



Change Order No.	15
Date:	June 7th, 2021
Project Name:	Collin County Digital Upgrade
Customer Name:	Collin County
Customer Project Mgr:	Capt. Chris Havey

The purpose of this Change Order: Document changes to the contract products and services

This Change Order provides for changes to products and services as listed:
Define the BDA system for the Collin County Juvenile Detention Center
Adjust project completion date
Total Value = \$114,453.00
Total Contract change (Net) = \$0.00

Contract #	00208254	Contract Date:	December 2016
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In accordance with the terms and conditions of the contract identified above between Collin County Sheriff's Office and Motorola Solutions, Inc., the following changes are approved:

Contract Price Adjustments

This Change Order (#15)	\$0.00
Original Contract Value:	\$10,707,781.00
Previous Change Order amounts for Change Order numbers 00 through 14 :	\$773,156.03
New Contract Value	\$11,480.937.03

Completion Date Adjustments

Original Completion Date:	20 April 2018
Current Completion Date prior to this Change Order:	28 February 2021
New Completion Date:	30 September 2021



CHANGE ORDER

Changes in Equipment: (additions, deletions or modifications) Include attachments if needed

Add the following equipment:

- 1) BDA system for the Collin County Juvenile Detention Center (see attached)
- 2) Collin County Juvenile Detention Center Bidirectional amplifier (BDA) including equipment, services and 1-year warranty at cost of \$114,453.00 which is to be applied to the existing contract committed cost identified as "Supplemental Coverage Solution, Bidirectional Amplifiers" allowance for a not to exceed cost of \$500,000.
- 3) Remaining balance in the "Supplemental Coverage Solution, Bidirectional Amplifiers (not to exceed \$500,000)" is \$3,563.52

Changes in Services: (additions, deletions, or modifications) Include attachments if needed Add the following services:

1) BDA system for the Collin County Juvenille Detention Center (see attached)

Schedule Changes: (describe change or N/A)

Schedule has been updated to reflect current implementation timing and Customer Requested Final Acceptance Date.

Pricing Changes: (describe change or N/A)

All prices and quantities are NET Sum values (original +/- adds and deletions) and include equipment and services. Total for this Change Order Request is: \$0.00 per attached matrix.

Customer Responsibilities: (describe change or N/A) Review requested changes in this document, sign and return to Motorola for contract execution.

Payment Schedule for this Change Order:

(describe new payment terms applicable to this change order) Not Applicable

Unless amended above, all other terms and conditions of the Contract shall remain in full force. If there are any inconsistencies between the provisions of this Change Order and the provisions of the Contract, the provisions of this Change Order will prevail.

IN WITNESS WHEREOF the parties have executed this Change Order as of the last date signed below.

Motorola Solutions, Inc.	Collin County DocuSigned by:
By: Marc Jo	By: Michelle Channoski, MGP-CPP, CPPB
Printed Name: MARC Joth Son	Printed Name: Michelle Charnoski
Title: Regional Service Mp	Title: Purchasing Agent
Date: 6/15/21	Date: 7/22/2021
Reviewed by: Motorola Solutions, Inc. Project Manage	Court Order 2021-608-06-28

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Collin County Sheriff's Office			
C/C DESCRIPTION	CCSO Total	Equipment	Services
Collin County Juvenile Detention Center Bi-Directional Amplifier (BDA) including Equipment and Services. Total cost is \$114,453.00 which is to be applied towards the existing contract committed cost identified as "Supplemental Coverage Solution, Bidirectional Amplifiers (not to exceed a total of 1 \$500,000.)"	\$0.00	\$0.00	\$0.0I
Current balance in the "Supplemental Coverage Solution, Bidirectional Amplifiers (not to exceed 2 \$500,000)" is \$3,563.52	\$0.00	\$0.00	\$0.0
3 Extend project completion date for added BDA to 9-30-2021	\$0.00	\$0.00	\$0.0
This Change Order #015 Total (NET	\$0.00	\$0.00	\$0.0
Section 9 System Pricing - CCSO Purchase Order (#215130) Tota	\$10,707,781.00		
Previous Change Order Tota	l \$773,156.03		
New Contract Value	\$11,480,937.03		
Contract Delta	\$773,156.03		
CCSO CO1 Tota	\$9,418.80		
CCSO CO2 Tota			
CCSO CO3 Tota	(\$115,159.00)		
CCSO CO4 Tota	l \$17,555.00		
CCSO CO5 Tota	l \$16,166.67		
CCSO CO6 Tota	l \$644,394.00		
CCSO CO7 Tota	l \$45,820.48		
CCSO CO8 Tota	l \$55,524.17		
CCSO CO9 Tota	l \$16,059.43		
CCSO CO10 Tota	l \$237,913.68		
CCSO CO11 Tota	. ,		
CCSO CO12 Tota			
CCSO CO13 Tota			
CCSO CO14 Tota	l \$0.00		



Collin County Juvenile Detention Center BDA System

6/2/21

The following provides the Pricing and Statement of Work for the Public Safety BDA system for the Collin County Juvenile Detention Center. The work will be performed by Motorola Solutions Inc (MSI) via their subcontracted business partner Mobile Communications of America (MCA.)

The following price quote is to be applied toward the existing contract cost identified as "Supplemental Coverage Solutions in contract Pricing section 13.17, Contract no. is 2016-020 between Collin County and MSI. "Supplemental Coverage Solution, Bidirectional Amplifiers (not to exceed a total of \$500,000), beyond which any in-building amplifiers will be a Collin County responsibility. "

Upon approval, this proposal will be submitted via the normal Change Order process for approval by the County and MSI.

Description	Price
Equipment, Installation, Engineering and PM Services	\$111,595.00
Optimization and Testing (DAQ and RSSI) included above	
Warranty - 1 year	\$2,858.00
Total	\$114,453.00

Assumptions and Exclusions:

1. New A/C electrical and grounding are excluded. Adequate electrical A/C power and site grounding to support the requirements of the system described are the responsibility of the customer

2. Any site/facility upgrades, or modifications are excluded and are the responsibility of the customer.

3. Any FCC licensing filings are excluded and are the responsibility of the customer or FCC license owners

4. Any required system interconnections not specifically listed are excluded such as Ethernet links or phone circuits5. MSI is not responsible for radio interference caused or received by this system. Should the

5. MSI is not responsible for radio interference caused or received by this system. Should the system experience interference, MSI can be contracted to investigate the source and mitigate the issue.

System Description

700/800MHz System

Operational Overview

The Bi-Directional Amplifier (BDA) System is used to provide radio system coverage within a facility that does not allow for radio system signal penetration. The network itself consists of a donor antenna network based from an antenna placed on the rooftop of the structure that collects the signal from the outside source and feeds it to an amplifier that boosts the signal and then sends it to a distributed antenna system within the buildings. The distribution network extends the outside signal to portable units operating within the structure. In the opposite direction, thus the term "bi-directional", the signal is collected by the distribution system and sent to the amplifier, and then broadcast back to the system over the donor antenna network. Many factors need to be determined in the development of these networks to determine the size and cost of a system. Some of these factors include:

- Amount of signal level available outside of the building that can be collected by the BDA
- The area inside the structure that requires radio system coverage.
- The building architecture and its ability to block radio signals

Crosspoint Communications Statement of Work

Collin County Juvenile Detention Center BDA

Crosspoint Communications Responsibilities

General Understanding

This section describes the tasks that will be required to complete this project. It discusses Crosspoint's responsibilities and what responsibilities would be required of the customer.

All materials will be stored at one of Crosspoint's facilities and transported to the site as needed. Crosspoint will be responsible for all shipping and transportation costs as part of this proposal

General

- 1. Perform all work and tasks required to install the products according to manufacturers' recommendations during installation
- 2. Administer safe work procedures for installation
- 3. Ensure the proper disposal of all debris generated from installation
- 4. Schedule the implementation in agreement with MSI and Collin County.
- 5. Coordinate the activities of all Crosspoint Communications subcontractors under this contract.
- 6. All work will be performed during normal working hours (Monday through Friday, 8AM to 5PM).
- 7. Crosspoint Communications will use the Motorola R56 Manual, Standards and Guidelines for Communication Sites as its installation guide in all situations where the customer specifications and local codes do not apply. These guidelines will be adhered to as closely as possible as allowed by the existing sites and equipment. The R56 Manual is available for review upon request. This quotation does not include bringing existing equipment and sites up to R56 standards.
- 8. All grounding wire, stainless steel bolts, lugs, and other small grounding hardware will be supplied by Crosspoint Communications.
- 9. Any work that is required to complete this project not specifically described in this statement of work will be considered above the scope of this proposal and subject to requotation
- 10. Perform testing of equipment

Implement the RF distribution network. This will include the following 700/800MHz System:

Provide and install coaxial cable between the Splitter's and the designated locations for each distribution antenna as specified in the system design provided below.

Install all cable terminations, signal splitters, cable securing hardware.

Apply power to the system and perform system optimization that will include recording all signal levels at each antenna site.

Once the system has been completely implemented and fully tested, Crosspoint Communications, along with representatives of Collin County and Motorola Solutions Inc. shall participate in a "Coverage Demonstration Procedure" (CDP). These procedures are described later in this section. Upon final acceptance, the system will be commissioned, and customer beneficial use shall begin

Collin County Responsibilities

Crosspoint will require access throughout the building in the different locations affected by the installation. Collin County will need to provide clear access to each of these locations during normal business hours.

Collin County will need to authorize the placement of the different system components. Crosspoint will review the installation schedule and responsibilities.

Collin County and Motorola Solutions Inc. will need to provide representatives to participate in the Coverage Demonstration Procedure.

It will be necessary to secure a letter of permission from the Collin County owner or system administrator prior to installation of the BDA.

Single point Ground within 6' of BDA installation

15A AC Circuit within 6' of BDA installation

If a debris collection device is necessary for ceiling tile removal additional labor charges will apply.

- 1. Provide all authorizations to perform the installation services.
- 2. Obtain and provide all approvals, permits, and agreements as required at all sites and locations.
- 3. Provide adequate space for equipment to be installed.
- 4. Provide primary electrical power at the site.
- 5. Provide any new roof penetrations required by the project unless they are outlined in the Crosspoint Communications statement of work section.
- 6. Provide Point of Contact to monitor and answer questions related to project.
- 7. Sign "Installation Completion Form" upon satisfactory completion of project.
- 8. Provide all buildings, equipment shelters, and towers required for system installation
- 9. Ensure communications sites meet space, grounding, power, and connectivity requirements for the installation of all equipment.
- 10. Obtain all licensing, site access, or permitting required for project implementation.
- 11. Provide any specialized cable management systems required by the project.
- 12. Provide all Cable run pathways.
- 13. Provide all fire stops and fireproof sleeves.

Assumptions

Crosspoint Communications has developed a comprehensive engineered solution contained within this proposal with the best intentions of satisfying the needs of MSI and Collin County.

Certain assumptions were made for Crosspoint Communications to design this system. The following is a list of site requirements and design assumptions for the system.

- 1. All existing sites or equipment locations will have enough space available for the system described as required/specified by R56.
- 2. All existing sites or equipment locations will have adequate electrical power in the proper phase and voltage and site grounding to support the requirements of the system described.
- 3. Any site/location upgrades or modifications are the responsibility of the customer.
- 4. Approved FCC licensing are the responsibility of the end user, Collin County .
- 5 Any required system interconnections not specifically outlined here will be provided by Collin County. These may include dedicated phone circuits, microwave links, Ethernet or other types of connectivity.
- 7. Crosspoint Communications is not responsible for interference caused or received by the Crosspoint Communications provided equipment. Should the BDA system experience interference, Crosspoint Communications can be contracted to investigate the source and recommend solutions to mitigate the issue.

Amplifier Equipment

CriticalPoint[™] Public Safety Bi-Directional Amplifier RX-7W22 Class A PS 700/800MHz BDA

FEATURES

- \Box Digital/programmable utilizing FPGA \Box
- □ Supports public safety 700/800MHz in single band or dual band version □
- □ Supports P25 P1/P2 digital and conventional analog communications simultaneously □
- □ Supports FirstNetTM LTE band 14 □
- \Box Single band versions include license to switch from original band to alternate band \Box
- \Box Single band can be upgraded to dual band via license key
- \Box Each band supports up to 32 channels \Box
- \Box 2W output power for each band \Box
- Channelized Auto Gain Control (AGC) / Channelized uplink squelch
- □ Built-in mandatory isolation test to prevent BDA oscillation □
- □ Auto shutdown with alarm upon oscillation detection □
- □ Web based GUI for intelligent configuration, SNMP supported □
- □ NFPA compliant dry contact alarms, NEMA 4X enclosure □
- □ FCC: PX8RX-7W22, IC: 11919A-RX7W22, UL: SGSNA/16/GZ/00003 □

Comba



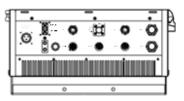
Electrical			700MHz	800MHz	
Frequency Range, Uplink		MHz	US: 788-805, CA: 798- 806	806-824	
Frequency Range, Downlink	y Range, Downlink		US: 758-775, CA: 768- 776	851-869	
Channel Bandwidth		KHz	12.5/25/75+10MHz (LTE, US)	12.5/25/75	
Number of Channels			US: 32+1 (LTE), CA: 32	32	
Total Output Power, Uplink		dBm	25	5	
Total Output Power, Downlin	ık	dBm	33	33	
Maximum System Gain		dB	90	90	
Gain Adjustment Range (1dl	Gain Adjustment Range (1dB step)		0-30	0-30	
Pass Band Ripple, p-p		dB	□ 5	□ 5	
Uplink Noise Figure		dB	□ 5	□ 5	
	Bandwidth: 12.5KHz		□ 35	□ 35	
System Group Delay	Bandwidth: 25KHz		□ 27	□ 27	
System Group Delay	Bandwidth: 75KHz	sec	□ 15	□ 15	
	Bandwidth: 10MHz (LTE)		6.5	□ 6.5	
	Bandwidth: 12.5KHz		≥ 80 @ filter center + 75KHz	≥ 80 @ filter center + 75KHz	
Out-of-Band Suppression Bandwidth: 25KHz		dBc	≥ 80 @ filter center + 75KHz	≥ 80 @ filter center + 75KHz	

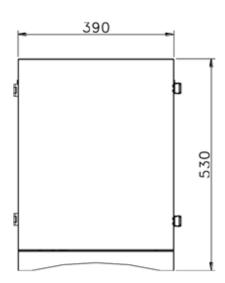
Specifications

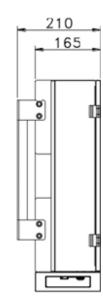
	Bandwidth: 75KHz		≥ 80 @ filter center + 200KHz	≥ 80 @ filter center + 200KHz	
Bandwidth: 10MHz (LTE)			\geq 60 @ filter edge + 0.2MHz	≥ 60 @ filter edge + 0.2MHz	
Intermodulation		dBm	□ -13	□ -13	
Services	9kHz to 1GHz	dBm	ECC Compliance	ECC Compliance	
Spurious	1GHz to 12.75GHz	dBm	FCC Compliance	FCC Compliance	
Absolute Maximum RF Input Power		dBm	10	10	
Input VSWR			□ 1.5	□ 1.5	
Impedance			50	50	
Mechanical					
Dimensions, H x W x D		in(mm)		x 8.3 (530 x 210)	
Weight (without bracket)		lb(kg)	50.7	(23)	
		VAC	100-240/47-63Hz		
Power Supply		VDC	-38 ~	72	
	Single band	W	8	0	

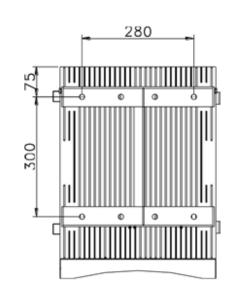
Power Consumption	Dual band	W	100		
Enclosure Cooling	·		Convection		
RF Connectors			N-Female		
Test Port			SMA, -22dB		
Maximum Input for Dry Co	ontact Port		24VDC, 1A / 110VAC, 0.5A		
Operating Temperature		°F (°C)	-27 to +140 (-33 to +60)		
Operating Humidity			□ 95%		
Environmental Class			NEMA 4X		
MTBF		hr	≥100,000 @ 77 °F		

Outline Drawing









System Acceptance

Testing will comply with those outlined by the adopted fire code and the AHJ

As part of this proposal, Crosspoint Communications Inc. is providing a 95% coverage guarantee at a Delivered Audio Quality (DAQ) level of 3.4. The following table describes the subjective performance description as defined in the TIA TSB-88 Bulletin.

Testing will comply with those outlined by the adopted fire code and the AHJ

Delivered	Subjective Performance Description
Audio Quality	
DAQ 5.0	Speech easily understood.
DAQ 4.5	Speech easily understood. Infrequent Noise/Distortion.
DAQ 4.0	Speech easily understood. Occasional Noise/Distortion.
DAQ 3.4	Speech understandable with repetition only rarely required.
	Some Noise/Distortion.
DAQ 3.0	Speech understandable with slight effort. Occasional
	repetition required due to Noise/Distortion.
DAQ 2.0	Understandable with considerable effort. Frequent repetition
	due to Noise/Distortion.
DAQ 1.0	Unusable, speech present but unreadable.

Delivered Audio Quality (DAQ) Scale Definitions

RF coverage performance will be demonstrated to ensure that the coverage extension system provides a DAQ level as stated throughout the specified coverage area. The procedure is explained in the following paragraphs.

Coverage demonstration shall be considered complete and successful when the ability to send and receive intelligible voice communications over a portable radio inside each facility and the fixed test team's stationary location has been demonstrated as defined in the Coverage Demonstration Procedure (CDP).

In the event that the Coverage Demonstration does not demonstrate the required level of coverage, Crosspoint will, with the cooperation of Motorola Solutions Inc., optimize the system and/or provide all additional labor and materials required to meet the performance criteria as defined in this proposal.

The following is required for the CDP:

Resources: Two Motorola Solutions Inc. Representatives, two Crosspoint Representatives

Equipment: Building plans with mutually agreed upon test points marked, two fully charged portable radios.

Coverage Demonstration Procedure (CDP)

A Collin County representative and Motorola and Crosspoint representative will be located at the Collin County dispatch center or control point. This team will be responsible for controlling the CDP and completing the Acceptance Test Check Sheets. This team will be called the Stationary Team.

The second Collin County, Motorola and Crosspoint representative will each be equipped with one portable radio. This team will be responsible to initiate and/or receive calls from each of the test points in the facility. This team will be called the Mobile Team.

Test calls will be initiated from the mobile team once they have reached an agreed upon test point. The test at each point will consist of the following transmissions:

- □ Mobile Team ---"This is mobile team testing, one two, three, four, five at location XYZ, do you read me", "Over"
- □ Stationary Team ---- "Affirmative, testing, one, two, three, four, five. Received your message at DAQ X.X,", "Over"
- □ Mobile Team ---"Mobile team received your message at DAQ X.X,"
- \Box Move to the next location.

The stationary team will be responsible for all documentation for both teams.

Failed Test Points

If a transmission fails in either direction, the mobile team will move 2-5' from the previous test position and the test point procedure will be repeated. If the test point fails this second attempt, it will be noted as a failed test point. A failed test point is any point that is graded at less than a DAQ level of 3.4 in either direction. Transmissions including the test message will be the only transmissions that are graded.

Proof of 95% Reliability

Test points will be determined during the acceptance-testing phase of the implementation. Locations will be evenly distributed throughout the area.

Collin County and Motorola Solutions Inc.will supervise the entire test. Coverage will be tested and verified for both talk-in and talk-out directions. Extrapolation of results from tests in one direction to reach conclusions about the other direction will not be acceptable. A failure in either the inbound or outbound direction will constitute a failed test location.

A successful test point shall be one that provides delivered audio quality of at least DAQ 3.4 in both the inbound and outbound directions. A failure in either the inbound or the outbound direction at a test location will constitute a failed test location. If the first test call (inbound or outbound) is unsuccessful, the field team will be allowed to move up to 5' and a retry will be permitted. If the second attempt to communicate fails that test location will be deemed a failure.

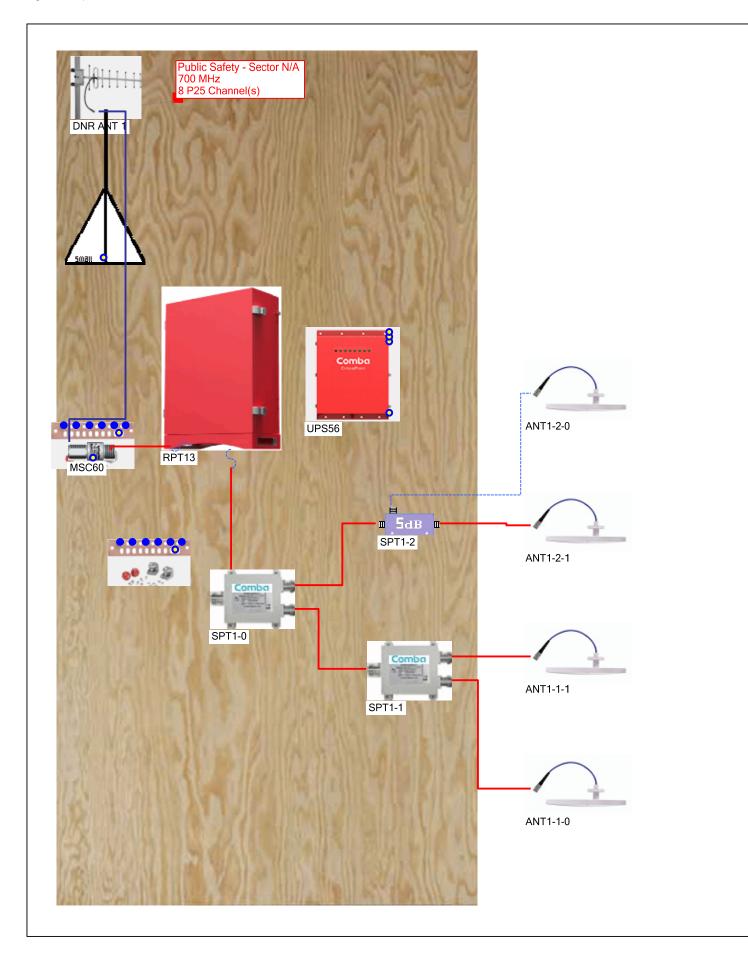
The following information will be submitted to Collin County and Motorola Solutions Inc. at the conclusion of the acceptance testing previously described. Once this document is signed the warranty period shall begin.

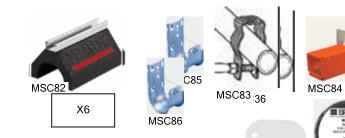
SeeHawk Post Grid Testing of the Jail and Courthouse will be performed to document RSSI signal levels throughout the facilities.





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MCA TEAM	CUSTOMER CONTACT	Vicinity Map		DES	IGN SPEC	IFICATION		-4
RF Engineer Name	Fire Department Contact		<u>OEM:</u> <com <u>Solution:</u> <ri< th=""><th>BA></th><th></th><th></th><th></th><th>Project name</th></ri<></com 	BA>				Project name
Haleigh Jones	Name			7/ 77 22/				MC Collin County Juvenile Center TX Engineering
Phone	Phone	Collin County Animal Services			*Assump	tions*		
919.210.7024		Animal Services	Band	Name	Туре	Call Sign	Channels	
GROL			700 MHZ	PAWMCo	P25	WRAP987	8	Address
PG00062322	Site Contact	Callin County		Collin				1700 0
Project Manager	Name	Collin County 🛖 🔶		County				4700 Community Ave McKinney TX
Name						•	<u>.</u>	75071
	Phone	414						
Phone		(t) units	• Design w	ill maintain a l	evel of -9	ס 35 dbm RSSI	ver 95% of the	Designer name
			requeste	ed coverage a	rea.			
MCA Manager			ļ					Haleigh Jones & PG00062322
Name		GROL LICENSE HOLDER: <haleigh jones=""></haleigh>						
Craig Sikes		FCC SERIAL NUMBER: <pg00062322></pg00062322>						Plan name
Phone								Cover Page
								Cover Page
PROIFC	T DESCRIPTION							
	Juvenile Center. Coverage area is based on							
benchmark data.	c							
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MSC77

GRND4





SWM0





Project name

MC Collin County Juvenile Center TX Engineering

Address

4700 Community Ave McKinney TX

75071

Designer name

Haleigh Jones & PG00062322

Plan name

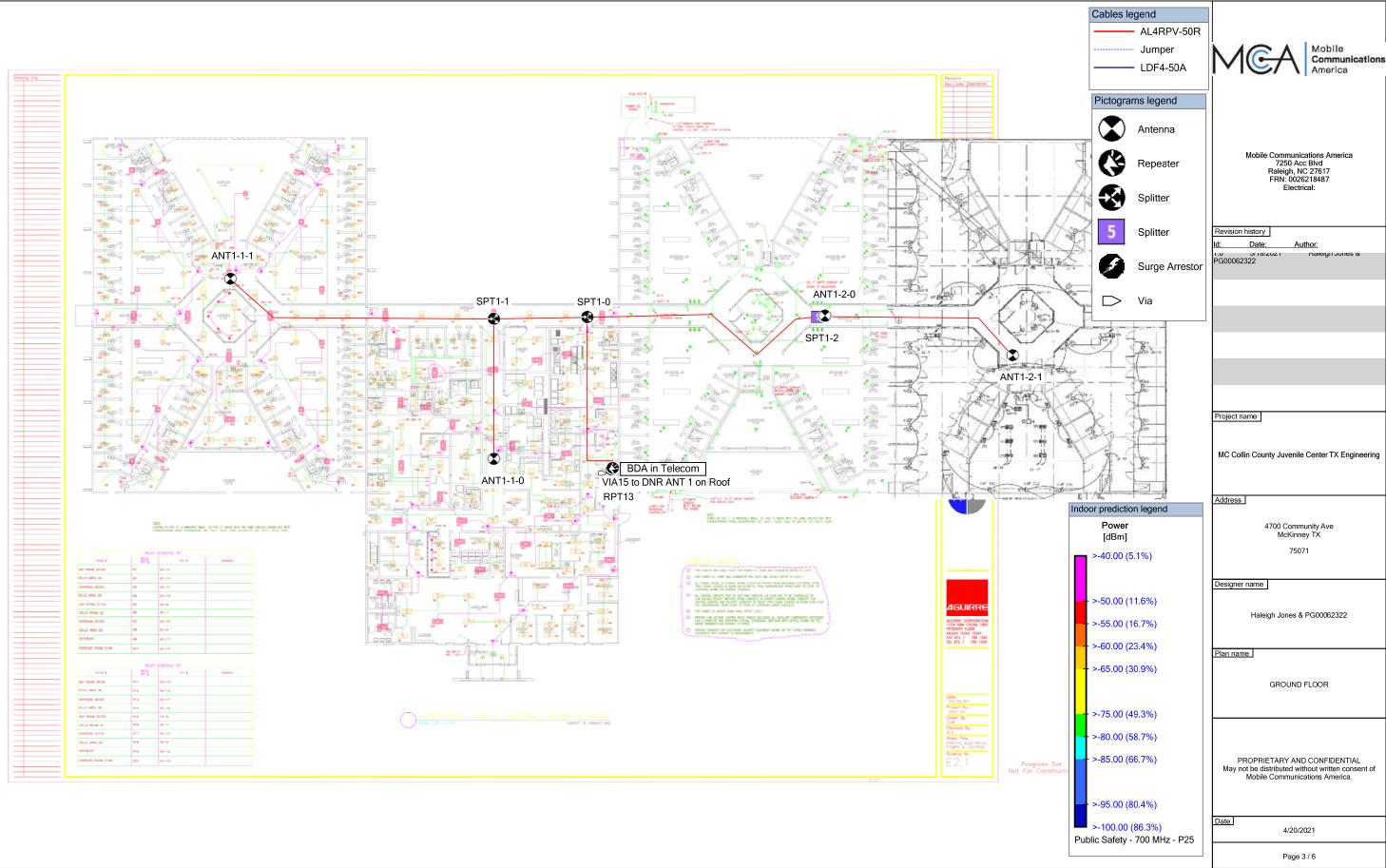
System Overview

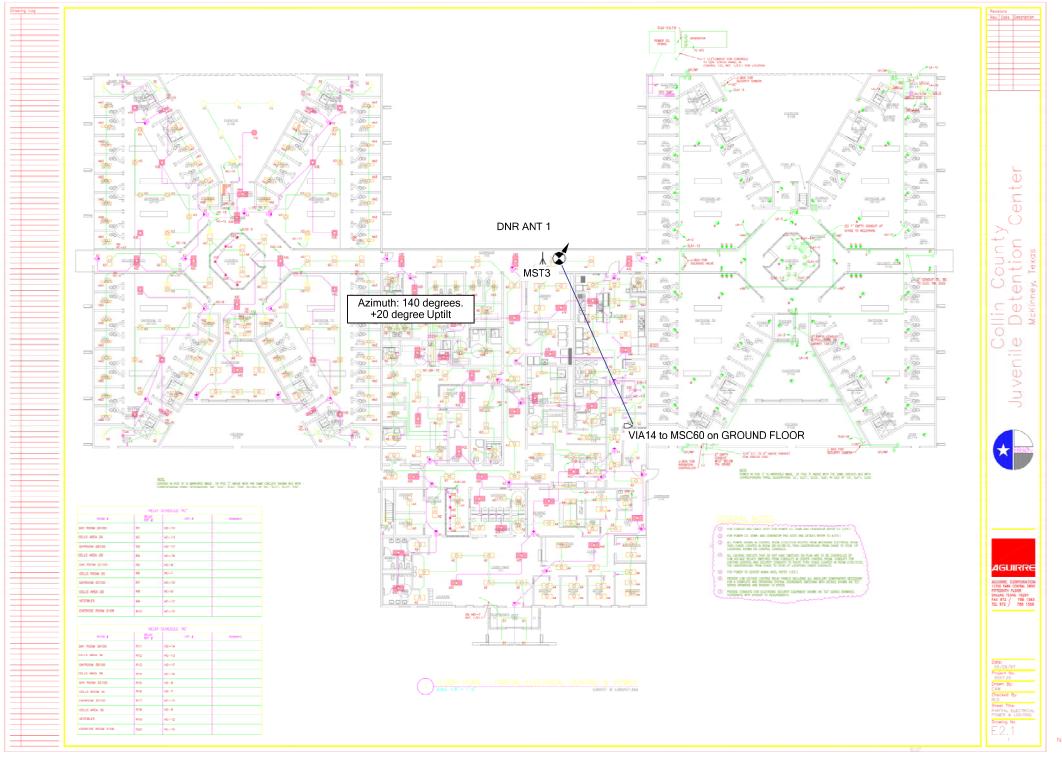
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Date

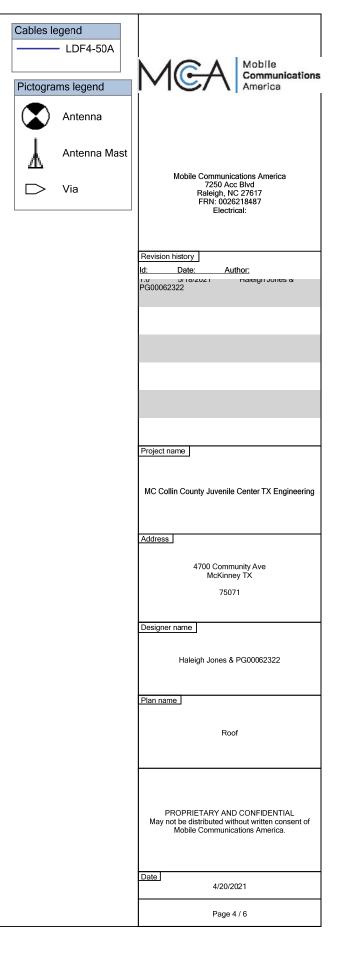
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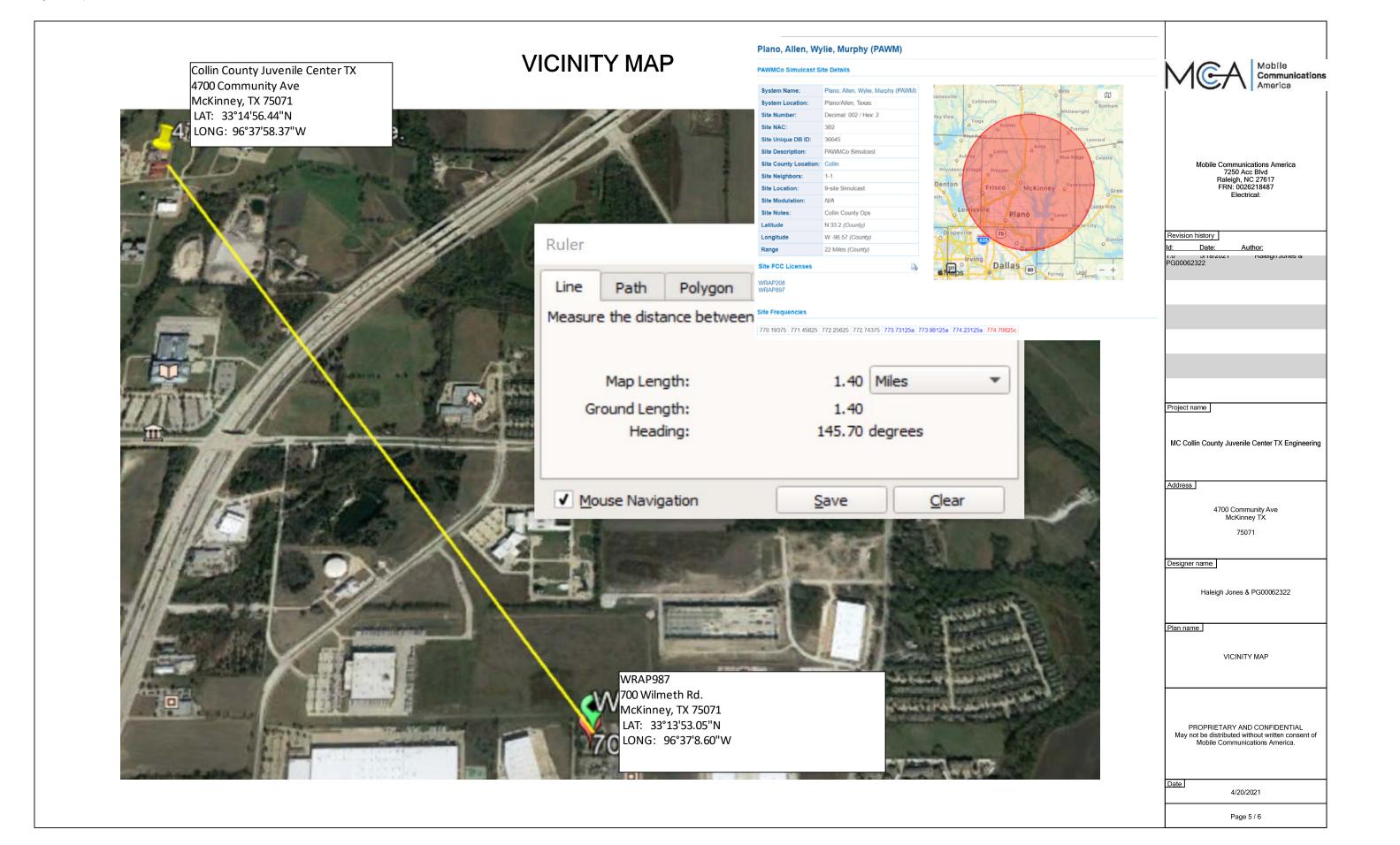
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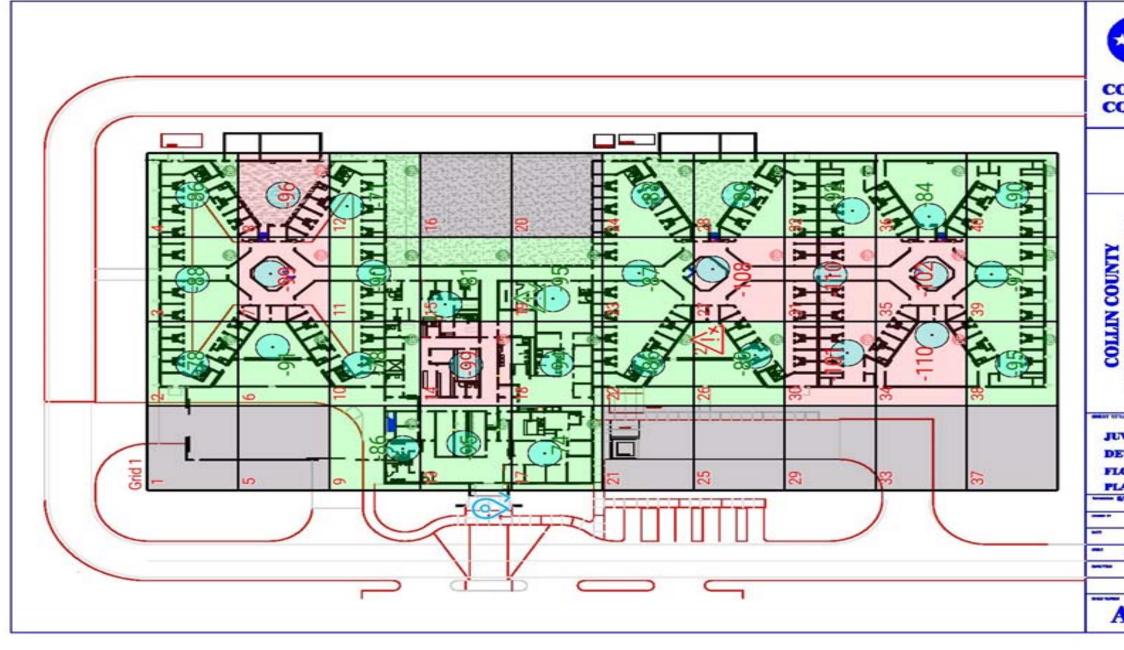




Progress Set Not For Construction







	McA Mobile Communications America
	Mobile Communications America 7250 Acc Blvd Raleigh, NC 27617 FRN: 0026218487 Electrical:
OLLIN OUNTY	Revision history
VILE DETENTION KINNEY, TEXAS	Project name MC Collin County Juvenile Center TX Engineering
VENILE ETENTION LOOR	Address 4700 Community Ave McKinney TX 75071 Designer name
LAN 6/3006 DWR L/37/99 L/37" = F	Haleigh Jones & PG00062322 Plan name Benchmark
A-1	PROPRIETARY AND CONFIDENTIAL May not be distributed without written consent of Mobile Communications America.
	Date 4/20/2021
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Public Safety - 700 MHz - P25 / Signal strength

Building 1: GROUND FLOOR

