

BID TABULATION FORM



GILA COUNTY

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BID

TITLE:

S.O. Tower Installation & Radio Equipment Relocation

BID

DUE

NO:

10311-2

DATE:

March 22, 2012

TIME:

3:00 PM

BEST & FINAL OFFER

BIDDER FIRM NAME	BID AMOUNT	COMMENTS
Canyon State Wireless	\$85,014.61	No change from original proposal. Information provided concerning antenna minimization and cost included in B&F proposal.
Durham Communications	\$54,325.20	No change from original proposal. Information provided concerning antenna minimization but did not provide cost on recommendations in B&F proposal.
L&B Telecommunications	\$125,000.00 (80 ft tower) \$108,000.00 (76 ft tower)	No change in original proposal. Information provided concerning antenna minimization and cost included in B&F proposal.
CMC Communications	\$84,194.45 (new tower) \$77,671.65 (used tower)	No change from original proposal. Information provided concerning antenna minimization and cost included in B&F proposal.

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BIDDER FIRM NAME	BID AMOUNT	COMMENTS
Canyon State Wireless	\$85,014.61	
Durham Communications	\$54,325.20	
L&B Telecommunications	\$125,000.00 Under Ground Tower	\$108,000.00 Above Ground Tower
CMC Communications	\$84,194.45 New Tower	\$77,671.65 Used tower

GILA COUNTY PURCHASING
ATTN: VALRIE BEJARANO
1400 E. ASH STREET
GLOBE, AZ 85501

RE: Request for Proposal Clarification
Gila County Bid No. 103111-2
S.O. Tower Installation & Radio Equipment Relocation Project

PLEASE PROVIDE DETAILED INFORMATION

A. Complete listing of the tower type (Manufacturer, Model Number)

(DCI) – The tower quoted is a Rohn RSL type, sections R10 to R03, specs included at the end of this document.

B. Each antenna description, type, model number, mounting type, etc.

(DCI) – The existing yagi antennas are to be moved to the new tower. Additional omnidirectional antennas required are to be Antenex FG series control station antennas. All these antennas are designed to mount to a vertical pipe of 2" nominal diameter so a 18" standoff will be supplied for each antenna with the exception of antennas mounted atop the tower. These will be mounted directly to the tower legs themselves.

C. Transmission line(s), interconnect cables, etc.

(DCI) – Coax from the antennas to the interior surge arrestor bar is to be Andrew LDF4 series 1/2" solid corrugated coax. Interior coax from radio to surge arrestor bar is to be Times Microwave LMR400 series 3/8" braided coax.

D. Any opportunity for overall antenna minimization (RF Management Equipment, Duplexers, Combiners, Crystal Filters, Cavities, Isolators, etc.).

(DCI) – The extensive range of RF optimization options far exceeds our limited ability to present a comprehensive solution in this forum. Since the various RF optimization options have significant cost differentials a final solution would have to be agreed upon between DCI and the County before implementation.

Our recommendation would be to combine all omnidirectional antenna signals supported by duplex capable radio stations into a single master Receive antenna fed by pass cavities and passband multicoupler and group no more than 4 transmit radios into one or more master TX antennas. The next step would then be to upgrade from the entry level antennas as quoted to full repeater grade antennas with a higher gain factor and much longer lifespan.

A second recommendation would be to upgrade the master Transmit and Receive feedlines from the proposed 1/2" coax to 7/8" coax for lower loss.

Thirdly, any radios that are currently mobile type controls that are experiencing RF interference should be upgraded to duplex capable control stations and integrated into the master Transmit and Receive systems.

We recommend against merely installing duplexers as this will not achieve an optimized solution.

E. Provide a "Best and Final Offer" for project.



COMMUNICATION INTEGRATION & SOLUTIONS SINCE 1945

(DCI) – The DCI best and final offer is unchanged from our original proposal submission, which is attached to this document.

Regards,

A handwritten signature in cursive script that reads "Brian Durham".

Brian Durham

PHONE 480.981.8875 / FAX 480.981.7146
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Communication Integration & Solutions Since 1945

PRICE QUOTE		3/21/2012	PRESENTED TO:		AT ROOM NO. 198 L-67
Summary - Quote per Gila County RFP 103111-2			Contact:	S.O. Tower Installation &	Email:
			Organization:	Radio equipment relocation	Phone:
			Department:	Gila County Procurement	Fax:
			Address:	1400 E. Ash Street	Cell:
			City, State Zip:	Globe, AZ 85501	
Contract Number (State, WSCA, OSA, Other)			Salesperson:	Tom Hector	QTY:
					632212-001

ITEM	DESCRIPTION	MODEL	PRICE	QTY	EXTENDED
1	Radio Antennas and Feedlines				
2	VHF omnidirectional fiberglass antenna	FG1XX3	\$ 167.50	7	\$ 1,102.50
3	Antenna clamps, 1" to 2.75"	ASPA320	\$ 41.78	11	\$ 459.64
4	Coax, LDF4-50 for tower, 120' per run	LDF4-50A	\$ 288.00	11	\$ 3,168.00
5	N male connector, LDF4 series	L4TMM-RC	\$ 27.14	22	\$ 587.14
6	Ground kit, LDF4 series	241088-1	\$ 25.71	33	\$ 848.57
7	Surge arrester, NF/NF	ISB50LN-C1	\$ 78.57	11	\$ 864.29
8	Weatherproofing kit	221213	\$ 21.43	6	\$ 129.57
9	Surge arrester grounding bar in equipment room	DCI Harger 12 ISB	\$ 214.29	1	\$ 214.29
10	Ground wire from interior surge bar to exterior rods	DCI 2 ga	\$ 0.93	20	\$ 18.57
11	A8 thread for click mounts, triple stack, 10 pk	243065-1	\$ 31.43	4	\$ 125.71
12	Angle adapters for all threads, 10 pk	31768A	\$ 74.29	4	\$ 297.14
13	Coax mounting clamp, 10 pk	L4CLICK	\$ 24.29	4	\$ 97.14
14	LDF4 poppers for bridge trees, 10 pk		\$ 17.14	6	\$ 102.86
15			\$ -		\$ -
16	Coax entry port, 3 x 2 holes, 4"	252137	\$ 86.67	1	\$ 86.67
17	Coax entry puck, 1/2" LDF4 x 3, 4"	252147-4	\$ 24.14	6	\$ 144.86
18	Grounding buss bar, exterior	UGBKIT-0424	\$ 114.29	1	\$ 114.29
19	Grounding buss bar, at tower base	UGBKIT-0424	\$ 114.29	1	\$ 114.29
20	Grounding rods, exterior	DCI HD 8"	\$ 28.57	2	\$ 57.14
21			\$ -		\$ -
22	Intermediate coax, radio to ground bar, LMR400	DCI LMR400	\$ 135.71	11	\$ 1,492.86
23			\$ -		\$ -
24	Radio Antenna Subtotal :		\$ 16,034.83		
25					
26	Tower				
27	Soil survey - Min 60 days prior to construction	DCI			
28	Provided by customer				
29					
30	Rohn RSL 80' Tower, 52 sq ft area at 70 mph, R10 to R03	R080H310	\$ 8,013.00	1	\$ 8,013.00
31	Arizona engineer's stamp for tower design, req'd for permit	Rohn	\$ 450.00	1	\$ 450.00
32	Yagi mount pipe, 2" x 48" + all thread x 2	DB375+HD2	\$ 115.00	3	\$ 345.00
33	Panel mount pipe, 2" x 48" + all thread x 2	DB375+HD2	\$ 115.00	1	\$ 115.00
34	Omnid horiz mount pipes at 60 feet	HD2 x 30 + DB375	\$ 135.00	3	\$ 405.00
35	Rohn Tower Anchor Kit for 80 Ft Tower	RAL10	\$ 1,511.00	1	\$ 1,511.00
36	5000 PSI Concrete For Tower Base, per yard	5000 PSI CC	\$ 125.00	17	\$ 2,125.00
37	Tower Rebar #7, Ground Rods and Grounding Wire	DCI-TOWER GK	\$ 1,000.00	1	\$ 1,000.00
38	Back Hoe 1 Day Rental	DCI Back Hoe	\$ 357.14	3	\$ 1,071.43
39	Boom Lift 1 Day Rental	DCI Back Hoe	\$ 785.71	3	\$ 2,357.14
40	Cable tray between tower and building, buriable post	WB-K110-B	\$ 789.61	3	\$ 1,875.00
41					
42	Tower Subtotal :		\$ 19,267.57		
43					

Notes:
Building permit cost is unknown at this time. Building permit costs will be passed through to customer at 0% markup

Hardware Total	\$	29,302.10
TAX %	9.05	\$ 2,651.84
Freight	\$	1,800.00
Mobilization	\$	550.00
Labor	\$	17,581.28
Performance Bond	\$	2,340.00

Project Total: \$ 54,326.20

Please FAX ALL pages back to Durham Communications to indicate your acceptance.

Customer Signature _____ Date _____ PO Number _____

All prices are expressed in US Dollars and are payable in US Dollars. Payment terms are Net 30 days. All prices are F.O.B. Mesa, AZ. Customer will be billed for shipping and insurance costs. All quotations are valid for 30 days from quotation date. In the event that DCI retains the services of an attorney to collect any amounts due hereunder, the "CUSTOMER" will pay all charges for any effort to collect including, but not limited to, attorney's FEES, court FEES and agency FEES.



COMMUNICATION INTEGRATION & SOLUTIONS SINCE 1945

03-15-2012

RE: RFP 103111-2

Durham Communications RFP Response

Durham Communications has extensive experience with public safety communications systems as well as tower construction and site development. We have constructed towers for Asarco mine, the White Mountain Apache Tribe, San Carlos Apache tribe and most recently the three customers listed in the reference sheet.

Pinetop Lakeside has contracted us to construct a 100 foot tower to carry a number of microwave dishes. This is a very heavy tower and is currently in progress, the excavation is almost done and we anticipate pouring concrete in the middle of March.

Mescal Fire Department contracted us to construct a 70 foot tower of the same type as bid for this project, a smaller duty tower with a single slab foundation. We installed underground pipe for the coax on that project, which concluded in February of 2012.

Lastly, a private citizen named Ev Wittig contracted us to build not one but 5 separate towers in June of 2011 for his personal ham radio hobby. This work went quite well and we have a related recommendation sheet from him related to this project.

We can install the tower at the location given along with the required cable support structure to get the feedlines into the building. This should take a time period of less than 30 days from the time we break ground. For construction DCI will use its internal equipment. We do not intend to subcontract the work to another company.

Migrating the electronics from the existing site to the new site will be done by first installing new omni antennas on the new tower to complement the new coax feedlines. The existing omni antennas are not suitable for re-use. The directional yagi antennas can be reused as well as the 2.4 Ghz microwave panel system if desired. I believe the 2.4 Ghz microwave panel is currently supporting the network of the jail and we will want to investigate further prior to dismantling this link.

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COMMUNICATION INTEGRATION & SOLUTIONS SINCE 1945

To migrate the electronics we would first install the antenna systems on the new tower. We would then choose one of the IP-223 console audio interface boxes and the two radios attached to it and move it to the new location where it would be tested for functionality. When it tests successfully we would move another interface box and its radios, test, move another and so on until all units have been moved to the new location.

The soils report supplied is a boon and has saved a cost \$3,500 from the project. This will allow the tower manufacturer to properly engineer and stamp the tower design, which is necessary to secure a building permit. The second unknown at this time is the permit process and associated cost for the city of Globe. This cost can range from \$0 if the city is feeling neighborly to the county to \$6,000 which we have also encountered.

At this time we can not estimate the permitting cost but we can say that whatever permitting costs we encounter will be passed through to the county with no markup.

Another item is antenna combining. The current system has a gaggle of antennas with no regard to interference or other performance standards. This is not desirable for proper long term operation.

DCI can and desires to present combining options that will reduce the antenna count on the tower and prevent interference between the various radios in the system. This will save some cost on antenna hardware but will result in a net increase of the project cost since combining is more expensive than merely sticking another antenna on the tower. Although this is mentioned in the RFP this process can not be completed at this time without further system analysis.

We recommend that if combining is going to be installed it is installed prior to installing the new antennas and moving the radios. It can be done after the tower is installed.

Thank you for your consideration of our proposal.

Brian Durham
Durham Communications

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ROC #086328
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April 26, 2012

Request for Proposal Clarification
Gila County Bid No. 103111-2
S.O. Tower Installation & Radio Equipment Relocation Project

A. Complete listing of the tower type (Manufacturer, Model Number):

New Tower: Pirod/Valmont Model 48-S940-80', 80' 900 Series SST
Used Tower: Pirod/Valmont U 4.5 x 80 File #108915

B. Each antenna description, type, model number, mounting type, etc.:

The antennas being used on the project are as follows (with spec sheets attached):

- a) PC TEL MYA-1503K 150-170 MHz 3db gain VHF Yagi antenna -- Pipe mount brackets
- b) PC TEL MFB-1503 150-156 MHz 3db gain VHF omni fiberglass antenna -- Pipe mount brackets
- c) PC TEL MFB-1563 150-162 MHz 3db gain VHF omni fiberglass antenna -- Pipe mount brackets
- d) PC TEL MFB-4603 460-470 MHz 3db gain UHF omni fiberglass antenna -- Pipe mount brackets
- e) Andrew DB224A 150-160 MHz 6db gain VHF omni exposed dipole antenna -- Pipe -- Pipemount brackets

C. Transmission line(s), interconnect cables, etc:

- a) The transmission lines will be Andrew LDF4-50A Heliax cable from the polyphaser to the antenna. (Spec sheet attached)
- b) The interconnecting cable will be Times Microwave 3/8-inch LMR400 coaxial cable and will be used from the polyphaser to the radio equipment rack. (Spec sheet attached)

D. Any opportunity for overall antenna minimization (RF Management Equipment, Duplexers, Combiners, Crystal Filters, Cavities, Isolators, etc.):

Combining considerations:

The only combining available to decrease the antenna count by three (3) was to add two (2) EMR VHF duplexers to the two (2) ICOM FR3000 radios and one (1) EMR UHF duplexer to the ICOM FR4000 radio which combined the TX and RX antennas into one antenna on each radio. The use of a control station combiner on the other single port radios would result in a very low output of power to the antenna and Creative Communications could not guarantee the

coverage reliability of such low power. To be able to reduce the antenna count even further, new radio equipment would need to be purchased with separate receive and transmit ports similar to the ICOM FR3000 or the Motorola MTR3000. Then separate receive multi couplers and transmit combiners could be utilized to further decrease the antenna count and not result in unreasonable system losses that a control station combiner has.

E. Provide a "Best and Final Offer" for project:

CMC Communications took all mitigating factors into consideration when preparing our original bid to insure that we offered Gila County the best price without compromising quality and safety. Therefore, our "Best and Final Offer" remains unchanged:

Proposal with new Valmont tower: \$84,194.45

Proposal with used Valmont tower: \$77,671.65

Mark Phillips
Chief Operations Officer
CMC Communications, LLC
(623) 451-9519



**S.O. Tower Installation & Radio Equipment Relocation Project
Gila County BID NO: 103111-2**

SCOPE OF WORK

03/20/12

The following proposal is for installation of an eighty (80') foot self supporting tower capable of supporting an antenna flat plate surface twenty (20) square feet, and move all radio/communications/ancillary support equipment from one location to another.

The following items shall apply:

Outside Plant Work:

- Furnish and install a new 80' self support tower, anchor bolts and hardware.
- Install tower foundation per manufacture design.
- The tower will have capacity of supporting an antenna flat plate surface of twenty (20) square feet.
- Furnish and install new 12" wide ice bridge with 2 level trapeze.
- Furnish and install 70' vertical waveguide ladder.
- Furnish and install new R56 tower, ice bridge and waveguide port grounding.
- Furnish and install new 4 port transmission line entrance at building
- Furnish and install new external and internal buss bars on building and tie to new ground ring.
- Furnish and install 11 antennas and ½" heliax cables for the new tower and existing base stations.
- Install new antennas structure (hardware, connectors, coax) to allow for optimization of overall control station and systems performance.
- Install "high gain" VHF Omni directional antenna at top of new tower.

Inside Plant Work:

- Prepare the new dispatch equipment room with a cable tray from the cable port entrance from the tower to the equipment cabinets.
- Install #2 ground wire from the internal buss bar to the equipment cabinets for grounding of cabinets and equipment. Cabinet buss bars will be installed for equipment grounding. All grounding will be done to R-56 standards.

- All antennas will be terminated at the cable entrance with polyphaser lightning protection and grounded to the internal buss bar.
- All coax cables will be labeled and documented with tower location for future reference.
- All existing radio equipment will be removed and reinstalled in the new equipment room in the Gila County-provided cabinets.
- All radios, antennas, combiners, and receive multi-couplers will be tested for proper operation with the Telex dispatch consoles and field units.
- Remove all of the existing cabling and antennas from the existing building to be disposed of at Gila County's direction.
- Equipment relocation time will be coordinated with the Gila County project manager and the Gila County communications manager to minimize downtime and have an alternate dispatch in place. Gila County to provide the alternate dispatch during the move.
- New equipment and installation will have a one-year warranty on parts and labor.
- Equipment is presumed to be in good working order. If repairs are needed, such repairs will be billed on a separate change order.
- Equipment install, test and optimization, including grounding and sweep testing.
- Provide "As-Builts" for equipment installation. Also included details regarding IP addressing assignment(s) for all equipment/interface equipment.

The proposal for this work is: **\$84,194.45**

Optional Pricing

Installing a used 80' self support tower which meets technical standards relating to wind loading and antenna structures.

Optional pricing with used tower: **\$77,671.65**

General

- This work is expected to be performed during normal business hours (i.e., Monday – Friday, 8:00 a.m. – 5:00 p.m., excluding holidays).
- This quote is based on a continuous work schedule from start to completion.
- Normal payment terms are:
 - Fifty percent (50%) of contract due and payable upon execution of contract.
 - Remaining milestone terms payable net 30 days from invoice date as follows:
 - 25% of contract price upon delivery of the equipment to the field, items as shipped.

- 15% of contract price upon completion of installation and optimization.
- 10% of contract price upon acceptance.

This proposal is valid for 60 days.
If you have any questions or concerns please call.

Thank You
Coleen Collins, CEO
CMC Communications
Lake Havasu City, AZ
925-486-7224