

City of Biddeford
City Council - Workshop
January 14, 2020 6:00 PM Council Chambers

- 1. Workshop Discussion Items**
 - 1.1. FY21 Capital Improvement Projects Budget
[Radio Project CIP 2020.pdf](#)

RADIO SYSTEM UPGRADE

Problem Identification:

The existing two-way communications system is a VHF conventional voting communications and dispatch system which went live in October of 2005. At a cost of \$2.6M in 2004, this project upgraded the two-way radio communications for all city departments, including schools and school buses. The system is APCO Project 25 compliant, is digitally capable, and was lauded at the time to be the system that would meet our communications challenges and adhering to interoperability standards.

As it exists today, the system has reached its “end of life” in terms of support and availability for system upgrades. Current equipment shown below is at end of life:

Quantar Repeaters/ support unavailable after December of 2019
Astrotac Comparators/ support unavailable after December 2018
XTS 5000 Portable Radios / support unavailable after 2016
XTL5000 Mobile Radios / support unavailable after 2016
XTS 2500 Portable Radios / support unavailable after 2016
MCC5500 Dispatch Consoles / support unavailable after December 2019

To have a better understanding of the term “end of life”, I will use a contemporary example. WINDOWS 7 will no longer be supported as of January 18, 2020. This means that while it will remain as an operating system, software updates and upgrades will no longer be available. Anyone using a computer system knows that without upgrades or “fixes”, certain software systems will not work properly, if at all.

The existing system is a “voting” system, which simply means that receivers out in the field “vote” the strongest signal to transmit back to the transmit tower at DPW. While it greatly improved the “talk out” from portable radios along the coast, “dead spots” at various points throughout the city still remained, as they do today. Along with our existing dead spots, in-building penetration poses the greatest threat to first responders. Communications in and out of certain buildings in Biddeford is extremely difficult, if not impossible.(examples of this problem include: North Dam Mill complex; Saco Falls Way Project; Lincoln Mill; Southern Maine Health Care; Biddeford Crossing; areas west of the Maine Turnpike; University of New England, as well as out Public and Private schools). I have attached propagation maps to illustrate my point.

Proposed Solutions:

The Motorola 800MHz Astro Trunked Simulcast system addresses end of life and product reliability of the existing VHF conventional voting communications and dispatch system to address the end of life and reliability issues. Motorola Solutions has proposed system a combination of hardware, software, and services that would change the “voting” system to a 800MHz Simulcast System. Instead of “voting” and relaying back to the main tower, ALL

remote sites would transmit and receive AT THE SAME TIME, which means that in-building talk in and talk out on portable radios is achieved.

Specifically, the solutions include:

- Seven (7) Dispatch Consoles. 5 @ Police, 2 @ Fire as back up
- 800 MHz, 3-Site, 4-Channel Trunking System.
- MCD5000 Deskset System.
- 336 APX Mobile and Portable Radios for Police, Fire and DPW.
- 11 DVRS (Digital Vehicular Repeater Systems) for Police and Fire.

This ASTRO 25 Phase 2 trunked simulcast system includes the necessary hardware, software, and services to implement the new simulcast system along with the Core and Console.

This proposal includes:

- P25 Master Site with Licenses and Network Equipment.
- Prime and RF Sites Equipment.
- MPLS.
- 5 MCC7500E Dispatch Consoles.

Fortunately, our existing infrastructure, i.e., DPW tower, tower site building, K.K.W. tower infrastructure locations etc. are in excellent condition saving approximately \$500,000.00.

Equipment Considerations (actual numbers can change)

Police Equipment (field units) all with encryption

32 APX 8500 Mobiles
70 APX 8000 Portables

Fire Equipment (switching to Digital)

- Fire Department Subscribers:
 - Fifty-two (52) APX 8500 Remote Mounted Mobiles.
 - One hundred (100) APX 8000 Portables.
 - Six (6) APX 8500 Consolettes with antenna systems.
 - Eighteen (18) MCD 5000 Desk-sets with Network gear.
 - Ten (10) Vehicle DVRS.
- Public Works Subscribers:
 - Sixty (60) APX 1500 Mobiles.
 - Twelve (12) APX 1000 Portables

Justification for awarding contract to Motorola:

MOTOROLA is a reputable vendor of public safety communications systems, and provides the best equipment support, reliability and functionality. They have already submitted RFPs, and have received State Contracts, which includes Maine.

NASPO, National Association of State Procurement Officials (Maine contract pricing)
Motorola has gone above the NASPO pricing, discount is in excess of 40%.

CONTRACT PRICING

Equipment and Services	Price
Fixed Network Infrastructure Cost Per NASPO Value-Point Contract	\$2,070,083.00
Subscriber Radio Cost Per NASPO Value-Point Contract	\$2,257,483.00
Installation and Integration Costs per NASPO Value-Point Contract: • Engineering • Installation Services (Fixed and Subscriber Installation Cost) • Systems Integration Services • Project Management Services • Site Improvement Services • Training • 24 x 7 First Year Warranty • System Staging	\$1,912,855.00
System Sale Price Per NASPO Value-Point Contract	\$6,240,421.00
12 Month Interest Free Lease	Included
Contract Execution by 12/19/2019	-\$384,597.00
System Replacement Discount	-\$700,000.00
Subscriber Discount	-\$650,000
Equipment and Services Total Per NASPO Value-Point Contract with Incentives	\$4,505,824.00

****NASPO= National Association of State Procurement Officials (Maine contract pricing)**
Motorola has gone above the NASPO pricing, discount is in excess of 40%.

Other municipalities that have purchased off contract in the last 2 years:

New Hampshire State Police- \$7.2 m sale price / 28 Site VHF Conventional Comm System

Nashua, NH - \$4m Sale Price – 3 Site 800 MHz Trunked System

Kittery, ME-\$800k Sale Price – 5 Site VHF Conventional Voting System

York, ME - \$700k Sale Price – 4 Site VHF Conventional Voting System

York County ME - \$500k Sale Price – 4 Site VHF Conventional Voting

	<i>First year interest free</i>		
	<u>Option One</u>	<u>Option Two</u>	<u>Option Three</u>
Lease Term:	Three Years	Five Years	Seven Years
Payment Frequency:	Annual	Annual	Annual
Payment Structure:	Arrears	Arrears	Arrears
Lease Rate First year:	0%	0%	0%
Lease Rate remaining term:	2.67%	2.73%	2.71%
Lease Factor:	0.342154	0.210916	0.154568
Lease Payment:	\$1,541,686.34	\$950,350.46	\$696,455.74
Payment Commencement:	First payment due one year from contract execution.		
Expiration:	This interest rate methodology is valid for all leases commenced by 12/31/2019		
Indexing arrangement – Non-bank qualified structure 3, 5 and 7 year terms			



Red is dead