



Contract # CT-IT-13 # 558-13
Effective Date 11-5-13
Term 05-2-31
Cost \$90,647.-
Revenue
Total
Renewability 2-1-31
Term 05-2-31
by VR

BOARD OF SUPERVISORS AGENDA ITEM SUMMARY

Requested Board Meeting Date: November 5, 2013

ITEM SUMMARY, JUSTIFICATION &/or SPECIAL CONSIDERATIONS:

This Site-Specific Supplemental Agreement (SSA) to Master Agreement for Joint Use of Facility Space Between Pima County and City of Tucson is for tower and shelter space for City of Tucson communications equipment at Tumamoc Hill, located at 1649 West Anklam Road. The County will sub-let space to the City of Tucson. The PCWIN project facilitated a communications consolidation project on Tumamoc Hill with the cooperation of the City of Tucson. City of Tucson communications equipment was consolidated onto a new tower constructed by PCWIN and into an existing shelter owned by the University of Arizona. This SSA is required to issue a permit to the City of Tucson to operate and maintain its equipment on and in the new facilities. Previously the City maintained its own separate tower and shelter. Those have been removed from the site by the PCWIN project. Under the terms of this agreement, the City will reimburse the County for the proportionate cost incurred by the County to provide commercial electric service; emergency generator service, fuel, maintenance and replacement costs, to provide electric service to the City of Tucson communications equipment. The City will also reimburse the County for the proportionate cost of any rent charged to the County by the site owner, The University of Arizona. Currently there is no monthly rent. This SSA has been approved by representatives of The University of Arizona.

CONTRACT NUMBER (If applicable): CT-IT-13000000000000000558

STAFF RECOMMENDATION(S):

The Information Technology Department recommends that the Pima County Board of Supervisors adopt and the Chairman sign the PCWIN-City of Tucson Site-Specific Amendment for the Public Safety Training Academy facility.

CORPORATE HEADQUARTERS: Arizona

Page 1 of 2

To: COB- 10-23-13
Agenda- 11-5-13
(2)

CLERK OF BOARD USE ONLY: BOS MTG. _____

ITEM NO. _____

PIMA COUNTY COST: N/A **and/or REVENUE TO PIMA COUNTY:** \$ 90,667.00

FUNDING SOURCE(S): N/A

(i.e. General Fund, State Grant Fund, Federal Fund, Stadium D. Fund, etc.)

Advertised Public Hearing:

<input type="checkbox"/>	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO
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Board of Supervisors District:

1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input checked="" type="checkbox"/>	All	<input type="checkbox"/>
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IMPACT:

IF APPROVED:

PCWIN will be authorized to sublet space at Tumamoc Hill to City of Tucson to house its communications equipment supporting the Tucson Police Department, Tucson Fire Department, Tucson Water, and Sun Tran. PCWIN will be reimbursed for maintenance and electric costs, estimated at approximately \$5,108 annual.

IF DENIED:

City of Tucson communications equipment has been consolidated into the new facilities, and the City facilities have been demolished. If not approved, the City of Tucson would have to remove its communications equipment from the site, or construct new facilities to accommodate its needs. Said result would have a negative impact on communications supporting the Tucson Police Department, Tucson Fire Department, Tucson Water, and Sun Tran. PCWIN will be not be reimbursed for maintenance and electric costs, and will not collect additional \$5,108 annual revenue.

DEPARTMENT NAME: Information Technology

CONTACT PERSON: Julie K McWilliams **TELEPHONE NO.:** 724-8066

When Recorded, Please Return to:

Pima County Information
Technology Department
33 North Stone Avenue, 17th Floor
Tucson, AZ 85701

CONTRACT	
NO.	<u>CT-IT-1300000000000000558</u>
AMENDMENT NO.	<u>13</u>
This number must appear on all invoices, correspondence and documents pertaining to this contract.	

SITE-SPECIFIC SUPPLEMENTAL AGREEMENT

TO MASTER AGREEMENT FOR JOINT USE OF FACILITY SPACE BETWEEN PIMA COUNTY AND CITY OF TUCSON

This Site-Specific Supplemental Agreement is made as of September 10, 2013 (the "**Effective Date**") and incorporates all definitions, terms and conditions of that certain Master Agreement for Joint Use of Facility Space, dated May 3, 2011, and recorded at Sequence Number 20111300007 of the records of the Pima County Recorder (the "**Master Agreement**") by and between Pima County and City of Tucson. For the purposes of this Site-Specific Supplemental Agreement, Space Provider is Pima County, Requestor is City of Tucson. As to the Arizona Public Media (KUAT) Tumamoc Site only, the Master Agreement between Pima County and the City of Tucson shall in every manner be subject and subordinate to this Site-Specific Supplemental Agreement and the Tumamoc Hill Master Agreements, defined below in Section 1. In the event of a conflict between the terms of the Tumamoc Hill Master Agreements and this Site Specific Agreement the terms of the Tumamoc Hill Master Agreements shall control.

All contractors performing work under this Site-Specific Supplemental Agreement shall indemnify, defend and hold harmless the Arizona Board of Regents, the University of Arizona, the State of Arizona, Pima County, and the City of Tucson from and against any claims, losses, liability, costs or expenses, including reasonable attorney's fees arising (hereinafter collectively referred to as "Claims").

All agreements with contractors performing work under this Site-Specific Supplemental Agreement shall include the foregoing indemnity provision, and shall further incorporate all insurance provisions included in the Tumamoc Hill Master Agreements including the requirement to list the Arizona Board of Regents, the University of Arizona, the State of Arizona, Pima County and the City of Tucson as additional insured parties.

Any modification to this Site-Specific Supplemental Agreement shall be approved in

00014033 11/09/2011

writing by the Arizona Board of Regents.

I. **Premises**

"Premises" means buildings or communication towers that are owned, controlled, or leased by a Site Provider to which the Requestor has requested access.

This Site-Specific Supplemental Agreement applies exclusively and specifically to the following Premises:

Arizona Public Media (KUAT) Tumamoc Site

Address of Space Provider
Premises:

**1649 W. Anklam Road, Tucson, in the County of Pima, State
of Arizona**

Coordinates (NAD83): **32° 12' 51.0"N, 111° 0'
20.6"W**

Pima County Assessor Parcel # **116-24-
1070**

Elevation (GL) (Feet): **3100
AMSL**

Overall Tower Height (AGL) (Feet): **125**

List Space Provider landlord and lease information here, if applicable:

This Site-Specific Supplemental Agreement is subject and subordinate to

(1) that certain Intergovernmental Agreement, Master Agreement for Joint Use of Facility Space, dated April 17, 2012, and recorded on April 25, 2012 at Sequence Number 20121160126 of the records of the Pima County Recorder (the "Official Records") by and between Pima County and Arizona Board of Regents, on behalf of the University of Arizona, and (2) the Site-Specific Supplemental Agreement to above referenced agreement, dated November 13, 2012, and recorded On November 26, 2012 at Sequence Number 20123310576 in the Official Records, as amended by that certain Intergovernmental Agreement Amendment, dated January 8, 2013 and recorded as Sequence Number 20130380055 in the Official Records (collectively, the "Tumamoc Hill Master Agreements").

II. **Emergency Contact Information** (24-hour contact

information) Space Provider:
Pima County IT Department
(520)724-8471

Requestor:
City of Tucson General Services
Department (520) 791-4144

III. **Alterations**

“Alteration” means rearrangement, modification, improvement, or other alteration or construction changes to the interior or exterior portions of the Space or the Premises, or any part thereof, including improvements to the power systems, air conditioning systems (i.e. HVAC), or other items related to the Space or Premises.

Unless otherwise provided by this applicable Site-Specific Supplemental Agreement, any Alteration shall become the property of Space Provider and remain on the Premises at the expiration or earlier termination of this Site-Specific Supplemental Agreement or the Master Agreement, and the title to such Alteration shall immediately vest in the Space Provider.

Provide a description of any requested Alterations that are necessary for the installation, maintenance, and operation of Requestor's Equipment, or the operation or maintenance of the Space or Premises in connection with the Equipment. If applicable, specify any Alterations that will not become the property of the Space Provider.

No alterations are requested.

IV. **Equipment**

“Equipment” means Requestor's communications equipment, other associated support equipment and personal property, as further described here.

Provide a summary description of the Equipment to be installed by the Requestor. (Attach a complete equipment list)

Requestor's equipment will include the equipment itemized in Attachment #1. Any modifications to the equipment, or installation of additional equipment, may require an electric and heat load analysis, and the express approval of Arizona Public Media, The University of Arizona and the Space Provider.

Equipment shall be removed if it is no longer supporting an operational communications system.

V. Space

"Space" means each individual allowable space (area) located in the Premises for the placement of the Equipment. Space shall include tower space for antennas and coax entry ports.

Delineation of Space

Attach a floor plan and all applicable Requestor specifications or drawings in connection with this Site-Specific Supplemental Agreement.

Space requirements:

Rack/Cabinet Space

requirement:

Quantity of Racks: **Up to a maximum of six (6) 19-inch wide/48U racks**

Space Provider will manage and coordinate all empty rack space to best meet the future needs of it and its subtenants and to prevent future conflicts with space in the building and on the tower.

See Exhibit – 29-TH-P-R. Space designated for Requestor's racks are labeled as R12-R17.

Power requirement (Volts/Amp Draw) (Duty Cycle):

See Attachment #1

Tower Space Requirement

Antenna type (s): _____ AGL: _____

Coax type, number of runs: _____

Proposed location on tower (supply photos if available): _____

Copy of FCC License attached? ☐ Yes ☒ No

See Exhibits – Antenna Specifications and Tumamoc Hill – City of Tucson Antenna & Coax Configurations

VI. **Other Services or Resources to be Provided by Space Provider**

Describe all other services to be provided by the Space Provider. The description should include services such as microwave or optic fiber network connectivity circuits to support Requestor's Equipment, engineering services, rigger services to install or maintain antennas, or any other services or resources relating to the Space or any Alteration which the Space Provider has agreed to provide.

- a. UPS Backup Power? ☐ Yes ☒ No
Expected Minimum Runtime: ____ (hrs)

- b. Generator Backup Power ☒ Yes ☐ No
Approximate Runtime: 72 (hrs)

Space Provider will provide emergency generator power for Requestor's Equipment via its agreement with the University of Arizona. Space Provider does not have its own power generating capabilities, and is therefore not responsible for any interruption of electric or emergency power.

- c. DC Battery Power ☒ Yes ☐ No
Expected Minimum Runtime: _____ (hrs)

- d. Commercial Electric Service ☒ Yes ☐ No
Number and size of circuits:

- e. Alarm Monitoring Services ☒ Yes ☐ No
Specify Services: **Space Provider will monitor for building environmental factors and security.**

- f. All Other Services

Space Provider will have its site development contractor migrate Requestor's equipment from the City of Tucson Tumamoc tower and shelter. Requestor is responsible for the operational commissioning of its equipment.

Space Provider will commission an interference/intermodulation study once all antennas are migrated to the new 125' tower. Space Provider and Requestor agree that any interference will need to be mutually mitigated.

Space Provider will demolish and remove the existing City of Tucson

shelter, dismantle the City of Tucson tower, remove and relocate the generator and fuel tank to the requestor's designated location, and remove foundations to below grade at its own expense.

VII. Costs

A. Antenna and Rack Space:

Total Monthly Tower Space Rent \$0

Total Monthly Building Space Rent: Proportionate percentage of any rent charged to the Space Provider for its use of the space, currently

\$0.00 monthly. Rent is payable monthly.

B. Utilities:

Total Monthly Service Cost: Proportionate share of all costs incurred by the Space Provider for commercial electric service, emergency generator service, fuel, maintenance and replacement costs. Proportionate share is to be based on a percentage of total equipment load contributed by the Parties individually owned equipment. Costs are payable monthly.

**C. Connectivity Network
Services: N/A**

D. Payment Terms (as applicable)

Requestor will make payments to Space Provider within thirty (30) days from receipt of each invoice.

VIII. Special Terms and Conditions

As applicable, describe any other special terms and conditions, such as electrical, HVAC, or power studies, cultural or environmental assessments, geotechnical evaluations, structural analysis, or other engineering studies required.

- 1) The attached Exhibits will serve as the description and location of the Space requested by the Requestor.
- 2) Any studies required for the initial construction of the site will be the responsibility of the Site Provider. Space Provider reserves the right to require future studies at the cost of the Requestor in conjunction with the need to evaluate feasibility of replacement or

relocation of Requestor's Equipment.

- 3) Requestor will provide "as-built" documentation to the Space Provider, including copies of all FCC licenses applicable to the operation of the Equipment within 6 months of completion of construction. Two copies are required; one for the Space Provider, and one for the University of Arizona.
- 4) Space Provider, pursuant to delegation from the Federal Communications Commission (FCC), initiated the National Historic Preservation Act (NHPA) Section 106 review for the site as required by the FCC rules, 47

C.F.R. §1.1307(a)(4). Space Provider's Office of Sustainability and Conservation, Department of Cultural Resources & Historic Preservation shall work with the FCC, State Historic Preservation Office, and other consulting parties including the University of Arizona and the Arizona State Museum to avoid, minimize, and mitigate any impacts to cultural resources in the project area and shall ensure full compliance with all applicable State Statutes and Rules (ARS §41-862 through 864, State Historic Preservation Act, and ARS §41-841 through 845, Arizona Antiquities Act) that apply to Tumamoc Hill, A National Historic Landmark and listed in the National Register of Historic Places. Cultural resources requirements will be conducted in accordance with Plans and Policies adopted to protect Tumamoc Hill's cultural resources. This includes necessary permitting by the Arizona State Museum and further consultation by Pima County and the University of Arizona regarding cultural resource site assessment, determination of effect, and site treatment with tribes and other interested parties, and the State Historic Preservation Office. [In accordance with University of Arizona Tumamoc Hill Cultural Resources Policy and Management Plan, pp 42-43] An Environmental Assessment (EA) was completed to evaluate possible environmental impacts with respect to the nine categories pursuant to 40 CFR Section 1.1307, in the Federal Communication Commission's (FCC) guidelines for compliance with the National Environmental Policy Act (NEPA) and to ensure compliance with the National Historic Preservation Act (NHPA) regarding resolution of adverse effect to historic properties.

a. Access to Tumamoc Hill, performance of work, and operation of

the new facility, must comply with all provisions of the University of Arizona Tumamoc Hill Cultural Resources Policy and Management Plan including but not limited to requirements for cultural resources and biological sensitivity training for all employees of contractors and subcontractors and disposition of cultural objects.

- b. A Historic Properties Treatment Plan (HPTP), Historic Properties Treatment Plan for Pima County Wireless Integrated Network on Tumamoc Hill, City of Tucson, Pima County, Arizona, SWCA, Rev. 01/2012, has been prepared and outlines Phase I and Phase II Data Recovery to avoid, minimize, and mitigate potential adverse impacts to any archaeological features that may still be present beneath the foundations of the abandoned building and to mitigate visual effects within the Area of Potential Effect. Space Provider will enforce the provisions of the approved HPTP.
- c. Cultural Resources Monitoring: Space Provider and Requestor will abide by the provisions of Archaeological Monitoring and Discovery Plan for Pima County Wireless Integrated Network on Tumamoc Hill, City of Tucson, Pima County, Arizona, SWCA, (Hesse 2011).
- d. Space Provider and Requestor will limit its site alterations to those defined in the executed Memorandum of Agreement (MOA) - the formalized partnership between stakeholders regarding the effects of the proposed action, titled: Memorandum of Agreement Among the Federal Communications Commission, the Arizona State Historic Preservation Officer, the National Park Service, the University of Arizona, and Pima County Regarding the Pima County Wireless Integrated Network (PCWIN) Public Safety Communications Tower on Tumamoc Hill, City of Tucson, Pima County, Arizona.

5) Commercial or other third party use of the Space is strictly prohibited.

IX. Construction Period

Estimated construction start date: 01/18/2013

Estimated construction completion date: 05/27/2013

PIMA COUNTY, a political subdivision of the State of Arizona (Space Provider):

Chairman, Board of Supervisors

ATTEST:

Robin Brigode, Clerk of Board

APPROVED AS TO CONTENT:



Neil Konigsberg, Manager, Real Property Services



Lionel Bittner, Chief Information Officer

Chuck Decker, Interim

CITY OF TUCSON, a municipal corporation (Requestor):



Mayor

September 10, 2013



City Clerk

September 10, 2013

APPROVED AS TO CONTENT:

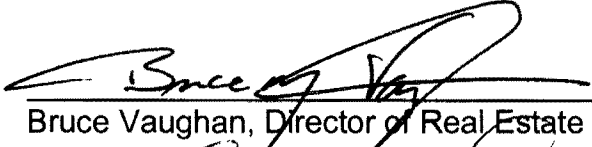


Ron Lewis, General Services Department Director

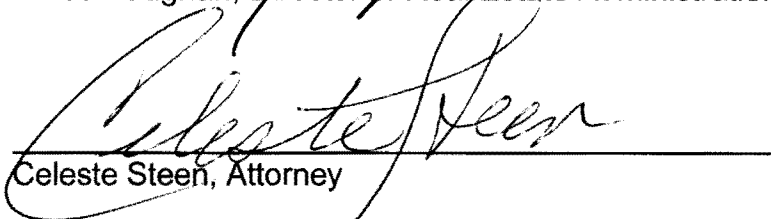
00014035 - 3 11/29/2012

COTTumamocSSA Final 040413_UA Approval 050213 Rev1 Clean

University of Arizona Consent and Approval to Sublet Space to City of Tucson



Bruce Vaughan, Director of Real Estate Administration



Celeste Steen, Attorney

INTERGOVERNMENTAL AGREEMENT DETERMINATION

The foregoing Site Specific Agreement between Pima County and Arizona Board of Regents, on behalf of Arizona Public Media, has been reviewed pursuant to A.R.S. § 11-952 *et seq.* by the undersigned, who have determined that it is in proper form and is within the powers and authority granted under the laws of the State of Arizona to those Parties to the Master Agreement represented by the undersigned.

PIMA COUNTY:

Marc Natelsky, Deputy County Attorney, Civil Division

CITY OF TUCSON:

Damian Fellows, Assistant City Attorney

SEE NEXT
PAGE

INTERGOVERNMENTAL AGREEMENT DETERMINATION

The foregoing Site Specific Agreement between Pima County and the City of Tucson, has been reviewed pursuant to A.R.S. § 11-952 et seq. by the undersigned, who have determined that it is in proper form and is within the powers and authority granted under the laws of the State of Arizona to those Parties to the Master Agreement represented by the undersigned.

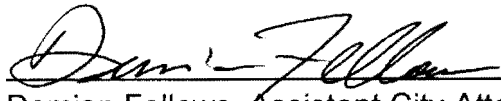
PIMA COUNTY:



TOBIN ROSEN

62 Marc Natelsky, Deputy County Attorney, Civil Division

CITY OF TUCSON:



Damian Fellows, Assistant City Attorney

Attachment #1 to Resolution No. 22133
City of Tucson (Requestor's) Equipment
(To be installed in Racks #12 – 17)

Existing #	Equipment Name	Power Requirement
Rack # 1	AC power fail alarm	110V AC < 1 amp
	Wattmeter	Passive
	GE master II base station (MEDS 4)	110V AC 10 amps
	IP MobileNet Base Station	DC from astron
	16 port Switch	110V AC 2 amp
	Astron Power Supply	110V AC 12 Amp
	TPDF5 MTR 2000	
Rack # 2	APC 650 UPS - 2 Ea.	110V AC 12 amps each
	PTP Motorola 600	110V AC 1.8 amp
	Master II Base Station (MEDS 10)	110V AC 10 amps
	Master II Base Station (MEDS 1)	110V AC 10 amps
	EMR Preamp and Filter - 2 Ea.	110V AC .5 amp
Rack # 3	48V Power Distribution Strip	
	TSI power inverter 48V DC to 110Vac	
	(6) Quantar 800MHz base stations	
Rack # 4	12V Power Distribution Strip	2 power supplies 110V 11 amps
	EMR Preamp and Filter - 3 Ea.	
	Tunable Cavity	
	Lantronics 24 Port Terminal Server	110V AC.5 amp
	MDS Water Master	48V DC
	Lantronics 24 Port Terminal Server	110V AC.5 amp
	MDS Water Master	48V DC
	MDS Water Master	48V DC
	Cisco 3560 Switch	110V AC 5 amp
	Master II (Meds 8 RX)	12V DC
	Master II (GS 3 (unused) RX)	12V DC
	Master II (Suntran Supervisor RX)	12V DC
	Master II (GS 4 Parks)	12V DC
	Celwave Combiner	passive
	Celwave Combiner	passive
	PTP POE Power on Shelf	110V AC 1 amp
	TFD F6 RX	
Rack # 5	Harris Constellation	48V DC
	DSX T1 Cross Connect	passive
	DSO Jackfield	passive
	Harris Intraplex Channel Bank	48V DC
	Dantel Alarm	48V DC
	Cisco 2851 (Tucson Water)	110V AC 3 amp
	ASANTE 24 Port Terminal Server	110V AC .5 amp
	Cisco 15454 SONET	48V DC
Rack # 6	Preamp and filters	12V DC
	Dehydrator	110V AC 1.3 amp

Exhibits to Resolution No. 22133

**Tumamoc Hill - City of Tucson
Antenna & Coax Configurations**


3/27/2013 (revised 05/04/2013, proposed tower locations added, rack numbers updated)

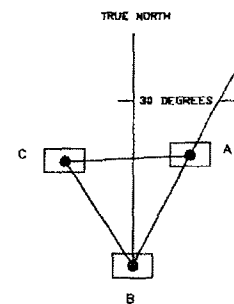
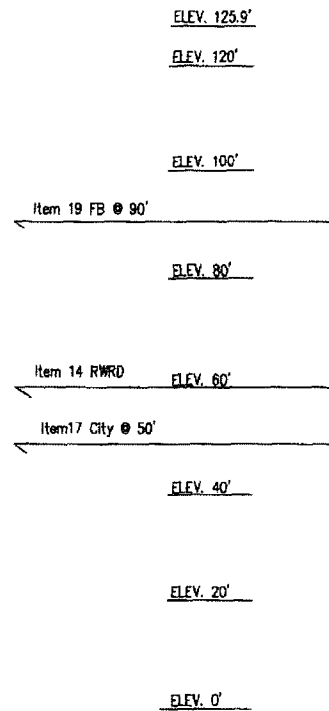
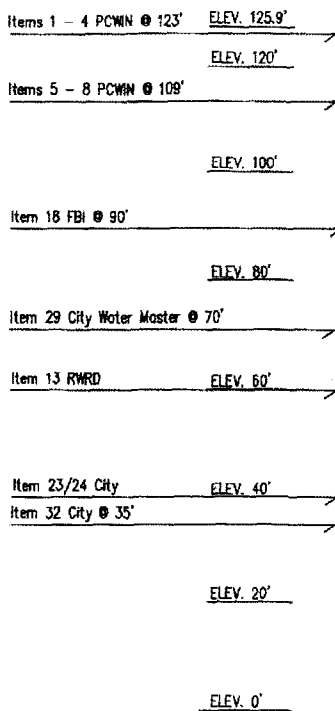
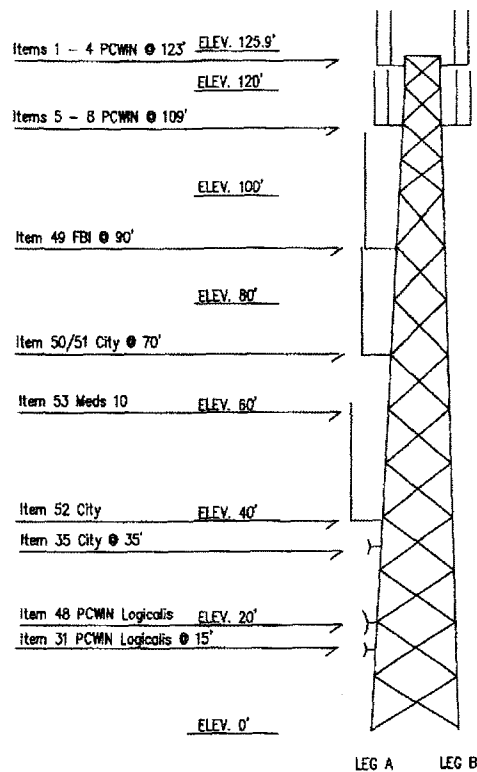
PCWIN ANT. NO.	SYSTEM NAME	BAND (MHz)	INTERIOR FEEDLINE	INTERIOR CONNECTOR	EXTERIOR FEEDLINE	EXTERIOR CONNECTOR	ANTENNA TYPE/CONFIG	WIND LOADING (LBF @ 100 MPH)	WEIGHT (LBS)	LENGTH (INCHES)	MFGR DATA	TO PCWIN RACK #	New Tower (Feet to base)	Tower leg	HEIGHT(OLD) (FEET AGL)	ANTENNA AZIMUTH	NOTES
50/51, note 2	UHF RX	450-470	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB408 (Andrew)	76.00	17.00	113	DB365-OS	R13	70	A	60		TO MULTICOUPLER. Antennas are combined in one unit (dual)
50/51, note 2	VHF RX	155-160	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB222 (Andrew)	64.00	16.00	127	DB365-OS	R13	70	A	60		TO MULTICOUPLER 2 COAX CABLES
34	PD DATA	800-870	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB806XT (Andrew)	175.20	21.00	96	DB365-OS	R17	Not Moving		12		Opt Side Mount Kit: DB5012 6 STATIONS (Systems) COMBINED FEEDING ONE ANTENNA
52	PD F6	150	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB224 (Andrew)	126.00	39.00	255	DB365-OS	R15	40	A	40		NEEDS TO GO VERTICAL, NOT TILTED, WHEN MOVED
23/24 note 2	MEDS 1	460-470	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB408 (Andrew)	76.00	17.00	113	DB365-OS	R14	40	B	30		
23/24 note 2	MEDS 4	460-470	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB408 (Andrew)	76.00	17.00	113	DB365-OS	R17	40	B	30		2 SYSTEMS SHARE A DUAL BAND ANTENNA 2 COAX CABLES
11	IPMN	800-880	FSJ4-50	may reuse	LDF5-50B	TYPE N	DB806XT (Andrew)	175.20	21.00	96	DB365-OS	R17	Not Moving		25		X 3
29 note 2	COT WATER	920-960	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DS9A09F360-N (dbSpectra)	3.51 sqft	47.00	230.4	Mfgr Supplied	R14	70	B	40		2 SYSTEMS SHARE A DUAL BAND ANTENNA 2 COAX CABLES
29 note 2	COT WATER	920-960	FSJ4-50	TYPE N	LDF5-50B	TYPE N					R14				12		
53	MEDS 10	460-470	FSJ4-50	TYPE N	LDF5-50B	TYPE N	DB408 (Andrew)	76.00	17.00	113	DB365-OS	R14	60	A			
32	MW	11 GHz	EW 90	may reuse flex line	EW 90	Mfgr Supplied	VMP4-107B (Terrestrial)	Mfgr Supplied	126.00	4' DIA	Mfgr Supplied	R12	35	B	15	82.6	TO TPD HEADQUARTERS, needs dehydrator connection
17	PTP-NWH	2.4 GHz	CAT5B	TYPE N	CAT5B	TYPE N	QB-8100-EPA	Mfgr Supplied	7.27	2' DIA	Mfgr Supplied	R17	50	C	15	357.8	TO NW HOSP. OUTDOOR RATED CAT 5 TO XCVR ON TOWER
35	PTP-FC	2.4 GHz	CAT5B	TYPE N	CAT5B	TYPE N	QB-8100-EPA	Mfgr Supplied	7.27	2' DIA	Mfgr Supplied	R17	35	A	6	84.7	TO FIRE CENTRAL, OUTDOOR RATED CAT 5 TO ODU ON POLE WILL NEED AT LEAST 30 FT AGL AT NEW TOWER SITE

- Notes:
1. Antennas 17, 32 & 35 are point-to-point and MUST be mounted with line of sight to the far end point.
 2. Antenna is one unit (dual antenna 2 coax cables required).
 3. All Type-N connectors on coax runs are male.
 4. There are seven racks in City of Tucson building (CR1-CR7). Only 6 Racks (CR1-CR6) will be moved to KUAT building as follows:

City building: CR1 CR2 CR3 CR4 CR5 CR6 CR7 (not moving, 9)
KUAT building: R12 R13 R16 R15 R17 R14 Battery, Etek 48VDC

5. New antennas will be provided by the City for the new tower at KUAT.
6. Connector descriptions found at http://www.theantennafarm.com/catalog/index.php?main_page=index&cPath=888_353
7. All heights are approximate and subject to tower reference height. Tower leg B is North, leg C is West, and leg A is South.
8. PCWIN assigned antenna numbers.
9. Power to be provided by PCWIN for 6 racks. 2 each per rack - a Quad Box w/dedicated 20A breaker; plus 48VDC/20A distribution panel at each rack and dc backup.
10. Bulkhead lightning feed through at all RF ports (Polyphaser)
11. Disclaimer: Per CommScope/Andrew corporation recommendations; antennas should be tested, inspected, and installed by qualified technicians. Mounting kits are available for most Andrew models.
12. Disclaimer: This is a mechanical antenna layout only. Final spacing needs to be determined by Engineering performance study and an Interference/Intermodulation analysis.

Signed  Title IT Manager Date 6-6-13



LAT/LONG:
110-00-20.6W
23-12-15.5N

ORIENTATION

APPROVAL:

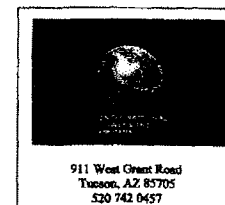
TITLE: IT MANAGER

PRINTED NAME: GREGORY MCNEAL

SIGNATURE: [Signature]

DATE: 6-12-13

GENERAL NOTE: This antenna plan will be analyzed by Hammett and Edison for potential RF and intermodulation conflicts. Additionally, this is a mechanical antenna layout only. Final spacing needs to be determined by Engineering performance study.



DESIGNED BY: DG	REVIEWED BY: SK	PROJECT NO: 8	FILE NAME: TUMACACI ANTENNA DRAWING
CHECKED BY: JH	SCALE: NONE	DATE: JUNE 11, 2013	SHEET: 1 OF 1

DB222 ANTENNA SPECIFICATIONS

Electrical Data	
Frequency Ranges - MHz** - A = 150-158, B = 158-166, C= 166-174, F = 137-143, JJ = 220-222	
Single dipole model DB220 frequency ranges - MHz - A = 146-153, B = 153.160, C = 160-167, D = 167-174	
Bandwidth (See above) VSWR 1.5 to 1 or less	
Nominal impedance - ohms 50 Gain (over halfwave dipole) 3.0 Omni pattern - dB, 6.0 Offset pattern - dB	
Maximum power input - watts 500 Vertical beamwidth (1/2 power points) 36	
Lightning protection Direct ground	
Standard Termination: Captive Type N-Male attached to end of flexible lead. Other fittings can be supplied on special order. If UHF connector is required, an adapter is provided.	

Mechanical Data	
Mast (aluminum) - in. (mm) - 1.75 (44.45) with .062 to .125 (1.57 to 3.18) wall	
Radiating elements (aluminum) - in. (mm) - .5 (12.7) OD with .058 (1.47) wall	
Mounting clamps - Galvanized steel	
Maximum exposed area (flat plate equivalent) - ft.sq (m.sq) - 1.6 (.149)	
Lateral thrust at 100 mph (161 km/hr) - lbf (N) - 64 (284.7)	
Wind rating:*	
Survival w/o ice - mph (km/hr) - 125 (201)	
Survival with .5" (12.7 mm) radial ice - mph (km/hr) - 90 (145)	
Overall length (150-174 MHz) - in. (mm) - 127 (3226)	
Net weight (w/clamps) - lbs (Kg) - 16 (7.26)	
Shipping weight (w/clamps) - lbs. (kg) - 30 (13.61)	
Mounting clamps (DB365-OS) are supplied with the antenna.	
*Top mounted antenna. Wind rating is greatly increased when antenna is side mounted with appropriate side mount kit.	
**Note: The mechanical specs are degraded for antennas covering 137-150MHz band	

Side Mounting - The following table shows the approximate gains of the DB222 and DB222E side mounted on triangular towers measuring 18" to 24" (457.2 to 609.6 mm) between legs. 0 azimuth is the direction the side mount arm points out from the tower.

DB224 ANTENNA SPECIFICATIONS

Mechanical Data
Mast - upper (aluminum) - in. (mm) 1.75 (44.45) OD with .062 to .125 (1.57 to 3.18) wall Mast - lower (aluminum) - in. (mm) 2 (50.8) OD with .125 to .187 (3.18 to 4.75) wall Radiating elements (aluminum) - in. (mm) .5 (12.7) OD with .058 (1.47) wall
Maximum exposed area (flat plate equivalent) - ft.sq (m.sq) 3.15 (.292)
Lateral thrust at 100mph (161 km/hr) - lbf (N) 126 (560.5) Wind rating: * Survival w/o ice - mph (km/hr) 100 (161) Survival with .5" (12.7 mm) radial ice - mph (km/hr) 74 (119)
Overall length (150-174 MHz) - in. (mm) 255 (6477) Shipping length - in. (mm) 148 (3759)
Net weight (w/clamps) - lbs. (kg) 32 (14.51) Shipping weight (w/clamps) - lbs. (kg) 48 (21.77) Mounting clamps (Galv. steel) DB365-OS
*Top mounted antenna. Wind rating greatly increased when antenna is side mounted

Electrical Data
Frequency Ranges * - MHz A= 150-160, B= 155-165, C= 164-174, E= 138-150, J= 276-285, JJ= 220-222
Bandwidth (150-174 MHz) - MHz 10
VSWR 1.5 to 1 or less
Nominal impedance - ohms 50
Gain (over half-wave dipole) 6.0 Omni pattern-dB, 9.0 Offset pattern-dB
Maximum power input - watts 500 Vertical beamwidth (1/2 power points) 16
Decoupling between antennas (split models) - dB 35 minimum
Lightning protection Direct ground
Standard Termination: Captive Type N-Male attached to end of flexible lead. Other fittings can be supplied on special order. If UHF connector is required, an adapter is provided.
* Special frequencies are available, contact us for details.

DB408 ANTENNA SPECIFICATIONS

Electrical Data	
Frequency Ranges - MHz	A = 406-420 B = 450-470 C = 470-488 D = 488-512
Bandwidth - MHz	Same as above
VSWR	1.5 to 1 or less
Nominal Impedance - ohms	50
Gain (over half-wave dipole)	6.6 or 7.8
Rated power input - watts	250
Vertical beamwidth (half power)	14
Decoupling between antennas (dual) - dB	30 minimum
Lightning protection	Direct ground
Standard Termination: Captive Type N-Male attached to end of flexible lead. Other fittings are available on special order. N-Female is available. If UHF connector is required, an adaptor is provided.	

Mechanical Data	
Mast - (aluminum) - in. (mm)	1.75 (44.45) OD with .0625 (1.588) to .125 (3.175) wall
Radiating elements (aluminum) - in. (mm)	.375 (9.525) OD with 0.58 (1.473) wall
Maximum exposed area (flat plate equivalent) - ft (m)	1.9 (.177)
Wind rating:*	
Survival without ice - mph(km/hr)	over 125 (201)
Survival with .5" (12.7 mm) radial ice - mph (km/hr)	85 (137)
Lateral Thrust at 100 mph (161 km/hr) - lbf (N)	76 (338)
Bending moment at top clamp at 100 mph (161 km/hr) - ft. lbs. (kg m)	250 (34.6)
Overall Length - ft. (m)	9.42 (2.87)
Net weight (w/clamps) - lbs. (kg)	17 (7.71)
Shipping weight (w/clamps) - lbs. (kg)	29 (13.15)
Mounting clamps (Galvanized Steel)	DB365-OS

*Top mounted antenna: Wind rating is greatly increased when antenna is side mounted. NOTE: The mechanical specifications are slightly degraded for the antenna covering the 120-150 MHz band.

DB806-XT ANTENNA SPECIFICATIONS

Frequency Ranges Available - MHz	
DB806-XT or DB806M-XT	806-869
DB806-XC or DB806M-XC	824-896
DB806-Y or DB806M-Y	890-960
DB806-SY*	870-960
DB806-Z*	851-941
For downtilt add T3 for 3 or T6 for 6	
Example: DB806T6-XC (not on DB806M)	
For DB806 dual and triple antennas, see DB806D and DB806TL.	

*Provides broad bandwidth with slightly reduced gain.

Electrical Data		
	DB806	DB806M
Frequency Ranges - MHz	See table	See table
Bandwidth - MHz	See table	See table
Gain - dBd	6	6
Beamwidth "E" Plane (half power)	16	16
Beamwidth "H" Plane (half power)	Omni	Omni
Maximum power input - watts	500	500
Input impedance - ohms	50	50
VSWR	1.5 to 1	1.5 to 1
Lightning protection	Direct ground	Direct ground
Termination	Type N-Female (fixed)	Type N-Female (fixed)

Mechanical Data		
	DB806	DB806M
Overall length - ft. (m)		
-Y (890-960 MHz)	7.8 (2.3)	5.2 (1.6)
-XC (824-896 MHz)	8.0 (2.4)	5.7 (1.7)
-XT (806-869 MHz)	8.0 (2.4)	5.7 (1.7)
Radome (fiberglass) OD - in. (mm)	3 (76.2)	2 (50.8)
Mast OD - in. (mm)	2.50 (63.5)	2.50 (63.5)
Length - in. (mm)	26 (660.4)	13 (330.2)
Wind survival w/o ice - mph (km/hr)	225 (362.0)	225 (362.0)
Wind survival with 0.5 in. (12.7 mm) ice - mph (km/hr)	200 (321.8)	200 (321.8)
Bending moment 1' (25.4 mm) below top of mast at 100 mph (161 kph) - ft. lb. (N/m)	57.8 (78.4) .98 (.09)	57.8 (78.4) .64 (.059)
Maximum exposed area (flat plate		

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equivalent) ft (m)		
Lateral thrust at 100 mph (161 km/hr) - lbf (N)	39.4 (175.2)	25.6 (114)
Tip deflection at 100 mph (161 km/hr) with extension	1.1	1.3
Net weight - lbs. (kg)	21 (9.53)	8 (3.63)
Shipping weight - lbs. (kg)	26 (11.79)	19 (8.62)
Clamps (galvanized steel)	DB365-OS	DB365-OS

DB812 ANTENNA SPECIFICATIONS

Frequency Ranges Available - MHz	
DB812K-XT or DB812KF-XT DB812-XC or DB812F-XC DB812K-Y or DB812KF-Y DB812RR F=with Flange, without jumper. (Inputs 750 W.)	806-869 824-896 890-960 824-896
For 7/16 DIN connector order DB812KE-XT or XC. Order DB812KS-XC for 824-896 MHz (for 21' [6.4 m] nominal 11.5 dBd gain).	

Electrical Data		
	DB812K-Y	DB812KF-XC
Frequency Ranges - MHz	See table	See table
Gain - dBd	12	12
Beamwidth "E" Plane (half power)	4	4
Beamwidth "H" Plane (half power)	Omni	Omni
Maximum power input - watts	500	--
Maximum power input (with Flange) - watts	--	750
Input impedance - ohms	50	50
VSWR	1.5 to 1 or better	1.5 to 1 or better
Lightning protection	Direct ground	Direct ground
Termination - in. (mm)	N-Female	.875 (2.22) EIA Flange (fixed)

Mechanical Data		
	DB812K	DB812KF
Radome (fiberglass) - in. (mm)	3 (76.2) OD	3 (76.2) OD
Maximum exposed area (flat equivalent) - ft (m)	3.2 (.30)	3.5 (.33)
Lateral thrust at 100 mph (161 km/hr) - lbf (N)	128 (569.3)	140 (622.7)
Overall length - ft. (m)		
Y (890-960 MHz)	22.3 (6.8)	22.2 (6.8)
XC (824-896 MHz)	24.4 (7.4)	23.8 (7.3)
XT (806-869 MHz)	24.4 (7.4)	23.8 (7.3)
Tip deflection at 100 mph (161 khp) with extension	7.5	10%deg;
Net weight - lbs. (kg)	66 (30)	72 (32.7)
Shipping weight - lbs. (kg)	95 (43)	143 (64.9)
Clamps (galvanized steel)**	DB5091-3	DB5091-3

CERTIFICATE OF CLERK


City of Tucson

State of Arizona }
County of Pima } ss

I, Roger W. Randolph, the duly appointed and qualified City Clerk of the City of Tucson, Arizona, do hereby certify pursuant to Tucson Code § 2-102 that the following is a true and correct copy of Mayor and Council Resolution No. 22133, which was passed and adopted by the Mayor and Council of the City of Tucson, Arizona, at a meeting held on September 10, 2013, at which a quorum was present.

In Witness Whereof, *I have hereunto set my hand and affixed the seal of the City of Tucson, Arizona on September 27, 2013.*

*Total of 2 pages certified.
(Exhibits not included)*



City Clerk

ADOPTED BY THE
MAYOR AND COUNCIL

September 10, 2013

RESOLUTION NO. 22133

RELATING TO INTERGOVERNMENTAL AGREEMENTS; APPROVING AND AUTHORIZING EXECUTION OF THE SITE-SPECIFIC SUPPLEMENTAL AGREEMENT TO MASTER AGREEMENT FOR JOINT USE OF A FACILITY BETWEEN PIMA COUNTY AND THE CITY OF TUCSON FOR TOWER AND SHELTER SPACE AT TUMAMOC HILL; AND DECLARING AN EMERGENCY.

BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF TUCSON, ARIZONA, AS FOLLOWS:

SECTION 1. The Site-Specific Supplemental Agreement to Master Agreement for Joint Use of Facility Space Between Pima County and City of Tucson for tower and shelter space at Tumamoc Hill, located at 1649 West Anklam Road (the "SSA"), attached as Exhibit A, is approved.

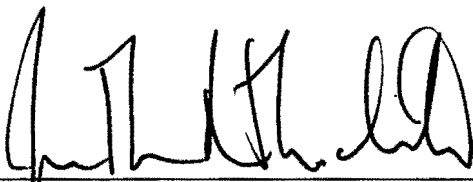
SECTION 2. The Mayor is authorized and directed to execute the SSA on behalf of the City of Tucson, and the City Clerk is authorized and directed to attest to the same.

SECTION 3. The various City officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this Resolution.

SECTION 4. WHEREAS, it is necessary for the preservation of the peace, health and safety of the City of Tucson that this Resolution become immediately

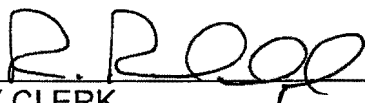
effective, an emergency is hereby declared to exist and this Resolution shall be effective immediately upon its passage and adoption.

PASSED, ADOPTED AND APPROVED by the Mayor and Council of the City of Tucson, Arizona, September 10, 2013.



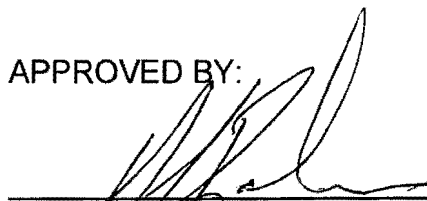
MAYOR

ATTEST:



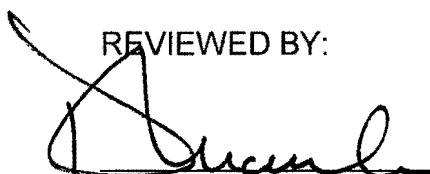
CITY CLERK

APPROVED BY:




CITY ATTORNEY

REVIEWED BY:



CITY MANAGER


DF/mgs
8/27/13