



Windsor Heights Police Department

1133 66th Street

Windsor Heights, Iowa 50324

Phone: (515) 277-4453

Fax: (515) 271-8160

www.windsorheights.org

To: Windsor Heights City Council & Mayor through City Administrator Klein
Re: FY15 purchase of three mobile radio units for Support Services / Administration
Date: 9 June 2015

Mayor & Council,

The intent of this memo is to offer background on the purchasing authorization request set forth on the June 15th council agenda that requests approval for the unscheduled acquisition of three mobile police department radios within the FY15 budget.

Background: The FY16 budget has within it the implementation of a second detective position in the police department and the necessary funding allocated to purchase an unmarked vehicle for this position. Based upon the anticipation of limited capital resources, the costs associated with equipping that vehicle with a mobile radio system was not included in the FY16 budget.

Additionally, in the police department's original capital improvement requests for FY16, funding for two mobile radios were requested so that the police chief and support services commander's vehicles could have the necessary equipment within them to effectively coordinate resources during incident command efforts at major incidents. This funding request was unfulfilled and direction was given to attempt to fund these purchases through any surplus FY15 police department operating monies and/or operating funds from FY16.

Expenditure: I am pleased to report that the police department's FY15 vehicles and equipment repair line item (001-110-6332) has a balance of \$20,594.39 as of June 9, 2015, due to no major fleet or equipment repairs. It is with these funds that I am requesting we cover the purchase of all three mobile radios and one siren/light controller at a total cost of \$13,376.31. This equipment order is being fulfilled through a collaboration effort with the Polk County Sheriff's Office in which we are receiving the products at a bulk discount rate due to a coordinated purchase of equipment pursuant to phase III of the regional radio project. Installation fees associated with the acquisition of this equipment will be funded through the FY16 PD operating/capital budget. If any additional information is needed, please do not hesitate to contact me. Supporting documents are attached to this memo.

Respectfully submitted,

Dennis W. McDaniel
Chief of Police & Fire Services

Dennis W. McDaniel, Chief of Police

PROTECTION. SERVICE. ENFORCEMENT. EDUCATION.

RACOM CORPORATION

201 WEST STATE
MARSHALLTOWN IA 50158

(641) 752-5820 Ext. 0000

INVOICE *

Number	15ORD0244
Date	4/7/2015
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ACKNOWLEDGEMENT

Bill To:

WINDSOR HEIGHTS POLICE DEPT
1133 66TH STREET
WINDSOR HEIGHTS IA 50324

Ship To:

WINDSOR HEIGHTS POLICE DEPT
1133 66TH STREET
WINDSOR HEIGHTS IA 50324

Purchase Order No.		Customer ID		Salesperson ID	Shipping Method	Payment Terms	Req Ship Date	Master No.
		7167		HOLMES	BEST WAY	NET15	4/7/2015	243,676
Ordered	Shipped	B/O	Item Number	Description	Discount	Unit Price	Ext. Price	
3	3	0	M7300 MOBILE		\$0.00	\$4,098.77	\$12,296.31	
3	0	3	MAMW-SDMXX	MOBILE, XG-75/M7300, 764-870 MHz, HALF D	\$0.00	\$0.00	\$0.00	
3	0	3	MW-P25ED	FEATURE PACKAGE, P25 TRUNKING & EDAC	\$0.00	\$0.00	\$0.00	
3	0	3	MW-PRO	FEATURE, PROVOICE	\$0.00	\$0.00	\$0.00	
3	3	0	MBP_12915	FEATURE PKG	\$0.00	\$0.00	\$0.00	
3	0	3	MAMW-NPL3R	FEATURE, MAX(1024+) SYSTEM/GROUPS	\$0.00	\$0.00	\$0.00	
3	0	3	MAMW-PKG8F	FEATURE, 256-AES, 64-DES ECP ENCRYPTIO	\$0.00	\$0.00	\$0.00	
3	0	3	MW-PL4U	FEATURE, SINGLE KEY DES ENCRYPTION	\$0.00	\$0.00	\$0.00	
3	0	3	MAMW-NPL5K	FEATURE, PROFILE, OVER THE AIR PROGR	\$0.00	\$0.00	\$0.00	
3	3	0	FREE PROFILE	FEATURE	\$0.00	\$0.00	\$0.00	
3	0	3	MAMW-NCP9P	HAND HELD CONTROLLER W/ACCESSORIES	\$0.00	\$0.00	\$0.00	
3	0	3	MAMW-NZN9G	INSTALL KIT, HHC-731	\$0.00	\$0.00	\$0.00	
3	0	3	AN-125001-001	ANTENNA BASE, STANDARD ROOF MOUNT	\$0.00	\$0.00	\$0.00	
3	0	3	AN-225001-001	ANTENNA, 700/800, 3dB	\$0.00	\$0.00	\$0.00	
1	0	1	S/L	SIREN LIGHT CONTROLLER	\$0.00	\$930.00	\$930.00	
3	3	0	A1	PROGRAM & BENCH	\$0.00	\$50.00	\$150.00	

Subtotal	\$13,376.31
Misc	\$0.00
Tax	\$0.00
Freight	\$0.00
Trade Discount	\$0.00
Total	\$13,376.31

Deposit Received:

\$0.00

The M7300 mobile has

- Multi-Mode functionality
- Dual-band operation
- Secure Communications



The M7300 mobile is a state-of-the-art radio that trunks seamlessly between the 800 MHz frequency band and the newly available 700 MHz frequency band. The M7300 mobile is designed to meet the critical demands of its users.

Multiple Operating Modes

The M7300 mobile supports multiple operating modes, including OpenSky® digital trunked operation, Enhanced Digital Access Communications System (EDACS®) or ProVoice™ trunked modes, P25 digital trunked mode, P25 digital conventional mode, and conventional analog mode.

Mutual Aid Operation

The M7300 also provides Project 25 conventional capabilities for interoperability with other users in the 700/800 MHz bands.

GPS Capability

The optional Global Positioning System (GPS) receiver module can provide standard GPS

formatted data over the air on OpenSky systems for vehicle tracking systems.

Secure Communications

The optional Advanced Encryption Standard (AES) is available for maximum communications security.

Over-the-Air Programming

OpenSky radios benefit from a flexible, software-based digital radio design. Features and user profiles are software-defined and can be reprogrammed over the air. The optional over-the-air programming feature allows communications protocols to be changed easily and added at any time.

CH-721 and HHC-731 Control Units

The M7300 radio uses the CH-721 Control Unit which is available in two models: System and Scan. The display is designed to maximize readability and ease of use. The CH-721 utilizes a 3-line 12-character alphanumeric display with large

buttons, volume knob, and channel knob, providing a user-friendly interface.

The HHC-731 is a rugged hand held controller providing an interface similar to the CH-721 in a compact, easy-to-use design. This compact design makes the HHC-731 ideal for special applications such as covert operations. The HHC-731 was also designed for special applications such as motorcycle, marine, and ATV mountings where space is at a premium.

About OpenSky

OpenSky is a secure integrated digital voice and data communication system. OpenSky leverages the power of Internet Protocol (IP) and packet technology for reliability and scalability to bring open data applications to the user. OpenSky uses a 19.2-kbps physical bit rate 4-slot Time Division Multiple Access (TDMA) airlink to achieve 6.25-kHz voice channel spectral efficiency and dynamic bandwidth allocation.

General Specifications

Dimensions (H x W x D):

Radio Only (30W):
2.0 x 6.9 x 9.2 in.
(50 x 175 x 233 mm)
RU and CU (Includes Knobs):
2.4 x 6.9 x 12.3 in.
(60 x 175 x 311 mm)
CU (Remote):
2.4 x 7.0 x 4.0 in.
(60 x 175 x 100 mm)

Weight:

Front Mount:
5.9 lb (2.68 kg)
Remote Mount:
Transceiver only: 5.25 lb (2.38 kg)
CH-721 CU: 1.25 lb (0.57 kg)

System Voltage:

10.8 to 16.6* VDC Negative Ground
*Not to exceed 14.3V above +50°C for motorcycle applications.

DC Supply Current:

Receive (Includes CH-721 CU):
4.0 amps maximum (with 15-Watt speaker output power)
Transmit (at 35 Watts RF):
15 amps maximum, 12 amps typical
Standby:
1.1 amps maximum

Ambient Temperature Range:

-22 to +140°F
(-30 to +60°C)

Relative Humidity:

90% @ 122°F (50°C)

Altitude:

15,000 ft (4572 m)

Duty Cycle:

TIA/EIA-603

Programming:

Field PC Programmable

Microphone:

Weatherproof microphone with hookswitch

Mounting:

Front or Remote Mount available

Construction:

Control Unit: High Impact Plastic
Transceiver: Cast Metal

Speaker:

External, 15W

Operation:

12 VDC Negative Ground

Signaling:

OpenSky TDMA
EDACS Digital Control
P25 Trunking
P25 Conventional
Conventional
Type 99
Channel Guard (CTCSS)
Digital Channel Guard
G-STAR™ Emergency/ID Encode
Two-Tone Individual Call Decode

Options and Accessories

Remote mount kit, system and scan control units, Hand Held Controller, mobile mic, DTMF mic, noise canceling mic, desk mic, desktop control station, and motorcycle kit.

Transmitter

	700	800
Frequency Range (MHz):	764-776, 794-806	806-825, 851-869
Rated Power Output EDACS and P25 (W):	30	35
Rated Power Output OpenSky (W):	30	30
RF Output Impedance (ohm):	50	
Frequency Stability (ppm):	±1.5	
Modulation/Deviation (kHz):	±5 (±4 NPSPAC)	
FM Hum and Noise (dBc):	-45 @ 25 kHz	
Audio Response:	+1/-3.0 dB from 6 dB/octave pre-emphasis; 300-3000 Hz	
Audio Distortion (typical):	2.55% @ 1000 Hz	
Conducted Spurious and Harmonics (dBc):	-65	

Receiver

	700	800
Frequency Range (MHz):	764-776	851-870
RF Input Impedance (ohm):	50	
Channel Spacing (kHz):	12.5, 25	
Frequency Stability (ppm):	±1.5	
Sensitivity @ EIA 12 dB SINAD (EIA):	0.25 µV/-119 dBm	
@ 5% BER (EIA):	0.35 µV/-116 dBm	
Selectivity (dB) @ 12.5 kHz:	-60	
@ 25 kHz:	-80	
Intermodulation @ 25 kHz (dB):	-77	
Spurious Rejection (except 2 nd image) (dBc):	-90	
FM Hum and Noise (dB):	47	
Audio Output (W):	15	

Note: Numbers are per TIA-EIA-603 Methods.

Environmental Specifications

Standard	Parameter	Methods & Procedures
MIL-STD-810F*	Low Pressure	500.4, Proc. I, II
	High Temperature	501.4, Proc. I, II
	Low Temperature	502.4, Proc. I, II
	Temperature Shock	503.4, Proc. I
	Solar Radiation	505.4, Proc. II
	Blowing Rain	506.4, Proc. I
	Humidity	507.4
	Salt Fog	509.4, Proc. I
	Blowing Dust	510.4, Proc. I
	Minimum Integrity Vibration	514.5, Proc. I, Category 24
	Functional/Basic Shock	516.5, Proc. I
	Transit Drop	516.5, Proc. IV
TIA/EIA-603	Vibration Stability	Par. 2.3.4 & 4.3.4
	Shock Stability	Par. 2.3.5 & 3.3.5
U.S. Forest Service	Vibration Stability	Par. 7.15

*Also meets superseded MIL-STD-810C, -D, and -E.

Digital Operation

Protocol:	OpenSky	ProVoice	Project 25	TIA/EIA-603
Vocoding Method:	AMBE+2™ Half Rate & Enhanced Half Rate	AMBE+2 Enhanced Full Rate	AMBE+2 Enhanced Full Rate & Enhanced Half Rate	Not Applicable
Signaling Rate (kbps):	19.2 & 9.6	9.6	9.6	Analog
Modulation:	4-Level GFSK & M4FM	GFSK	WQPSK & C4FM	FM
Data Communication Mode:	Half Duplex	Half Duplex	Half Duplex	Half Duplex

Encryption

Encryption Technique:	Non-Linear Product/Block Transformation
Algorithm Types:	Data Encryption Standard (DES)/Advanced Encryption Standard (AES) (P25)

Regulatory Data

Frequency Range (MHz)	RF Output (W)	Frequency Stability (ppm)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules
764-806	30	1.5	OWDTR-0051-E	90	3636B-0051	RSS-119
806-870	35	1.5	OWDTR-0051-E	90	3636B-0051	RSS-119





SMARTSIREN®

ELECTRONIC SIREN AND LIGHT CONTROL SYSTEM



Federal Signal's SmartSiren® electronic siren and light control is the most technologically advanced unit available. Using microprocessors and state-of-the-art design, SmartSiren systems pack all the features you need into an ultra-compact package!

The SmartSiren system consists of a control head and a separate amplifier/relay unit. The control head features a four-position slide-switch, for quick activation of warning functions, and up to seventeen push-buttons. Model SS2000SM-SD adds four buttons for control of a SignalMaster™ directional light. Both models provide for activation of six auxiliary circuits.

SmartSiren units offer the standard siren tones (Wail, Yelp, Hi-Lo, Priority, Air Horn and Manual) and several advanced features, such as horn ring transfer, radio rebroadcast, and PA. There is also provision for the installation of a user-supplied switch to activate lights and siren in pursuit mode.

To use the PA feature, a separate microphone, model MNCT-SB, must be purchased. If the amplifier is mounted remotely, an extension cable, model RMK, is also required.

The SmartSiren system can drive 58-watt, 100-watt, and 200-watt speakers. For control of lights and auxiliary functions, eight relay outputs are available: one 40-amp, two 20-amp, and five 10-amp outputs.

Additionally, model SS2000SM-SD enables control of seven distinct patterns (three directional and four flashing warning) on six-lamp or eight-lamp SignalMaster units. An LED display on the control head flashes in the same pattern as the one currently selected.

For added versatility, the SmartSiren system can be configured at the point of installation. Users can select desired functions and program them through the control head.

Installing the SmartSiren system is easy. The amplifier/relay unit can be remotely located and connected to the control head via a 25-foot wire with telephone-style connectors. The supplied mounting bracket allows the assembly to be located in a variety of positions.

The SmartSiren control head is "Air Bag Wise." When installed properly, it won't interfere with deploying air bags. For safe equipment mounting zones inside the vehicle, consult the manufacturer's guidelines.

> Features

Electronic siren and light control combined.

Functions programmable at the point of installation.

Power versatility – 58, 100, and 200 watts.

"Air Bag Wise" – 1-inch thick control head.

Easy action rubberized push-buttons.

Buttons backlit for easy nighttime viewing.

Optional SignalMaster™ directional light control (SS2000SM).

Easy installation with supplied connectors.

> Approvals

Meets SAE J1849 and CCR (CAC) Title 13, article 8 requirements for sound when coupled with any Federal Signal, SAE and CCR approved speaker.

> How to Order



SS2000SS-SD

SmartSiren Features

- Slide-switch positions can activate one or more light and siren functions
- Push-buttons can be specified to be on/off or momentary
- Eight-second timer can be programmed to any switch function
- Audible "chirp" feature can remind user of the active status of the siren
- Supplied function labels identify switches and are easily replaced

SS2000SS-SD Features

- Wail, Yelp, Hi-Lo, Air Horn, Manual, Priority, and horn ring transfer
- Program mode can be disabled to prevent unauthorized reprogramming
- Siren tones and light functions can be configured independently of each other
- "Power Up" siren tone may be selected (Wail, Yelp, Hi-Lo, or Priority)
- Each slide-switch position can be configured to operate any combination of eight relays, PA, horn ring transfer, and siren enable
- Any button on the siren row, except STBY, can be enabled or disabled

SS2000SM-SD Features

- Same as SS2000SS-SD plus:
- Control of up to seven distinct SignalMaster patterns
- Configuration of the slide-switch positions to operate any combination of eight relays, PA, horn ring transfer, siren enable, and any of the four SignalMaster warning patterns

Select Model

- SS2000SS-SD** Electronic siren and light control system
- SS2000SM-SD** Electronic siren and light control system with SignalMaster control

Order Accessories (if necessary)

- MNCT-SB** Noise-cancelling microphone
- RMK** Extension cable for microphone
- AS124** 100-watt speaker (model 750501)
- MS100** DynaMax 100-watt speaker
- UPKM-3** Park siren deactivator module

Specifications	
Input Voltage	11-16 VDC
Standby Current	0.5A
Operating Temperature	-30°C to +65° C
Frequency Range	700 to 1500 Hz (nominal)
Nominal Cycle Rate	Wail - 12 cycles/min. Yelp - 180 cycles/min. Hi-Lo - 60 cycles/min.
Voltage Output	62-66 volts peak-to-peak
Audio Response	300-3000 Hz +/- 3dB
Audio Power	45W in PA mode
Input Impedance (PA)	4000 ohms (nominal)
Physical Specifications (Amplifier)	
Length	6.3 in (15.9 cm)
Width	6.4 in (16.2 cm)
Height	2.3 in (5.9 cm)
Ship Weight	6.0 lbs (2.7 kg)
Physical Specifications (Control Head)	
Length	6.8 in (17.2 cm)
Width	1.3 in (3.3 cm)
Height	3.1 in (7.9 cm)
Shipping Weight	1.0 lbs (0.5 kg)



CAPITAL PROJECT REQUEST FY 2016-2020

Department _____

Police _____

Responsible Person _____

Chief McDaniel _____

FUND / LINE ITEM # 810-110-6727

PROJECT NAME: Other Capital Equipment - Incident Command Mobile Radio Units (2)

CATEGORY _____ **Improvement** _____ **Equipment** X **Personnel** _____

DEPT PRIORIT 2 (1 High...5 Low) **Useful Life** 10+ years

DESCRIPTION

XG75 Mobile radio unit: \$3800 (base price includes trunk mount radio, antenna, standard mic, limited keypad front, P25 trunking, digital and conventional modes)
 Control Head Type: -\$100 (reduction for hand held instead of partial keypad)
 Handheld Siren/Light controller: \$400
 Total estimate: \$4,100/each
 Installation: \$~400/each

TOTAL: \$9,000 capital investment + \$23.50 per unit additional monthly operating access fee (\$564 annual)

JUSTIFICATION In FY15 the City partnered with Polk County to complete Phase II of the regional radio project. This project included the upgrade of all existing mobile (in-car) radios and portable radio units and included the installation of a P-25 radio tower on the public safety building's campus. At that time the Police Chief and Support Services Division Commander did not receive mobile units in their emergency response vehicles. After experiencing insufficient radio capabilities during larger scale incident command activities and exercises, it is being proposed that both of these vehicles have a mobile unit installed in them to better serve as a tactical operations center during multi-jurisdictional incident command/unified command initiatives.

*NOTE: If the WHFD and Clive merge services, two existing mobile units will be repurposed from existing equipment and only installation costs + monthly access fees are needed.

Expenditure Schedule

PROJECTED TOTAL	2016	2017	2018	2019	2020	TOTAL	FUTURE TOTAL
\$ 9,564	\$ 564	\$ 564	\$ 564	\$ 564	\$ 564		
\$ 9,564	\$ 564	\$ 564	\$ 564	\$ 564	\$ 564	\$ -	\$ -

Funding Sources

PROJECTED TOTAL	2016	2017	2018	2019	2020	TOTAL	FUTURE TOTAL
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Operating Budget Impact

PROJECTED TOTAL	2016	2017	2018	2019	2020	TOTAL	FUTURE TOTAL
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OTHER NOTES

*See note above - equipment may be repurposed in lieu of purchase. Otherwise purchase of capital equipment would be supported through existing FY15 ATE funds (100%). The General Fund would absorb monthly operating expenses.

Please Provide Picture or Map Here _____

Category Options:

Buildings-Addition/Remodel
Computer / Communications Equipment
Engineering Design Services
General Equipment over \$150,000
Vehicle Replacement over \$10,000
landscaping
Office Equipment over \$10,000
Park Equipment over \$10,000
Park Improvements
Parks & Trail System
Sanitary Sewer Construction
Stom Sewer Maint/Construction
Sidewalk Constrctuion
Street Construction & Reconstruction
Street Lighting
Traffic Signals
Watermain Replacement

Operating Budget Options:

Personnel/Benefits
Supplies/Services
Capital

Expenditure Options:

Planning/Design
Vehicles
Construction/Maintenance
Equip/Furnishings

Funding Source Options:

General Fund Operating Budget
General Fund Capital Budget
Road Use Operating Budget
Road Use Capital Budget
Cash-Sewer Fund
Cash-Storm Water Fund
Cash-Water Fund
Cash-TIF Funds
Developer Contribution
Federal Appropriation
County Appropriation
Prairie Meadows Community Betterment
GO Bond Proceeds
Grants-General
Grants-Iowa DNR
Grants-Trails
Grants-Safe Routes to Schools
Capital Improvement Levy-Voter Approved
LOST
MPO STP Funding
MPT STP-TE Funding
Special Assessments
Special Assessments-bond proceeds
Other-Please Specify
TIF Bond Proceeds
Water Capital Funds
Other please specify
FY15 ATE revenues for capital purchase