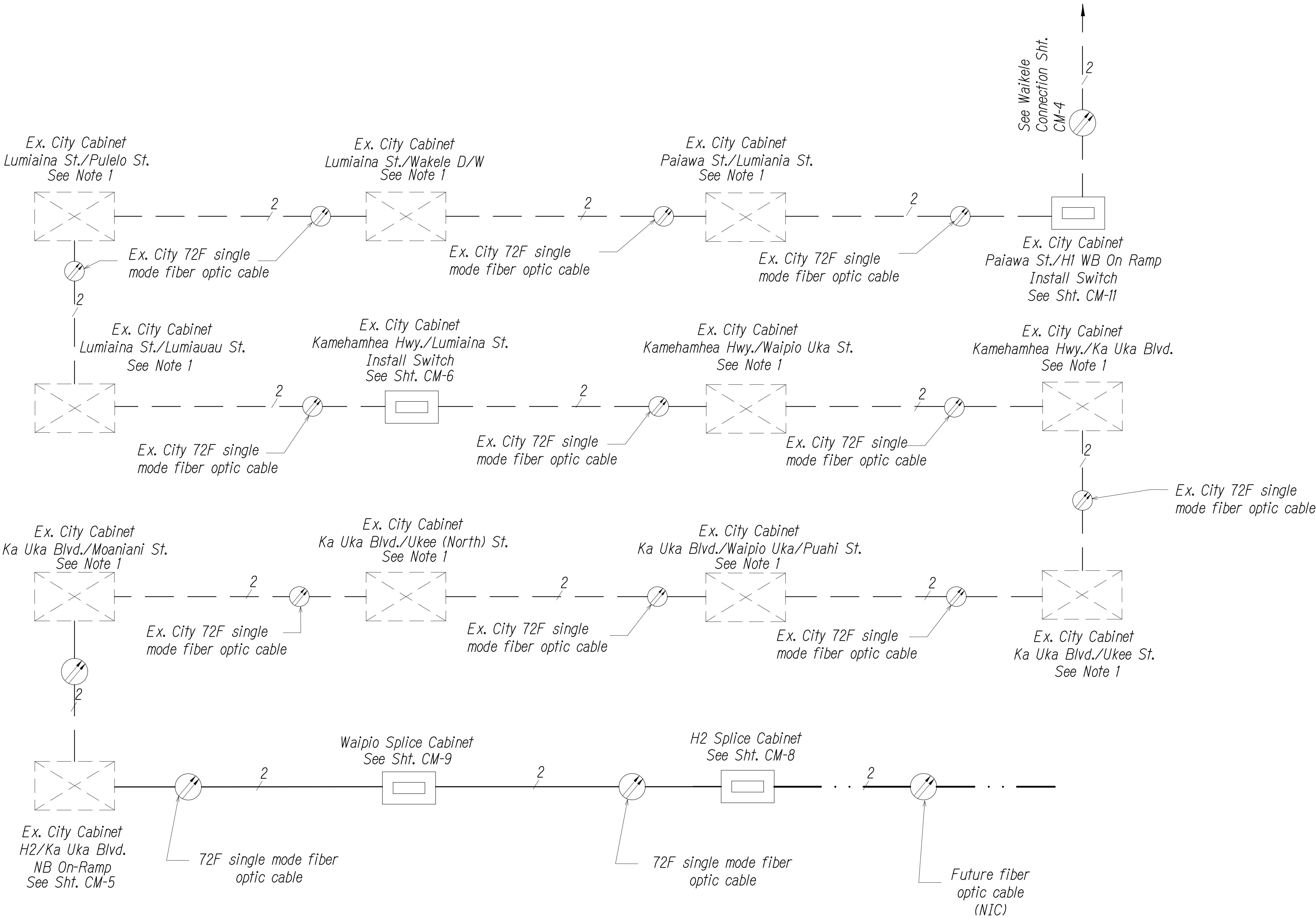
 Existing Fiber

 Ethernet Switch In Cabinet

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

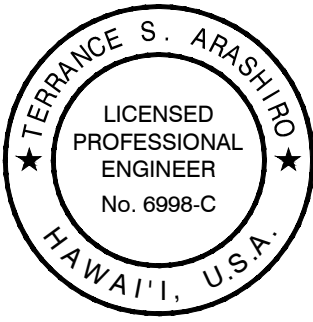
GE = Gigabit Ethernet
LX = LX SFP
EX = EX SFP
ZX = ZX SFP
100LX = 100Base

- Note
- Modifications In Existing Cabinets - Contractor shall verify if fiber is spliced through at cabinet or connected via patch panel. If fiber is on patch panel Contractor shall test and determine fiber assignment and connect via jumpers.
 - 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.



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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

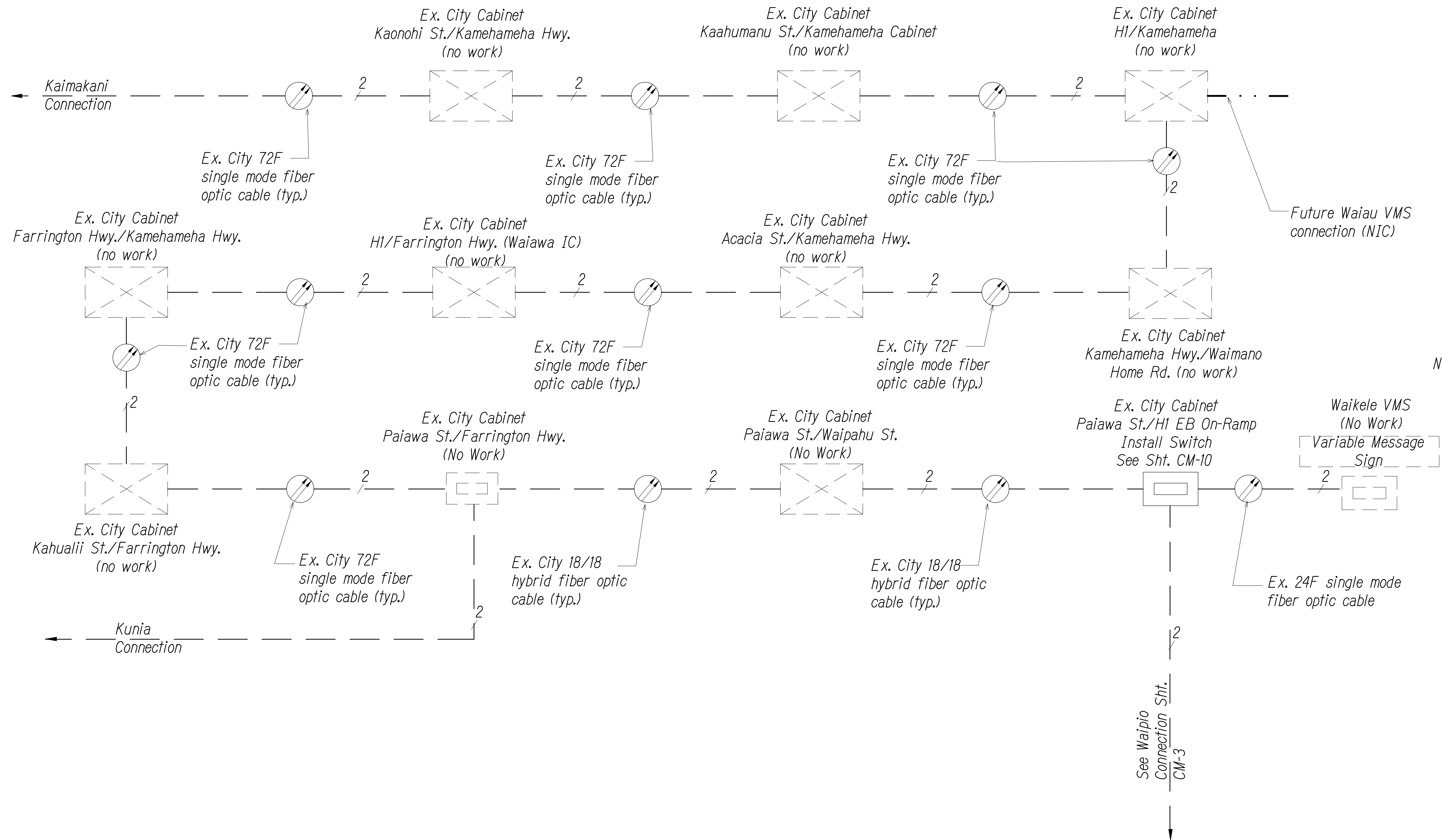
FREWAY MANAGEMENT SYSTEM
Phase 3A

Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

SHEET No. CM-3 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	19	73



Key

CCTV Camera

Variable Message Sign VMS

Fiber

Future Fiber

Existing 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. Modifications In Existing Cabinets - Contractor shall verify if fiber is spliced through at cabinet or connected via patch panel. If fiber is on patch panel Contractor shall test and determine fiber assignment and connect via jumpers.
 2. Coordinate and verify with City DTS & Engineer before performing any splices.
 3. Contractor shall document all splices and assignments used.
 4. Install LX 1000Base SFP in each new switch connection unless noted otherwise.

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SYSTEM BLOCK DIAGRAM - Waikele Connection
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, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

FREEWAY MANAGEMENT SYSTEM
Phase 3A
Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

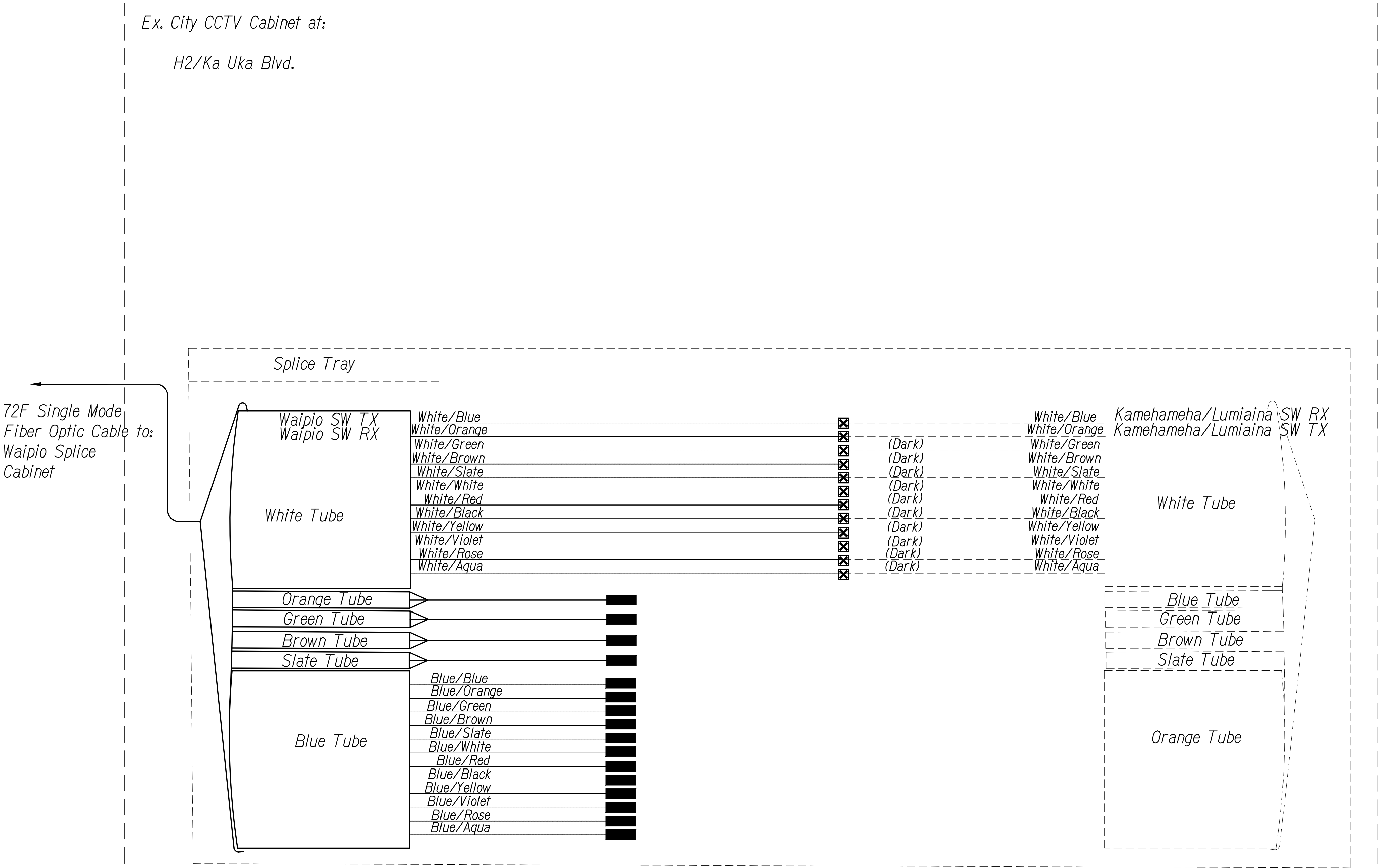
SHEET No. CM-4 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	20	73

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.



Ex. 72F Single Mode Fiber Optic Cable from Ka Uka Blvd./Moaniani St.

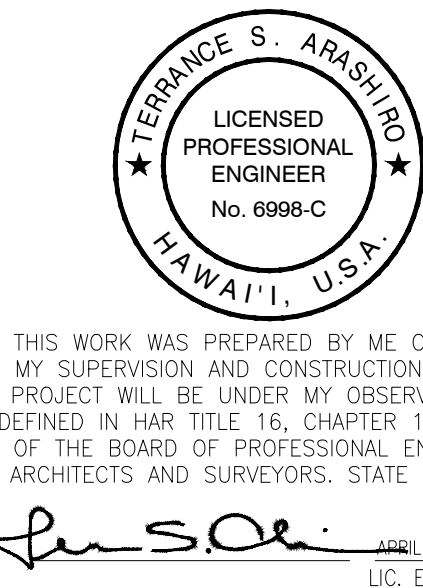
- Notes:
- Remove exist. white bundle from patch panel and splice as shown
 - Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.

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	DESIGNED BY	" "
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REV 10-1-2020
SPlicing AND CONNECTION DETAIL - Ex. City Cabinet H2 at Ka Uka
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 3A
Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

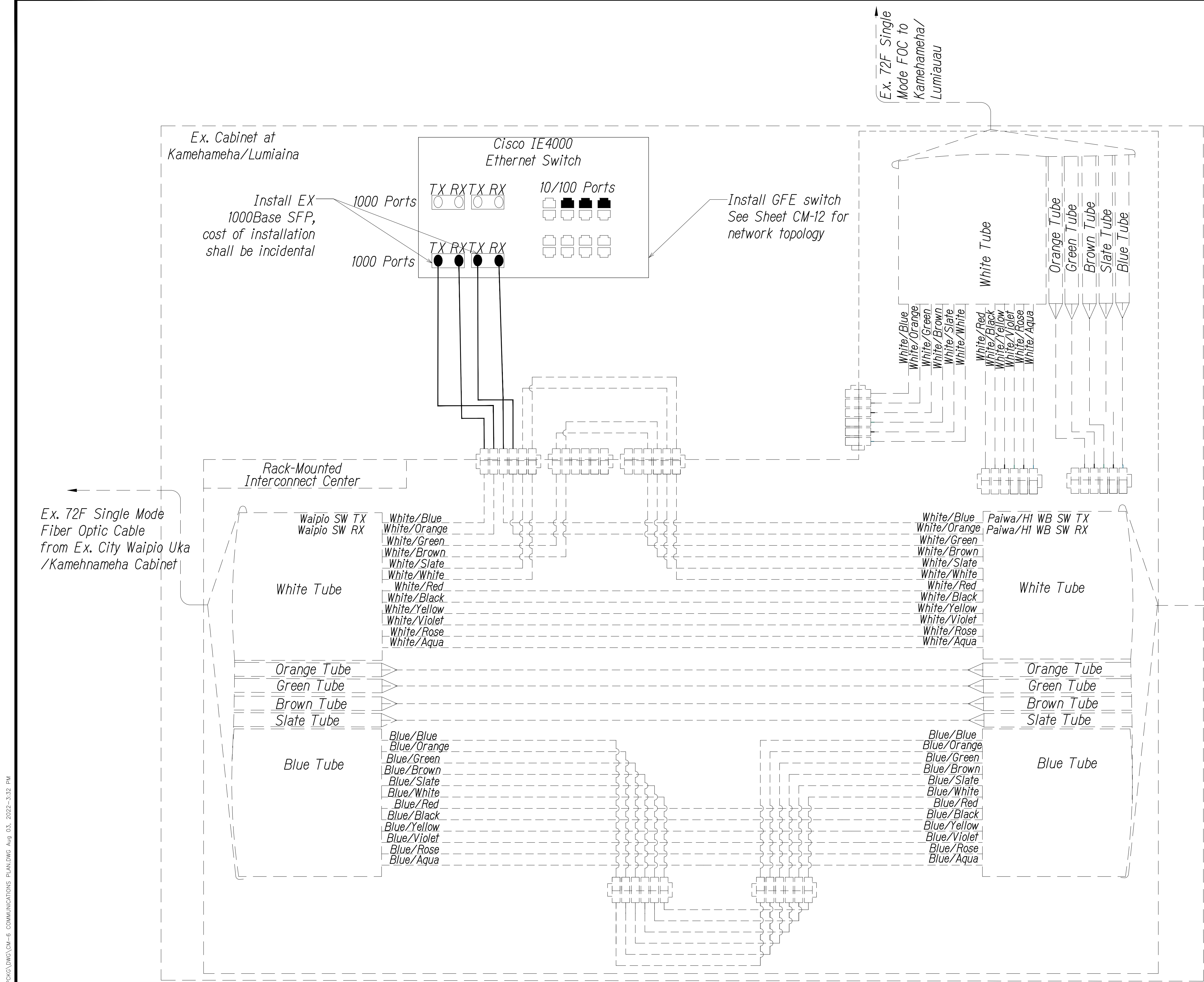
SHEET No. CM-5 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	21	73

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.



- Notes:
- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
 - Install 1000Base LX SFP unless otherwise noted, cost of installation shall be incidental

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REV- 2-11-2020

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

Not to Scale

0 1 2

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

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6996-C
HAWAII, U.S.A.

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T.S.A. APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

FREEWAY MANAGEMENT SYSTEM

Phase 3A

Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

SHEET No. CM-6 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	22	73

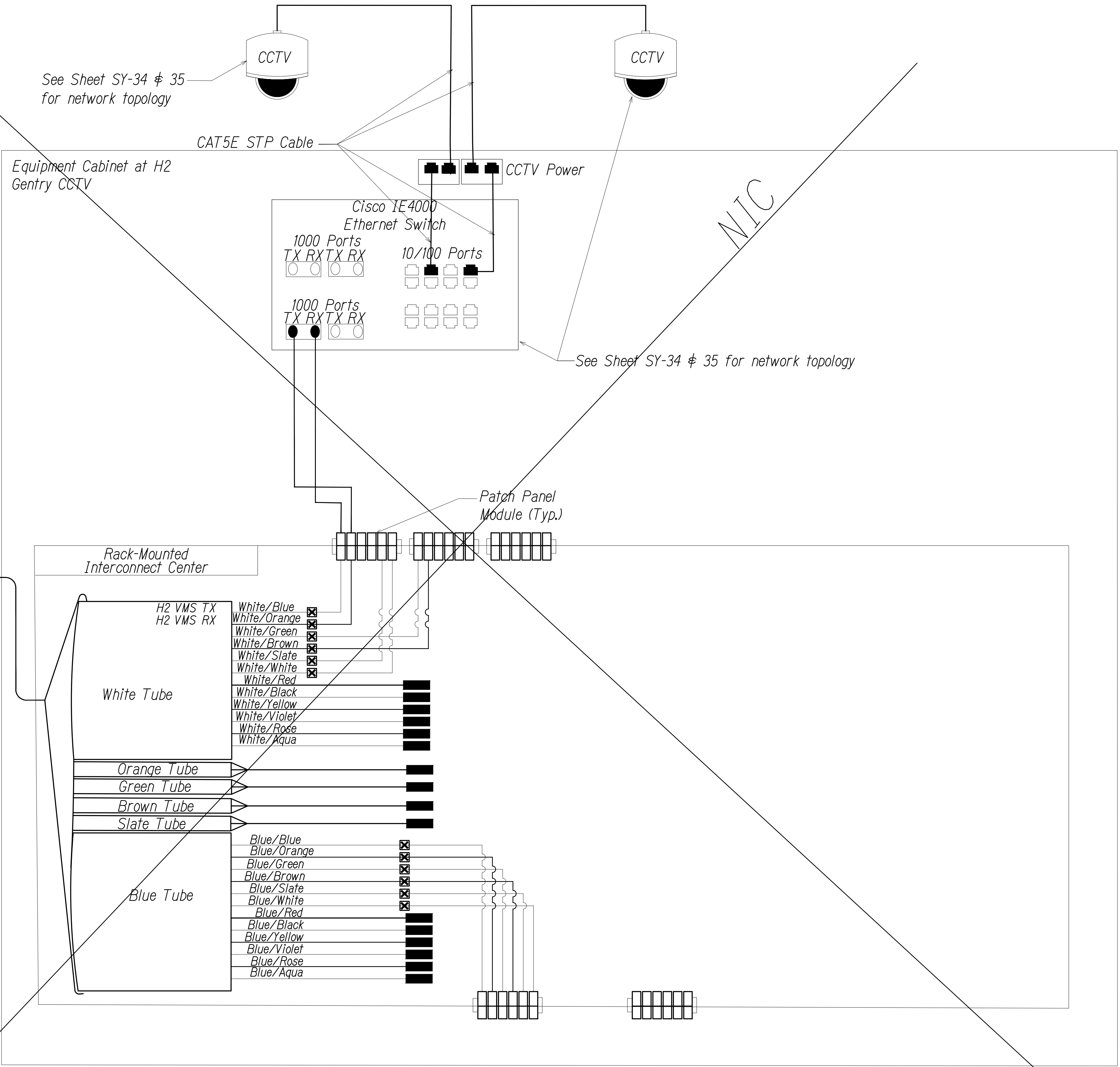
- Key
- Equipment Connection Fiber Optic Jumper
 - Patch Panel Fiber Optic Jumper
 - Fiber Optic Pigtail
 - Bare Fiber Left Coiled In Splice Tray
 - Existing Splice
 - Fusion Splice
 - Patch Panel Module
 - Fiber

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

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ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	CHECKED BY	" "

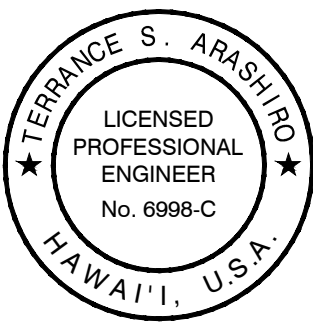
72F Single Mode
Fiber Optic Cable
to H2 VMS



SPLICING AND CONNECTION DETAIL - H2 GENTRY CCTV

Not to Scale

0 1 2
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 3A

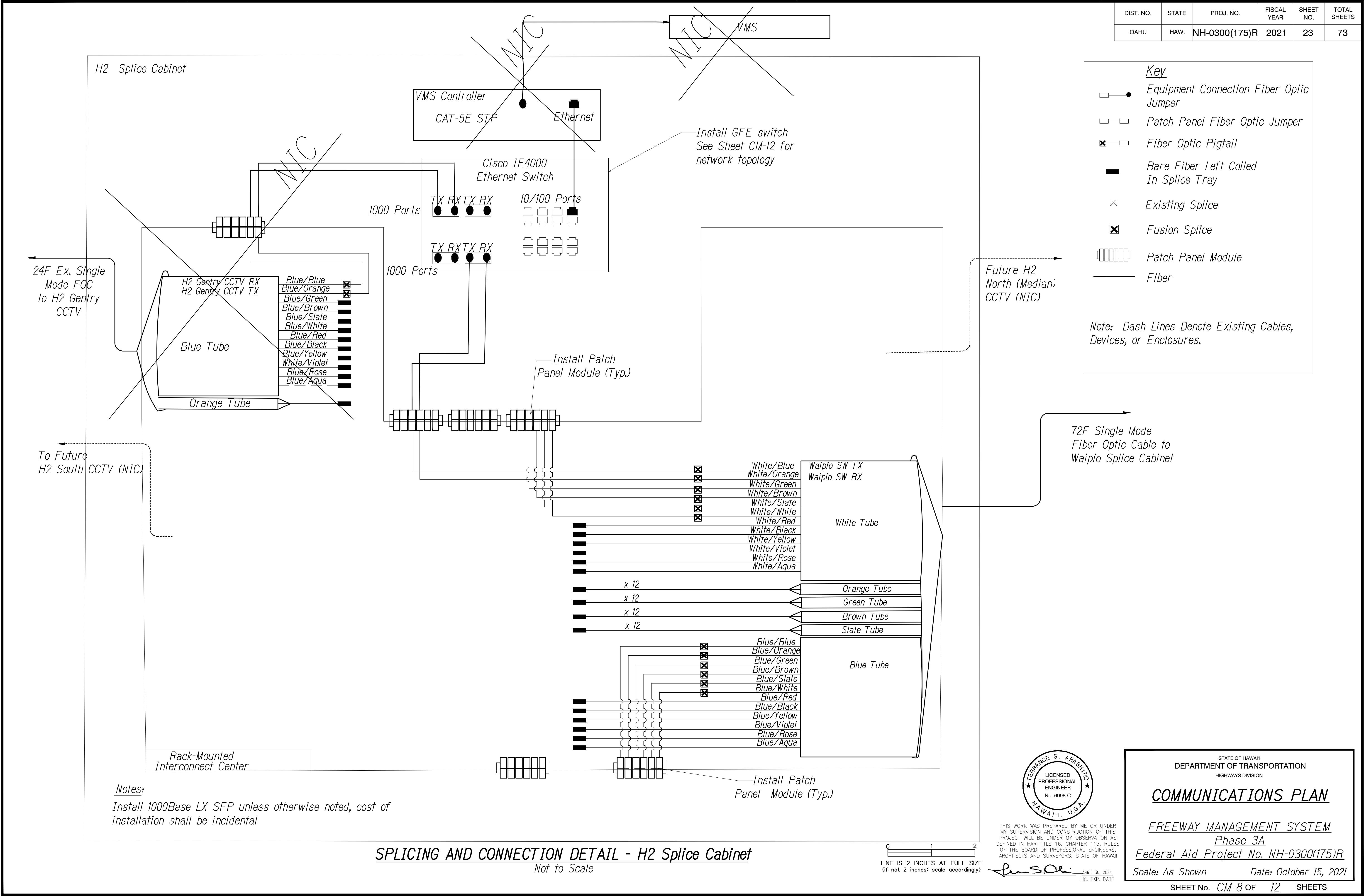
Federal Aid Project No. NH-0300(175)R

Scale: As Shown

Date: October 15, 2021

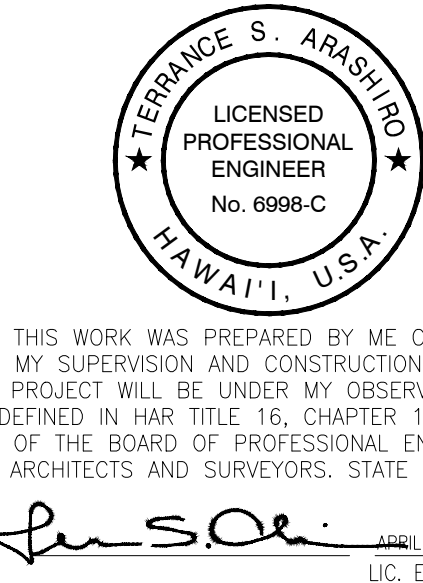
SHEET No. CM-7 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	23	73



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NOTED BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE

PNY\2016\16-048\16-048-1--H2-PPK\DWG\CM-8 COMMUNICATIONS PLANDWG Aug. 03, 2022-3:32 PM



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

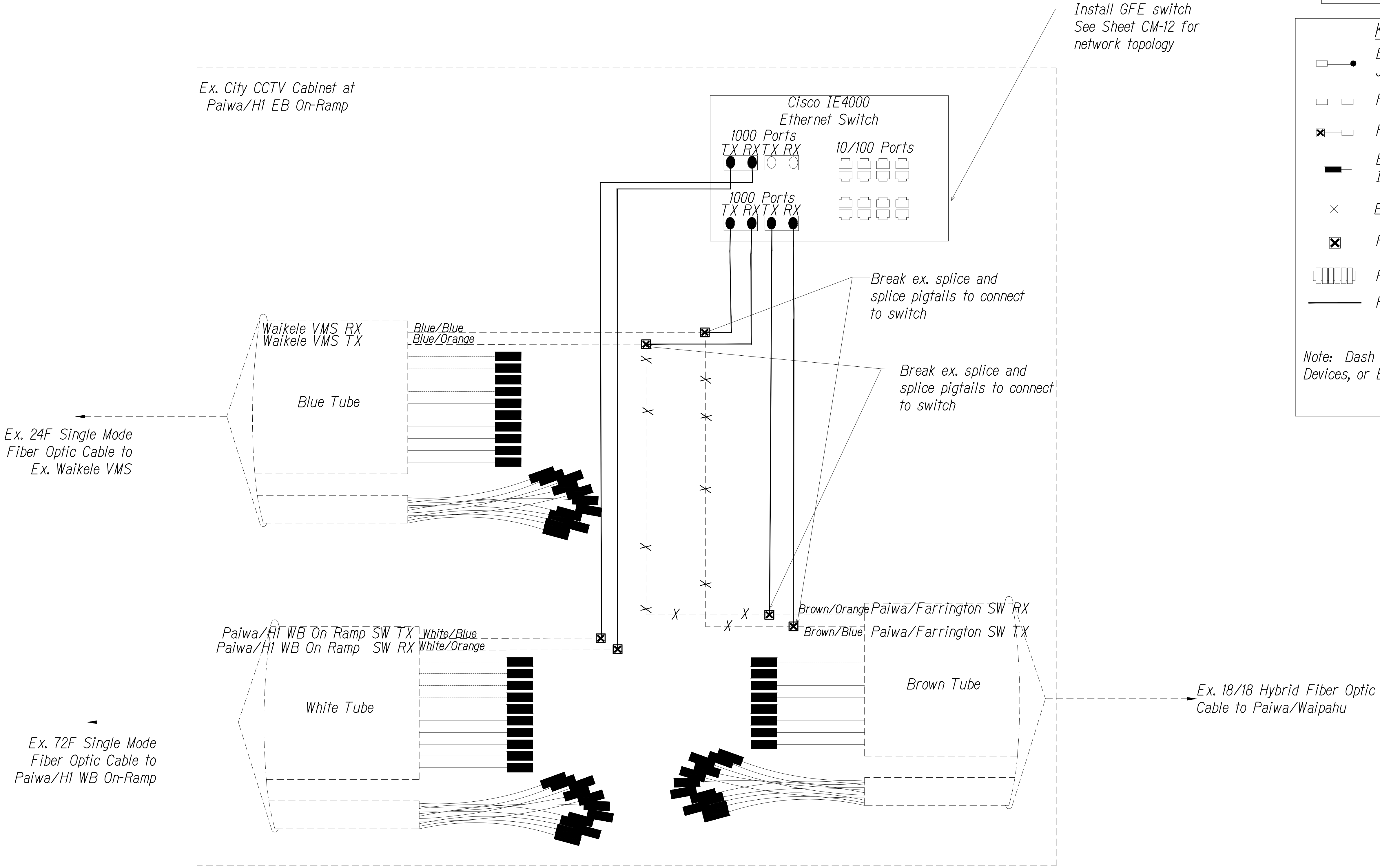
FREEWAY MANAGEMENT SYSTEM
Phase 3A

Federal Aid Project No. NH-0300(175)R

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SHEET No. CM-8 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	25	73



SPLICING AND CONNECTION DETAIL - Ex. Paiwa/H1 EB On-Ramp
Not to Scale

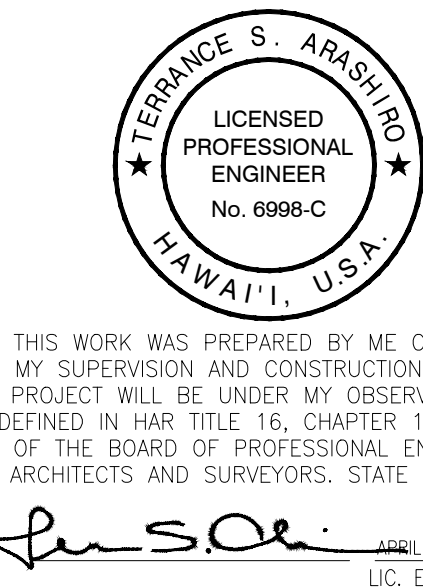
Notes:

- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
- Install 1000Base LX SFP unless otherwise noted, cost of installation shall be incidental

ORIGINAL PLAN	DATE
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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

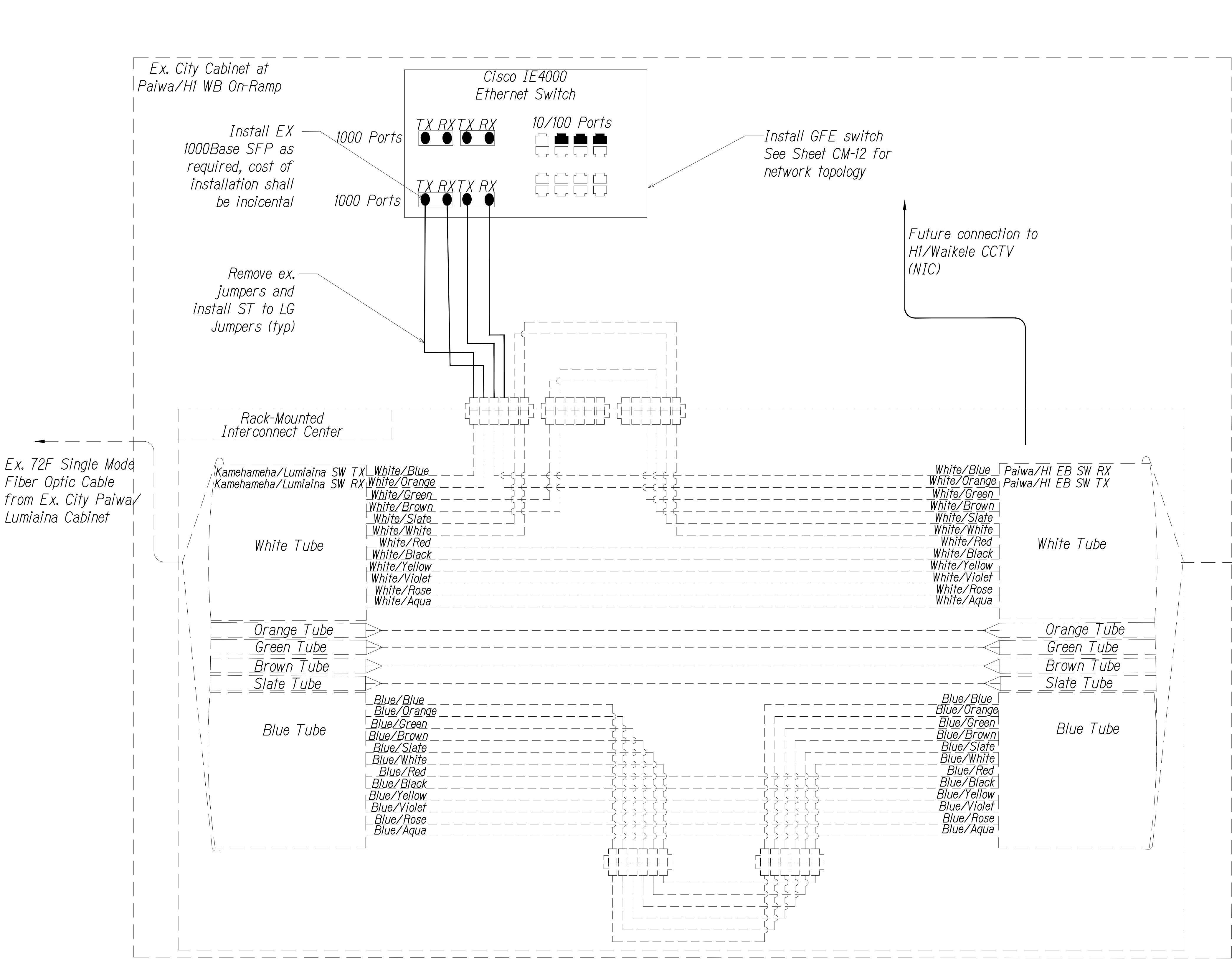
COMMUNICATIONS PLAN

FREEWAY MANAGEMENT SYSTEM
Phase 3A
Federal Aid Project No. NH-0300(175)R

Scale: As Shown Date: October 15, 2021

SHEET No. CM-10 OF 12 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(175)R	2021	26	73



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.

- Notes:**
- Coordinate with City DTS & Engineer before performing any splicing or work. Contractor shall document fiber assignments for splices made.
 - Install 1000Base LX SFP unless otherwise noted, cost of installation shall be incidental

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REV- 2-7-2020

SPLICING AND CONNECTION DETAIL - Ex. City Paiwa/H1 WB On-Ramp 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 3A

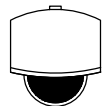
Federal Aid Project No. NH-0300(175)R

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SHEET No. CM-11 OF 12 SHEETS

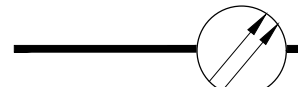
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Key

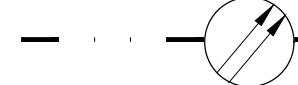
CCTV Camera

Variable Message Sign

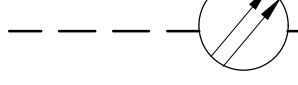
VMS



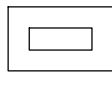
Fiber



Future Fiber



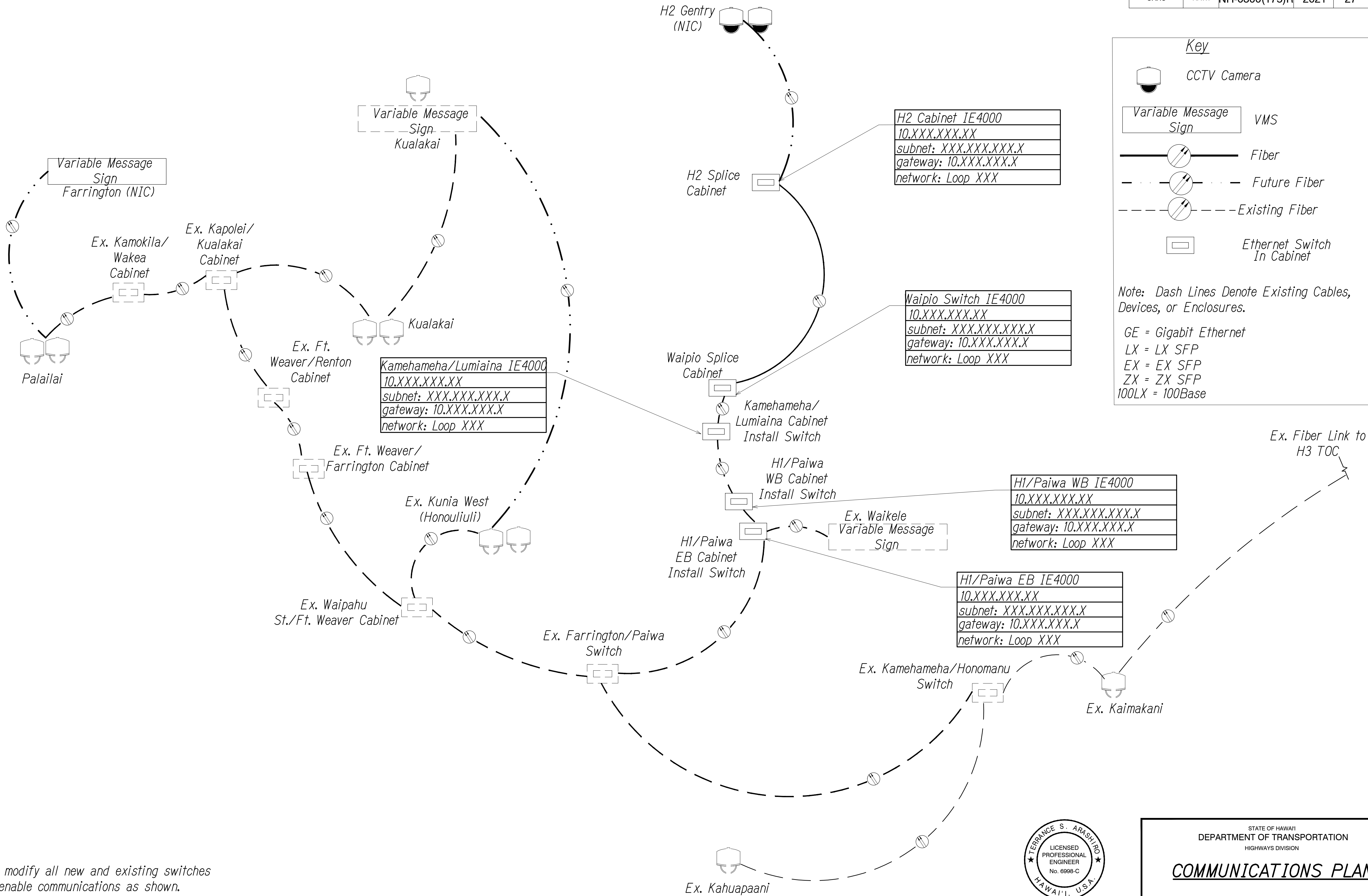
Existing Fiber



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



- Notes:
- Contractor shall modify all new and existing switches as required, to enable communications as shown.
 - IP addresses to be provided by the Engineer at later date.

NETWORK TOPOLOGY

Not to Scale

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Terrance S. Arashi

APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

COMMUNICATIONS PLAN

FREEWAY MANAGEMENT SYSTEM
Phase 3A

Federal Aid Project No. NH-0300(175)R

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SHEET No. CM-12 OF 12 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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