

Aitkin County Board of Commissioners
Request for County Board Action/Agenda Item Cover Sheet



To: Chairperson, Aitkin County Board of Commissioners

Date: 08/30/12

Via:

From: Sheriff Scott Turner

Title of Item: Granite Electronics (as part of ARMER radio conversion)

Requested Meeting Date: 09/04/2012 Est. Presentation Time: 15 minutes

Presenter: Sheriff Scott Turner

Type of Action Requested (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> For info only, no action requested | <input type="checkbox"/> Approve under Routine Business |
| <input type="checkbox"/> For discussion only with possible future action | <input type="checkbox"/> Adopt Ordinance Revision |
| <input checked="" type="checkbox"/> Let/Award Bid or Quote (attach copy of basic bid/quote specs or summary of complex specs, each bid/quote received & bid/quote comparison) | |
| <input type="checkbox"/> Approve/adopt proposal by motion | <input type="checkbox"/> Approve/adopt proposal by resolution (attach draft resolution) |
| <input type="checkbox"/> Authorize filling vacant staff position | |
| <input type="checkbox"/> Request to schedule public hearing or sale | <input type="checkbox"/> Other (please list) |
| <input type="checkbox"/> Request by member of the public to be heard | |
| <input type="checkbox"/> Item should be addressed in closed session under MN Statute _____ | |

Fiscal Impact (check all that apply)

- Is this item in the current approved budget? ☐ Yes ☐ No (attach explanation)
- What type of expenditure is this? _____ Other (attach explanation)
- Revenue line account # that funds this item is: _____
- Expenditure line account # for this item is: _____

Staffing Impact (Any yes answer requires a review by Human Resources Manager before going to the board)

- Duties of a department employee(s) may be materially affected. ☐ Yes ☐ No
- Applicable job description(s) may require revision. ☐ Yes ☐ No
- Item may impact a bargaining unit agreement or county work policy. ☐ Yes ☐ No
- Item may change the department's authorized staffing level. ☐ Yes ☐ No



Supporting Attachment(s)

- ☒ Memorandum Summary of Item
- ☐ Copy of applicable county policy and/or ordinance (excerpts acceptable)
- ☐ Copy of applicable state/federal statute/regulation (excerpts acceptable)
- ☐ Copy of applicable contract and/or agreement
- ☐ Original bid spec or quote request (excluding complex construction projects)
- ☐ Bids/quotes received (excluding complex construction projects, provide comparison worksheet)
- ☐ Bid/quote comparison worksheet
- ☐ Draft County Board resolution
- ☐ Plat approval check-list and supporting documents
- ☐ Copy of previous minutes related to this issue
- ☒ Other supporting document(s) (please list) Purchase recommendation from GeoCom, Granite Electronics proposal

Provide eleven (11) copies of supporting documentation NO LATER THAN Wednesday at 8:00am to make the Board's agenda for the following Tuesday. Items WILL NOT be placed on the Board agenda unless complete documentation is provided for mailing in the Board packets. (see reverse side for details)

SCOTT A. TURNER
SHERIFF OF AITKIN COUNTY

217 Second Street NW
Aitkin, MN 56431

218-927-2138 Emergency 911
Sheriff Fax 218-927-7359 / Dispatch Fax 218-927-6887
TOLL FREE 1-888-900-2138

MEMO

To: Aitkin County Board of Commissioners

Date: August 30, 2012

From: Sheriff Scott Turner

Re: Radio System Upgrade

On May 22, 2012, Rey Freeman from GeoComm gave a presentation on the proposal from Motorola relative to this project. At that time we executed the contracts with Motorola for a dispatch counsel and end user radios for all of the disciplines.

At that time he also advised that there would be additional items necessary for the build out this VHF paging system and additional components of the 800 MHz. Attached is the recommendation from our project manager as well as copies of the proposal from Granite Electronics. Mr. Freeman will be at that September 4, 2012 meeting to go over the proposal with you. As you can see from his memo to me, dated August 28, 2012, this expenditure is within the budget previously approved by the board.

If you have any questions prior to the September 4, 2012 board meeting, please do not hesitate to call. Thank you.

GeoComm

Date: August 28, 2012

Aitkin County Sheriff's Office
217 – 2nd St NW
Aitkin, MN 56431

Attn: Sheriff Scott Turner

Subject: Granite Electronics VHF Equipment Purchase Recommendation

Dear Scott:

Aitkin County has received a proposal from Granite Electronics for the equipment and services needed for the remaining primary elements of the County's public safety radio communications system project.

All of these items and services were specifically not included in the initial project purchase from Motorola in an effort to reduce costs and expedite the installation of the associated equipment. All of this equipment, and related services, are typically outsourced from outside vendors by Motorola, and the work subcontracted from local vendors such as Granite. As Granite is the local vendor that was selected for the project, we felt it was better to work with them directly for these elements of the project.

GeoComm had prepared a list of requirements for this equipment, and submitted to Granite upon which the proposal(s) were based. The equipment and services included in this proposal are the following:

- Microwave radio equipment for Dispatch center, as well as Jacobson and Glen tower site connectivity
- VHF antennas and transmission line for the Paging and Interoperability repeaters at 8 tower sites
- Duplexers, associated hardware and installation for the Paging and Interop repeaters
- Tower crews to install the antenna, transmission line, grounding hardware, etc.
- 800 MHz antenna combining system, associated hardware and installation of equipment at the Sheriff's dispatch center in Aitkin
- Development of the database for the new 800 MHz mobile and portable radios
- Programming and new "out of the box" testing and alignment of the new 800 MHz mobile and portable radios

A summary of the equipment and pricing received from Granite Electronics is shown on the next page, along with the budgeted project costs:

Equipment & Services	Granite	Project Budget
Microwave Equipment & Services – Dispatch & Glen tower site	\$225,978	\$195,000
Microwave Equipment & Services – Jacobson tower site	\$ 57,142	\$ 45,000
Total Cost – Microwave Systems	\$283,120	\$240,000
Tower Site Equipment & Services		
Glen Tower (2 stations)	\$ 20,028	
GRE Tower	\$ 5,460	
Jacobson Tower	\$ 4,384	
Lawler Tower	\$ 11,446	
Logan Tower	\$ 11,908	
Quadna Tower (2 stations)	\$ 17,851	
Sandy Lake Tower	\$ 12,170	
White Pine Tower	\$ 10,643	
Tower Crew Services	\$ 69,726	
Total Cost – VHF Equipment & Services	\$163,616	\$230,000
800 MHz Antenna Hardware & Service for Dispatch Center	\$ 22,299	
Database Development & Programming for new 800 MHz Mobile & Portable Radios	\$ 12,400	
Total Cost – 800 Equipment & Services	\$ 34,699	\$ 40,000
Total Cost: Granite Equipment & Services	\$481,435	\$510,000

Refer to the Granite proposal documents for a more detailed review of the proposal costs. State of Minnesota Sales Tax has been included in each of the proposals, and is included in the amounts shown above.

Project Budget:

As shown, the amount budgeted in the revised budget of May 2012 for this element of the radio system project was approximately \$510,000. The proposed pricing from Granite is within the budgeted amount for the project. Note also that a grant has been received by Aitkin County towards the microwave system equipment in the amount of \$152,166 which will be used to reduce the overall project cost (but is not reflected above).

There are a few additional items that will be needed for the project and will be purchased in the near future, however these should have a total cost of less than \$100,000, and are again included as regular project budget items. Please also note that the project contingency of \$100,000 has not yet been utilized for the project.

Recommendation:

Granite Electronics has submitted to Aitkin County a proposal for equipment and services that meets the needs of the project, and the pricing of this proposal is within the budget established for the project. We recommend that Aitkin County approve this proposal and agreement with Granite for this equipment with the identified costs for this project.

Sincerely

A handwritten signature in black ink, appearing to read "Ray Freeman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Aitkin County VHF System Equipment - Granite Electronics			
August 27, 2012			
	Item/Description	Proposed Cost	Budgeted Cost
1.0	Microwave System Equipment & Services		
1.1	Links between PSAP, GRE Tower and Glen ARMER towers	\$ 225,978	\$ 195,000
1.2	Link between Jacobson and Sandy Lake towers	\$ 57,142	\$ 45,000
	Subtotal - Microwave Equipment & Services	\$ 283,120	\$ 240,000
2.0	VHF Tower Site Equipment & Services		
2.1	Glen tower site (2 stations)	\$ 20,028	
2.2	GRE tower site	\$ 5,460	
2.3	Jacobson tower site	\$ 4,384	
2.4	Lawler tower site	\$ 11,446	
2.6	Logan tower site	\$ 11,908	
2.6	Quadna tower site (2 stations)	\$ 17,851	
2.7	Sandy Lake tower site	\$ 12,170	
2.8	White Pine tower site	\$ 10,643	
2.9	Tower crews for the installation of all antennas, lines, grounding, etc at all tower sites (via Granite Electronics)	\$ 69,726	
	Subtotal - VHF Equipment & Services	\$ 163,616	\$ 230,000
3.0	Other 800 MHz Equipment & Services		
3.1	PSAP 800 MHz Hardware (for 800 MHz control stations)	\$ 22,299	
3.2	Database development and entry into ARMER system; programming of 200 mobile and portable radios	\$ 12,400	
	Subtotal - 800 MHz Equipment & Services	\$ 34,699	\$ 40,000
	800, Microwave & VHF Project Components - Total	\$ 481,435	\$ 510,000



Date : 8/14/2012

Quote #: mak81412m

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Console MW Connection	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price Each	Total
1	Exalt 11 GHz IDU terminal, EX-i Series GigE 29dBm; 45 Mbps + 0xT1/E1 + 0xDS3 expandable to 252 Mbps +4x T1/E1+ 1xDS3,	8		\$167,261.60
2	EX-i Series GigE Monitored Hot Standby (MHS) Kit. Single endpoint	4		
3	Monitored Hot Standby (MHS) Cable Expansion Kit. Single endpoint	4		
4	EX-i Series GigE 11 GHz semi-rigid diplexer cabling kit for 1+1 MHS protection	4		
5	EX-i Series GigE 11 GHz Diplexer Filter H/L B1	4		
6	Upgrade Key 0xT1/E1 to 4xT1/E1, single terminal 11 GHz EX-i Series GigE	8		
7	SMA, (M), STRAIGHT, CNT-400	8		
8	Duracomm DRC-RM-548 5 Amp PS	8		
9	flex-twist hangers, WR90 CABLE MODEL, SPECIALTY	4		
10	CPR90 11 GHz waveguide flange adapter with N-type connector, UBR100 flange,	4		
11	900 MM (35"), WR90, FLEXIBLE TWIST, FLEX-TWIST, JUMPERS,	4		
12	190SE EW90 / EWP90 / EWP90S, FIXED-TUNED, CPR90G, WAVEGUIDE,	4		
13	3', 10.7-11.7 GHZ, 37.7 DBI GAIN, PARABOLIC DISH, CPR90G,	3		
14	4', 10.7-11.7 GHZ, 40.4 DBI GAIN, PARABOLIC DISH, CPR90G,	1		
15	EWP90107 PREMIUM, 10.7-11.7 GHZ, ELLIPTICAL WAVEGUIDE	665		
16	1-5/8", HOISTING GRIPS	3		
17	1-5/8", GROUND KITS	11		
18	Snap-in Hangers Package of 10	16		
19	waveguide flange adapter, N(F) CONNECTOR, UBR100 FLANGE, EX-I 11	4		
20	PRESSURE WINDOW, CPR90G, CPR90G, WAVEGUIDE COMPONENTS,	8		
21	DEHYDRATOR, 115/230V 50/60HZ, 1.2A 5PSI ANC-MOJAVE1	3		
22	DeHYDRATOR, Wall Shelf	3		
23	GAS DISTR MANIFOLD 2 PORT	3		
24	Fixed-tuned CPR137G for elliptical waveguide 52	4		
25	Panel Punch Block 10.5 Inch x 19 Inch	4		
26	Installation, Mounting and Grounding Hardware	4		
27	Non-Pen Antenna mount at LEC	1		
28	Equipment Rack at LEC with UPS	1		

TOTAL SITE EQUIPMENT PRICING \$167,261.60

Services

1	FCC Microwave license coordination services	4		\$44,180.00
2	Installation of 2 Microwave Links, test and optimization,	1		
3	Travel & Mileage			
4				
4	Tower Work	1	TBD	

TOTAL SERVICES \$44,180.00

Sales Tax \$14,536.61

TOTAL PACKAGE PRICE \$225,978.21



Date : 8/21/2012

Quote #: mak82112a

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Jacobson Paging Connection	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price Each	Total
1	4.9 GHz 1DU terminal, 27 Mbps + 2xT1/E1	3		
	1-year warranty extension, single terminal	3		
	1-year advanced replacement & emergency support, single terminal. US only.	3		
2	0-6 GHz RF lightning protector. Two per side recommended.	4		
3	7/8 Transmission Line	506		
4	N Male Connectors for 7/8 cable	4		
5	3ft Jumpers with N-Male Connectors	2		
6	4ft dish, 4.9GHz, 32.6dBi	2		
7	Snap-In Hangers for 7/8 cable	14		
8	Grounding Kit	11		
9	Weatherproof Kit	4		
10	HOISTING GRIPS	2		
11	7' Rack with grd bar & cable management	1		
12	Panel Punch Block 10.5 Inch x 19 Inch	1		
13	Installation, Mounting and Grounding Hardware	1		
14	Cable Entrance Boots	2		
15	Stiff Arm Bracket for 4' Dish	2		
TOTAL SITE EQUIPMENT PRICING				\$35,466.00
Services				
2	Installation of Microwave Link, test and optimization,	1		
3	Travel & Mileage			
4	Tower Work	1	TBD	
TOTAL SERVICES				\$18,000.00
Sales Tax				\$3,675.79
TOTAL PACKAGE PRICE				\$57,141.79



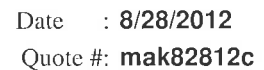
Date : 8/28/2012
Quote #: mak82812d

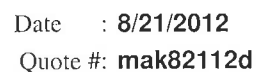
Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Glen Site VHF Antenna Equipment	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price	Total
1	6.1 DB VHF Antenna SC229SFXSNM (Paging & Inter-op)	2		
2	AVA5-50 Paging Antenna Transmission Line (Paging 349')	369		
3	AVA5-50 Interop Antenna Transmission Line (Inter-op 320')	340		
4	AVA5 -50 Connectors	4		
5	Antenna 6' Jumper (N female to N Male)	2		
6	6' Tower Side Mount Bracket (Inter-op)	1		
7	Ground Straps every 75' 1 top, 2 bottom	14		
8	Coax cable to tower clamps every 40"	200		
9	Lace-up Cable Hoisting Clamps with Tower Shackle	4		
10	Cable Entrance Boots	2		
11	Antenna Line Polyphasor	2		
12	Jumper Superflex from Polyphasor to Intermod Suppression Panel	40		
13	LDF4/Superflex Connectors	4		
14	Sinclair PC2213 Intermod Suppression Panel	2		
15	Jumper from Intermod to Duplexor	10		
16	Connectors	4		
17	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount	1		
18	Sinclair - 132-174 MHz Duplexer Q2220 (Inter-Op)	0		
19	Pair of Duplexer Cables	2		
20	7' Rack with grd bar & cable management	1		
21	UPS System with Brackets for 2 Post Rack	1		
22	Cable Ties & Install Hardware	1		
23	Misc Grounding Hardware	1		
	TOTAL SITE EQUIPMENT PRICING			\$15,575.00

Services				
1	Tower Work TBD	1		
2	Granite Installation assistance with Tower Crew	1		
3	Installation of Polyphasors, Duplexors and Filters	1		
4	Travel to Glen	2		
	TOTAL SERVICES			\$3,165.00

	Sales Tax	\$1,288.38
	TOTAL PACKAGE PRICE	\$20,028.38





Item	Description:	Qty	Price	Total
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Services				
1	Installation of Duplexer and Intermod panel	1		
2	Travel to Logan	1		
			TOTAL SERVICES	\$1,242.00

	Sales Tax	\$282.01
	TOTAL PACKAGE PRICE	\$4,384.01



Date : 8/14/2012
Quote #: mak81412f

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Lawler VHF Antenna Equip	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price	Total
1	6.1 DB VHF Antenna SC229SFXSNM (Paging)	1		
2	AVA5-50 Paging Antenna Transmission Line (Paging 349')	300		
3	AVA5-50 Connectors	2		
4	Antenna 6' Jumper (N female to N Male)	1		
5	Ground Straps every 75' 1 top, 2 bottom	6		
6	Coax cable to tower clamps every 40"	78		
7	Lace-up Cable Hoisting Clamps with Tower Shackle	2		
8	Cable Entrance Boots	1		
9	Antenna Line Polyphasor	1		
10	Jumper Superflex from Polyphasor to Intermod Suppression Panel	20		
11	LDF4/Superflex Connectors	2		
12	Sinclair PC2213 Intermod Suppression Panel	1		
13	Jumper from Intermod to Duplexor	5		
14	Connectors	2		
15	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount	1		
16	Pair of Duplexer Cables	1		
17	UPS System with Brackets for 2 Post Rack	1		
18	Cable Ties & Install Hardware	1		
19	Misc Grounding Hardware	1		
	TOTAL SITE EQUIPMENT PRICING			\$7,956.00
Services				
1	Tower Work	1		
2	Granite Installation assistance with Tower Crew	1		
3	Installation of Polyphasors, Duplexors and Filters	1		
4	Travel to Lawler	2		
	TOTAL SERVICES			\$2,754.00
	Sales Tax			\$736.31
	TOTAL PACKAGE PRICE			\$11,446.31



Date : 8/14/2012

Quote #: mak81412d

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Logan VHF Antenna Equip	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price	Total
1	6.1 DB VHF Antenna SC229SFXSNM (Paging)	1		
2	AVA5-50 Paging Antenna Transmission Line (Paging 349')	369		
3	AVA5-50 Connectors	2		
4	Antenna 6' Jumper (N female to N Male)	1		
5	Ground Straps every 75' 1 top, 2 bottom	7		
6	Coax cable to tower clamps every 40"	100		
7	Lace-up Cable Hoisting Clamps with Tower Shackle	2		
8	Cable Entrance Boots	1		
9	Antenna Line Polyphasor	1		
10	Jumper Superflex from Polyphasor to Intermod Suppression Panel	20		
11	LDF4/Superflex Connectors	2		
12	Sinclair PC2213 Intermod Suppression Panel	1		
13	Jumper from Intermod to Duplexor	5		
14	Connectors	2		
15	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount	1		
16	Pair of Duplexer Cables	1		
17	UPS System with Brackets for 2 Post Rack	1		
18	Cable Ties & Install Hardware	1		
19	Misc Grounding Hardware	1		
TOTAL SITE EQUIPMENT PRICING				\$8,458.00
Services				
1	Tower Work TBD	1		
2	Granite Installation assistance with Tower Crew	1		
3	Installation of Polyphasors, Duplexors and Filters	1		
4	Travel to Logan	2		
TOTAL SERVICES				\$2,684.00
Sales Tax				\$766.01
TOTAL PACKAGE PRICE				\$11,908.01



Date : 8/28/2012
Quote #: mak82812e

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Quadna Site VHF Antenna Equipment	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price	Total
1	6.1 DB VHF Antenna SC229SFXSNM (Paging & Inter-op)	2		
2	AVA5-50 Paging Antenna Transmission Line (Paging 180')	200		
3	AVA5-50 Interop Antenna Transmission Line (Inter-op 160')	180		
4	AVA5-50 Connectors	4		
5	Antenna 6' Jumper (N female to N Male)	2		
6	6' Tower Side Mount Bracket (Inter-op)	1		
7	Ground Straps every 75' 1 top, 2 bottom	10		
8	Coax cable to tower clamps every 40"	114		
9	Lace-up Cable Hoisting Clamps with Tower Shackle	4		
10	Cable Entrance Boots	1		
11	Antenna Line Polyphasor	2		
12	Jumper Superflex from Polyphasor to Intermod Suppression Panel	40		
13	LDF4/Superflex Connectors	4		
14	Sinclair PC2213 Intermod Suppression Panel	2		
15	Jumper from Intermod to Duplexor	10		
16	Connectors	4		
17	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount	1		
18	Sinclair - 132-174 MHz Duplexer Q2220 (Inter-Op)	0		
19	Pair of Duplexer Cables	2		
20	7' Rack with grd bar & cable management	1		
21	UPS System with Brackets for 2 Post Rack	1		
22	Cable Ties & Install Hardware	1		
23	Misc Grounding Hardware	1		
	TOTAL SITE EQUIPMENT PRICING			\$13,294.00

Services				
1	Tower Work	1		
2	Granite Installation assistance with Tower Crew	1		
3	Installation of Polyphasors, Duplexors and Filters	1		
4	Travel to Quadna Mtn	2		
	TOTAL SERVICES			\$3,409.00

	Sales Tax	\$1,148.33
	TOTAL PACKAGE PRICE	\$17,851.33



Date : 8/14/2012
Quote #: mak81412c

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: Sandy Lake VHF Antenna Equip	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:		Qty	Price	Total
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1	6.1 DB VHF Antenna SC229SFXSNM (Paging)		1		
2	AVA5-50 Paging Antenna Transmission Line (Paging 349')		369		
3	AVA5-50 Connectors		2		
4	Antenna 6' Jumper (N female to N Male)		1		
5	Ground Straps every 75' 1 top, 2 bottom		7		
6	Coax cable to tower clamps every 40"		100		
7	Lace-up Cable Hoisting Clamps with Tower Shackle		2		
8	Cable Entrance Boots		1		
9	Antenna Line Polyphasor		1		
10	Jumper Superflex from Polyphasor to Intermod Suppression Panel		20		
11	LDF4/Superflex Connectors		2		
12	Sinclair PC2213 Intermod Suppression Panel		1		
13	Jumper from Intermod to Duplexor		5		
14	Connectors		2		
15	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount		1		
16	Pair of Duplexer Cables		1		
17	UPS System with Brackets for 2 Post Rack		1		
18	Cable Ties & Install Hardware		1		
19	Misc Grounding Hardware		1		

				TOTAL SITE EQUIPMENT PRICING	\$8,458.00
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Services					
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1	Tower Work		1		
2	Granite Installation assistance with Tower Crew		1		
3	Installation of Polyphasors, Duplexors and Filters		1		
4	Travel to Sandy Lake		2		

				TOTAL SERVICES	\$2,929.00
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				Sales Tax	\$782.86
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				TOTAL PACKAGE PRICE	\$12,169.86
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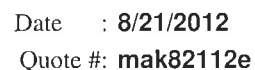


Date : 8/14/2012
Quote #: mak81412e

Customer: Aitkin Sheriff Office	Granite Electronics
Contact: Sheriff Scott Turner	535 N 31st Ave
Project name: White Pine VHF Antenna Equip	St Cloud, MN 56303
Phone: 218-927-7435	Nextel: 320-980-1948
	Office: 320-252-1887
	Quoted By: Michael Kahl
	Email: MikeK@GraniteElectronics.com

Item	Description:	Qty	Price	Total
1	6.1 DB VHF Antenna SC229SFXSNM (Paging)	1		
2	AVA5-50 Paging Antenna Transmission Line (Paging 349')	209		
3	AVA5-50 Connectors	2		
4	Antenna 6' Jumper (N female to N Male)	1		
5	Ground Straps every 75' 1 top, 2 bottom	7		
6	Coax cable to tower clamps every 40"	54		
7	Lace-up Cable Hoisting Clamps with Tower Shackle	1		
8	Cable Entrance Boots	1		
9	Antenna Line Polyphasor	1		
10	Jumper Superflex from Polyphasor to Intermod Suppression Panel	20		
11	LDF4/Superflex Connectors	2		
12	Sinclair PC2213 Intermod Suppression Panel	1		
13	Jumper from Intermod to Duplexor	5		
14	Connectors	2		
15	MTR3000 Duplexor Minimum 1.5 Mhz Frequency Separation Rack Mount	1		
16	Pair of Duplexor Cables	1		
17	UPS System with Brackets for 2 Post Rack	1		
18	Cable Ties & Install Hardware	1		
19	Misc Grounding Hardware	1		
TOTAL SITE EQUIPMENT PRICING				\$7,344.00
Services				
1	Tower Work	1		
2	Granite Installation assistance with Tower Crew	1		
3	Installation of Polyphasors, Duplexors and Filters	1		
4	Travel to White Pine	2		
TOTAL SERVICES				\$2,614.00
Sales Tax				\$684.61
TOTAL PACKAGE PRICE				\$10,642.61

Site Name	Antennas Installed at Site	Notes
County Sites		
Aitkin Water Tower	2 each 800 Mhz RF Control Stations PD10022 Antenna	Install one new AVA5-50 Cable, extend existing LDF5 cable with AVA5-50 to peak of tower.
MLEC/GRE Link to Glen	Microwave Radio Waves HP4-11(TR)	Install EPW90107 Elliptical Waveguide to base of antenna. Antenna, Stiff Arm, Ground Straps, Cable Straps, Hoisting Grips to be installed.
MLEC/GRE Link to Aitkin LEC	Microwave Radio Waves HP4-11(TR)	Install EPW90107 Elliptical Waveguide to base of antenna. Antenna, Stiff Arm, Ground Straps, Cable Straps, Hoisting Grips to be installed.
Jacobsen Link to Sandy Lake	Microwave Dish 4' Radio Waves SP4-4.7 with stiff arm	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Stiff Arm, Ground Straps, Cable Straps, Hoisting Grips to be installed.
State of MN Sites		
Glen Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Ground Straps, Cable Straps, Hoisting Grips to be installed.
Glen Inter-op Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware (3' side mount bracket). Antenna, Ground Straps, Cable Straps, Hoisting Grips to be installed.
Glen Link to GRE	Microwave Radio Waves HP4-11(TR)	Install EPW90107 Elliptical Waveguide to base of antenna. Antenna, Stiff Arm, Ground Straps, Cable Straps, Hoisting Grips to be installed.
Quadna Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware (3' side mount bracket). Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
Quadna Interop Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware (3' side mount bracket). Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
Sandy Lake Link to Jacobson	Microwave Dish 4' Radio Waves SP4-4.7 with stiff arm	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, stiff Arm, Ground Straps, Cable Straps, Hoisting Grips will be installed.
Sandy Lake Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
Logan Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
Lawler Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
White Pine Paging Antenna	Sinclair 6.1 DB VHF Antenna SC229SFXSNM	Install AVA5-50 cable to antenna, supply antenna mounting hardware. Antenna, Ground Straps, Cable Straps, Hoisting Grips will be installed.
System Total		Antenna installation services including parts, labor, mobilization and MN Sales Tax \$69,725.50

[illegible]



535 North 31st Ave
St Cloud, MN 56303

Phone 320-252-1887
Fax 320-259-5997



MOTOROLA
SOLUTIONS

Radio Solutions Channel Partner

8/28/12

Sheriff Scott Turner
Aitkin County Sheriff's Office
217 2nd St NW
Aitkin, MN 56431

Scott;

The cost related to activating and programming your subscriber fleet would be as follows:

Initial database creation detailing the serial numbers, subscriber ID number, subscriber alias, destination of the equipment (Squad #, officer etc...) and codeplug to be installed into each subscriber unit will need to be coordinated with your staff to develop a spreadsheet. This spreadsheet is a live database that has room for growth for your departments and will be utilized to keep track of your system and give the required annual reports to the ARMER System Administrator. This database will be shared between the Aitkin County system administrator and the Granite Electronics technical system administrator.

Database creation cost: \$1800.00.

Once this database has been created, the information will need to be programming into the ARMER system UCM along with the talkgroup database that has already been created. An initial entry of this will take approximately 16 hours.

UCM database entry cost: \$1600.00.

For each talkgroup layout that is developed and maintained, there is a \$200 codeplug development charge. The personality of the radio in regards to button operation, talkgroups assign to zones, preferred tower affiliation, call list build, voice annunciation etc..., are all things that vary from mobile to portable, discipline to discipline and department to department. Currently there are five layouts for different entities developed, assuming mobiles and portables will be used, a total of ten codeplugs will be used for the initial rollout. If additional codeplug are requested we can adjust this number.

Codeplug development: \$2000.00

Once the codeplugs have been developed, they need to be programmed into the subscribers and checked out for proper operation. This programming and the power check, frequency deviation & error are checks that are performed on each radio. A \$35 fee is charged for this service, I believe there will be approximately 200 subscribers initially which would bring the charge to \$7000.00.

If you have questions on these charges, please feel free to contact me @ 320-980-1948.

Sincerely,

A handwritten signature in dark ink, appearing to read "Michael Kahl".
Michael Kahl, Sales Manager