

Memorandum



CITY OF DALLAS

DATE December 8, 2017

TO Honorable Mayor and Members of the City Council

SUBJECT **Radio System Replacement Project (P25) – December 13, 2017 City Council Agenda #80**

On the December 6, 2017 City Council Briefing Agenda, staff provided an overview of the Radio System Replacement Project (P25) which is scheduled for City Council action on December 13, 2017. The agenda item is to authorize a contract with Motorola Solutions for the purchase, installation, maintenance and support of the Radio System.

In response to questions received from Councilmembers regarding the M/WBE subcontractor participation, our Communication and Information Services Department (CIS) and the Office of Business Diversity (OBD) requested additional details from Motorola Solutions, the proposed prime contractor. Staff has reviewed the additional detail to confirm and ensure that the planned participation meets the diversity goal and is consistent with the City's Business Inclusion and Development Policy (BID). OBD reviews all scopes of services for subcontractor participation to ensure that the planned work meets a commercially useful function.

A commercially useful function, as defined in the City's BID, has three elements:

1. It is responsible for the execution of a distinct element of work;
2. It carries out its responsibilities by actually performing, managing, and supervising the work involved; and
3. The M/WBE owners control the operation of the business.

Based on further review of the additional detailed subcontractor scope description provided by Motorola (see attached), staff has confirmed the following:

- All three firms have prior work experience that is relevant to the current project.
- All three firms will be performing scopes of work that meet a commercially useful function.

However, for the purpose of M/WBE participation, the following scopes have been excluded:

- towers from Valmont
- microwave network equipment from Nokia
- logging software/hardware from VPI, Corporation

As a result, M/WBE participation for Wai-Wize was revised from 4.71% to 0.53% but does not change the total subcontracting dollar amounts for Wai-Wize of \$3.1M.

The following information summarizes the additional detailed subcontractor scope description received from Motorola and includes participation value, inclusion category, and relevant prior work experience.

Argent Associates: M/WBE (18.90%) – Hispanic

Argent Associates will provide the equipment warehouse, electrical and battery system and installation, and site development which includes architecture and engineering (A&E) for 32 tower sites across Dallas County,

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permitting/zoning documentation, foundations for tower site shelters/buildings, tower grounding, and construction management.

Relevant prior work experience includes: NYC Metro Transit Authority, Ericsson, University of North Texas, NYC Police Department (67th Precinct), AT&T.

Commdex Consulting: M/WBE (3.98%) - Asian

Commdex Consulting will develop the Radio Management Database and Coverage Acceptance Testing to include program management, engineering, test equipment, and resources. The Coverage Acceptance Test includes: train testing teams, create grid files for test, and calibrate test equipment. Development of the Radio Management operation and Fleetmap (*configuration of the system talk-groups for all the radio subscribers on the system*) and develop code-plugs for user radio programming. Update Radio Management database with approved radio programming with up to 18,000 total serial numbers for existing and new radios, program 1,000 Dallas County mobile radios and install/configure 470 dispatch control stations to be installed.

Relevant prior work experience includes: City of Irving, TX, City of Houston, TX, National Capital Region of the United States.

WaiWize: M/WBE (Revised from 4.71% to 0.53%) – African American

WaiWize will provide logistics and design support of the radio and microwave towers. WaiWize will gather the Land Mobile Radio (LMR) tower information and microwave antenna information to determine the necessary tower design. They will work with the tower manufacturers to specify towers that meet the City and County RFP requirements to order, schedule, and track the construction of towers to ensure they meet the schedule requirements, in addition to on-site inventory and installation oversight.

Prior relevant work experience: Cingular Wireless, Parkland Hospital, Dallas Housing Authority, Federal Bureau of Prisons, DART (Parsons, Veolia), Valmet (City of Houston, City of Austin), MCI Telecommunications.

As a result, the M/WBE participation originally submitted to the City for compliance with the diversity goal of 23.8% has been adjusted from 27.59% to 23.42% as follows:

<u>Sub Contractor</u>	<u>Inclusion</u>	<u>Sub Contractor Amount</u>	<u>Commercially Useful Function Amount</u>	<u>Percent</u>
Argent Associates	Hispanic	\$12,500,472	\$12,500,472	18.90%
WaiWize	Af. American	\$3,113,697	\$350,542	4.71% 0.53%
Commdex Consulting	Asian	\$2,634,081	\$2,634,081	3.98%
Total Participation		\$18,248,250	\$15,776,629	27.59% 23.42%

Please note that the dollar amounts to the sub contractors do not change, based on additional detail provided by Motorola in the subcontractor scope description. However, the City will count toward the M/WBE goal of 23.8% the commercially useful function amount of \$15,776,629 which reflects total participation of 23.42%, slightly below the City’s goal.

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In summary, Motorola remains the highest ranked proposer. Complete exclusion of the M/WBE participation points in the overall score would still result in Motorola being recommended for award of the P25 contract.

Motorola						
	Price/Value to the City	Experience & Capability	Functional / Technical Match to City Requirements	Business Inclusion and Development (BID) Plan	Total without Cost	Total with Cost
	30.00%	25.00%	30.00%	15.00%	70.00%	100.00%
Points Received	30.00	19.09	22.02	14.00 -12.00	55.11	85.11 83.11

Harris						
	Price/Value to the City	Experience & Capability	Functional / Technical Match to City Requirements	Business Inclusion and Development (BID) Plan	Total without cost	total with cost
	30.00%	25.00%	30.00%	15.00%	70.00%	100.00%
Points Received	29.26	16.51	20.54	11.00	48.06	77.32

OBD continues to work with prime contractors as they develop their teams to ensure that the M/WBE firms are involved in meaningful work that will expand their expertise, grow the capacity of the firms, and enhance their technical expertise to evolve to a prime contractor.

Staff will be available to answer questions regarding this item at the upcoming Public Safety and Criminal Justice City Council Committee meeting on December 11, 2017.

Should you have any questions please contact Bill Finch, CIO at william.finch@dallascityhall.com or (214) 670-1890.



T.C. Broadnax
 City Manager

- c: Larry Casto, City Attorney
- Craig D. Kinton, City Auditor
- Biliera Johnson, City Secretary (Interim)
- Daniel F. Solis, Administrative Judge
- Kimberly Bizzor Tolbert, Chief of Staff to the City Manager
- Majed A. Al-Ghafry, Assistant City Manager

- Jon Fortune, Assistant City Manager
- Joey Zapata, Assistant City Manager
- M. Elizabeth Reich, Chief Financial Officer
- Nadia Chandler Hardy, Chief of Community Services
- Raquel Favela, Chief of Economic Development & Neighborhood Services
- Theresa O'Donnell, Chief of Resilience
- Directors and Assistant Directors

WaiWize

WaiWize Total = \$3,113,697

- Program Management, Inventory, Order Management, Quality Control \$350,542
- Microwave \$1,684,652
- Towers \$747,588.33
- Logging \$330,915

WaiWize will use their own funding to purchase equipment they are providing.

Program Management, Inventory, Order Management, Quality Control - WaiWize will provide logistics and design support of the towers and microwave. They will gather the LMR tower information and microwave antenna information to determine the necessary tower design. They will work with the tower manufacturers to specify towers that meet the RFP requirements. They will order, schedule, and track the equipment to ensure they meet the schedule requirements. They will be on-site to inventory and provide oversight for the installation of equipment provided by WaiWize.

Towers - The tower design is for 120 mph three-second gust basic wind speed with no ice and 30 mph three-second gust basic wind speed wind 0.75" radial ice with Structure Class III, Exposure B criteria, and Topographical Category1 per ANSI/TIA-222-G. The tower also designed for twist and sway for 6GHz dish for 10dB degradation at 60 mph three-second gust Service Wind Speed at dish levels indicated per TIA-222-G. The locations receiving new towers are:

Site	Tower Height
DeSoto	250'
Dolphin	225'
Irving	195'
Mesquite	195'
Naval Air Station	250'
North Lake	225'
Sachse	250'
Seagoville	200'
Southside	300'
Whitlock	200'
Wilmer	225'

Tower Equipment List:

DESCRIPTION

- V Series Model V-25.0 x 250' Self Supporting Tower
- V Series Model V-25.0 x 225' Self Supporting Tower
- V Series Model V-23.0 x 195' Self Supporting Tower
- V Series Model V-23.0 x 195' Self Supporting Tower
- V Series Model V-25.0 x 250' Self Supporting Tower
- V Series Model V-25.0 x 225' Self Supporting Tower

V Series Model V-25.0 x 250' Self Supporting Tower
V Series Model V-23.0 x 200' Self Supporting Tower
V Series Model V-29.0 x 300' Self Supporting Tower
V Series Model V-23.0 x 200' Self Supporting Tower
V Series Model V-25.0 x 225' Self Supporting Tower
DSVALMONT310219-01L
DSVALMONT310225-01L
DSVALMONT310220-01L
DSVALMONT310226-01L
DSVALMONT310221-01L
DSVALMONT310227-01L
DSVALMONT310222-01L
DSVALMONT310228-01L
DSVALMONT310223-01L
DSVALMONT310229-01L
DSVALMONT310224-01L

Microwave - WaiWize has microwave experience and will be ordering microwave equipment from Nokia. They will be providing program management of the microwave which includes scheduling and ordering the Nokia microwave. They will ensure quality control measures have been taken as the paths are completed. The microwave network equipment includes:

- 12 x 9500 MPR Shelf Kit w/Alarm FAN Evo-HSv3.
- 4 x MPT-HL Shelf Kit (T-R).
- 22 x MPT-HL Shelf Kit Dual (T-R).
- 4 x MPT-HLC XCVR L6 GHz (5720 - 6425).
- 24 x MPT-HLC XCVR U6 GHz (6425 - 6930).
- 4 x MPT-HLC XCVR U6 GHz HP (6425 - 6930).
- 16 x MPT-HLC XCVR 10.5 GHZ.
- 12 x DPS Telecom VoIP Orderwire Units.
- Associated antenna equipment and cabling.
- 12 x new 7705 SAR-8s in conjunction with 9 x existing 7705 SAR-8s.
- 34 x existing 7705 SAR-8s to be updated with L3 VPRN.
- 2 x master sites (Dawson and Whitlock).
- 1 x 5620 SAM.

Logging - Wai-Wize will coordinate, plan, and order the VPI logging equipment.

Dallas Logging Solution - Software
Dallas Logging Solution - Hardware
Dallas Logging Solution -- Spare
Dallas Telephony Recorder
Dallas County Logging Solution
Dallas County Logging Solution - Hardware
Dallas Logging Solution -- Spare

Commdex

Commdex Total = \$2,634,081

- Fleetmapping \$494,250
- Coverage Testing \$1,337,918
- Program Management \$439,770
- General Engineering Support \$362,143

Fleetmap - Commdex is responsible for development of the Radio Management Database and Coverage Acceptance Testing. Development of the Radio Management and Fleetmap includes:

- Provide Initial Radio Management Database with serial number of existing APX radios that have been purchased by City. Serial numbers are from Brio reports. This database can be used to start a job to read the radios.
- Provide Fleetmap point of contact to organize and plan meetings with user groups.
- Develop and deliver P25 fleetmap and APX subscriber radio features options/decisions training workshops.
- Develop an electronic version of a Master Fleetmap containing the City/County of Dallas trunking system talkgroups data resulting from decisions by the City/County radio and dispatch console fleetmap committee members.
- Provide up to 250 codeplugs for user radio programming and/or codeplugs within 2 years of contract execution, whichever occurs first. Codeplugs include one 'Master' APX radio programming codeplug for each type of APX Mobile and Portable radio model.
- Program sample radios with approved templates and deliver for Dallas evaluation.
- Prepare the Talkgroup Records documentation and install the talkgroup records into the Provisioning Manager portion of the new ASTRO25 system.
- Update Radio Management database with approved radio programming with up to 18,000 total serial numbers for existing and new radios.
- Program 1000 County mobile radios and 470 control stations that will be installed.
- Once installed, configure console positions per approved fleetmap and configuration.

Coverage Testing - Commdex will provide the program management, engineering, test equipment, and resources to conduct the Coverage Acceptance Tests. The coverage acceptance test includes:

- Plan the coverage acceptance test, schedule resources, and train the testing teams as needed
- Create of grid files for the test
- Calibrate the test equipment
- Load the computers for testing
- Provide 8 Dispatch personnel and 8 vehicle personnel for testing as required per the Acceptance Test Plan and schedule, and the current schedule has 20 weeks for coverage testing.
- Provide Coverage Acceptance Test Report.

Program Management – provide program management for fleetmap/radio management ment and coverage acceptance testing.

General Engineering Support – Provide engineering and EME support during Design Review and Coverage Testing.

Argent

Argent Total = \$12,500,466

- Warehouse \$286,446
- Shelters \$1,225,374
- Installation \$909,850
- DC Power \$811,079
- Site Development and BDAs \$9,267,717

Argent will use their own funding to purchase equipment they are providing.

Overview - Argent will be providing the warehouse, DC system and installation, and site development which includes architecture and engineering (A&E) for the tower sites, permitting/zoning documentation, foundations for shelters and buildings, erection of towers, tower site buildings, grounding, and construction management.

DC Power - The proposed DC systems have a runtime of 240 minutes at full load, are single-phased units and are equipped with maintenance bypass switch. The details of the proposed DC systems are provided below.

Proposed DC systems

Proposed DC systems	
Quantity proposed and location of each DC system	Quantity and locations provided in Table 1-10 and Table 1-11 (below)
Manufacturer, make and model #	Eltek Flatpack2 48V 600A Power Core CE+T America Inverters -- TSI Media 21 48/120 & TSI MIPS-48-1-20 Energys PowerSafe DDm Batteries (DDm85-33, DDm125-33, DDm125-25)
Rated output	-48V
Operating time at full load	240 minutes
Alarm outputs provided and monitored	"Major & Minor ", "Generator Running", "Lower charge current limit", "Emergency low voltage"
Battery Floor loading	840 lbs fully populated
Recharge time	The battery charger shall be able to recharge a fully discharged battery system 24 hours at nominal input voltage and nominal ambient temperature.
Battery life (years)	Typical 7 Years
Redundancy	The DC system is designed with N+1 redundancy. In the event that a rectifier fails, the redundant rectifier will provide the necessary service to maintain the system's full load capacity while still being able to keep the batteries charged appropriately.
Warranty being provided	The DC system manufacturer shall warrant the system against defects in materials and workmanship for two (2) years.

DC Equipment List:

DESCRIPTION

DC SYS FP2-48/600- 2BD & SPW/WEB
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
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CONFIGURATION
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BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER

BATTERY, 48V 2000AH BATTERY SET #24DDM125-33 6WX4H
CONFIGURATION
DC POWER SYSTEM FP2 -48/1200A 2DIST 23IN 2BD 32 RECTIFIER POSITIONS
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
BATTERY, 48V 2000AH BATTERY SET #24DDM125-33 6WX4H
CONFIGURATION
DC POWER SYSTEM FP2 -48/1200A 2DIST 23IN 2BD 32 RECTIFIER POSITIONS
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
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100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
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25 AMP CIRCUIT BREAKER
BATTERY, 48V 2000AH BATTERY SET #24DDM125-33 6WX4H
CONFIGURATION
DC POWER SYSTEM FP2 -48/1200A 2DIST 23IN 2BD 32 RECTIFIER POSITIONS
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
BATTERY, 48V 2000AH BATTERY SET #24DDM125-33 6WX4H
CONFIGURATION
DC POWER SYSTEM FP2 -48/1200A 2DIST 23IN 2BD 32 RECTIFIER POSITIONS
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC

INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
BATTERY, 48V 2000AH BATTERY SET #24DDM125-33 6WX4H
CONFIGURATION
DC SYS FP2-48/600- 2BD & SPW/WEB
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
48V BATTERY 1360AH 6Wx4H
DC SYS FP2-48/600- 2BD & SPW/WEB
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
150A 2P BREAKER KIT INCLUDES: BUS PAD KIT FOR 2P BREAKERS
5 AMP CIRCUIT BREAKER
BREAKER 10A 1P AUX 5/16 BULLET
25 AMP CIRCUIT BREAKER
48V BATTERY 1360AH 6Wx4H

DC SYSTEM FP2 -48/300 BD 19 2BT
RECTIFIER, FLATPACK 2 48/2000 HE
BLIND PANEL FP2 HE BLACK G1
MEDIA INVERTER 2I 1PH W/NEMA SOCKET 48VDC/120VAC
INVERTER, 1.5KVA, 120VAC, 48VDC INVERTER MOD
INVERTER BLANK PANEL
100 AMP CIRCUIT BREAKER
25 AMP CIRCUIT BREAKER
5 AMP CIRCUIT BREAKER
48V 92AH 12V92F ENERSYS BATT SET

Site Development - Argent is also providing the site design and development services. The scope of the site design and development to occur at each location is summarized in the following table.

Site Name	Shelter Status	ESS Racks	Channels	DC Racks	DC Battery Racks	New Generator	New Tower	TX Antenna			RX Antenna					
								Model	Height	# of Antennas	6-Port Combiners	Model	Height	# of Antennas	TTA	MCU/CMU
Cedar Hill	12x34 MSB	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(D05-E5765)	500	2	4	SC412-HF2LDF(D02-E5608)	450	2	✓	CMU
Cedardale	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(D04-E5765)	191	2	4	SC412-HF2LDF(D02-E5608)	191	2	✓	CMU
Crowley Courts	Existing	4	19	1	DDm125-25	Building	-	SC412-HF2LDF(E5765)	167	2	4	SC412-HF2LDF(E5608)	167	2	✓	CMU
Crown Park	Existing	6	30	1	DDm125-33	80 KW	-	SC412-HF2LDF(D02-E5765)	131	2	4	SC412-HF2LDF(E5608)	131	2	✓	MCU
								SC412-HF2LDF(D02-E5765)	131	1	2					
Dawson	Existing	6	30	-	Existing UPS	Existing	-	SC412-HF2LDF(E5765)	445	2	4	SC412-HF2LDF(D02-E5608)	470	2	✓	MCU
								SC412-HF2LDF(E5765)	445	1	2					
DeSoto	12x34 MSB	4	19	1	DDm85-33	80 KW	250'	SE419-SWBP2LDF(D00)	214	2	4	SC412-HF2LDF(D02-E5608)	239	2	✓	CMU
Dolphin	12x34 MSB	4	19	1	DDm85-33	80 KW	225'	SC412-HF2LDF(E5765)	189	2	4	SC412-HF2LDF(D02-E5608)	214	2	✓	CMU
Evelyn	Existing	4	19	1	DDm85-33	Existing	-	SC412-HF2LDF(D04-E5765)	395	2	4	SC412-HF2LDF(D02-E5608)	420	2	✓	CMU
Fire Station 37	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(E5765)	171	2	4	SC412-HF2LDF(D02-E5608)	171	2	✓	CMU
Florina	Existing	6	30	1	DDm125-33	80 KW	-	SE419-SWBP2LDF(D00)	144	2	4	SC412-HF2LDF(D02-E5608)	169	2	✓	MCU
								SC412-HF2LDF(D02-E5765)	144	1	2					
Forest	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(D02-E5765)	161	2	4	SC412-HF2LDF(D02-E5608)	161	2	✓	CMU
Garland	Existing	6	30	1	DDm125-33	80 KW	-	SC412-HF2LDF(D02-E5765)	141	2	4	SC412-HF2LDF(D02-E5608)	141	2	✓	MCU
								SC412-HF2LDF(D02-E5765)	141	1	2					
Highland	Existing	6	30	1	DDm125-33	80 KW	-	SE419-SWBPALDF(D00)	174	2	4	SC412-HF2LDF(D02-E5608)	181	2	✓	MCU
								SC412-HF2LDF(D02-E5765)	174	1	2					
Holcomb	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(D02-E5765)	151	2	4	SC412-HF2LDF(D02-E5608)	151	2	✓	CMU
Illinois	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(D02-E5765)	145	2	4	SC412-HF2LDF(D02-E5608)	170	2	✓	CMU
Irving	12x34 MSB	4	19	1	DDm85-33	80 KW	195'	SC412-HF2LDF(D02-E5765)	163	2	4	SC412-HF2LDF(E5608)	188	2	✓	CMU
Mesquite	12x34 MSB	4	19	1	DDm85-33	80 KW	195'	SE419-SWBP2LDF(D00)	163	2	4	SC412-HF2LDF(D02-E5608)	188	2	✓	CMU
Naval Air Station	12x34 MSB	4	19	1	DDm85-33	80 KW	250'	SC412-HF2LDF(D02-E5765)	212	2	4	SC412-HF2LDF(D02-E5608)	238	2	✓	CMU



North Lake	12x34 MSB	4	19	1	DDm85-33	80 KW	225'	SE419-SWBP2LDF(D00)	189	2	4	SC412-HF2LDF(D02-E5608)	214	2	✓	CMU
Northwest	Existing	4	19	1	DDm85-33	80 KW	-	SC412-HF2LDF(E5765)	165	2	4	SC412-HF2LDF(E5608)	190	2	✓	CMU
Parkland	Existing	4	19	1	DDm85-33	Building	-	SC412-HF2LDF(D02-E5765)	290	2	4	SC412-HF2LDF(D02-E5608)	290	2	✓	CMU
Rose Hill	12x34 MSB	4	19	1	DDm85-33	80 KW	-	SE419-SWBP2LDF(D00)	384	2	4	SC412-HF2LDF(D02-E5608)	409	2	✓	CMU
Sachse	12x34 MSB	4	19	1	DDm85-33	80 KW	250'	SE419-SWBP2LDF(D00)	215	2	4	SC412-HF2LDF(D02-E5608)	240	2	✓	CMU
Seagoville	12x34 MSB	4	19	1	DDm85-33	80 KW	200'	SE419-SWBPALDF(D00)	150	2	4	SC412-HF2LDF(D02-E5608)	170	2	✓	CMU
Southeast	12x32MSB, 12x10MSB	6	30	1	DDm125-33	100 KW	-	SC412-HF2LDF(E5765)	131	2	4	SC412-HF2LDF(D02-E5608)	131	2	✓	MCU
								SC412-HF2LDF(E5765)	131	1	2					
Southside	Existing	6	30	1	DDm125-33	100 KW	300'	SC412-HF2LDF(D04-E5765)	255	2	4	SC412-HF2LDF(D02-E5608)	281	2	✓	MCU
								SC412-HF2LDF(D02-E5765)	255	1	2					
TI Tower	Existing	4	19	1	DDm85-33	80 KW	-	SE419-SWBP2LDF(D00)	400	2	4	SC412-HF2LDF(D02-E5608)	425	2	✓	CMU
Whitlock	12x34 MSB	4	19	2	DDm85-33	80 KW	200'	SE419-SWBP2LDF(D00)	165	2	4	SC412-HF2LDF(D02-E5608)	190	2	✓	CMU
Wilmer	12x34 MSB	4	19	1	DDm85-33	80 KW	225'	SE419-SWBP2LDF(D00)	153	2	4	SC412-HF2LDF(D02-E5608)	178	2	✓	CMU
Interim	Existing	1	2	1	Repurposed	Existing	-	SC412-HF2LDF(D02-E5765)	190	1	1	SC412-HF2LDF(D02-E5608)	215	1	✓	CMU
Lake Fork	Existing	1	2	1	Repurposed	35 KW	-	SC412-HF2LDF(D02-E5765)	229	1	1	SC412-HF2LDF(D02-E5608)	284	1	✓	CMU
Ironbridge	Existing	1	2	1	Repurposed	35 KW	-	SC412-HF2LDF(D02-E5765)	259	1	1	SC412-HF2LDF(D02-E5608)	254	1	✓	CMU