CITY OF NEW BEDFORD
JONATHAN F. MITCHELL, MAYOR

December 6, 2018

City Council President Linda M. Morad and
Honorable Members of the City Council
133 William Street
New Bedford, MA 02740

Dear Council President Morad and Honorable Members of the City Council:

I am submitting for your approval a LOAN ORDER in the amount of $7,662,000 to pay the costs of upgrading and replacing the City's Public Safety Radio Communications System.

Sincerely,

Jon Mitchell
Mayor

CITY OF NEW BEDFORD

CITY COUNCIL

December 13, 2018

A BOND ORDER TO AUTHORIZE THE BORROWING OF FUNDS TO PAY COSTS OF UPGRADING AND REPLACING THE CITY'S PUBLIC SAFETY RADIO COMMUNICATIONS SYSTEM

BE IT ORDERED, BY THE CITY COUNCIL OF THE CITY OF NEW BEDFORD AS FOLLOWS:

ORDERED that $7,662,000 is appropriated to pay the costs of upgrading and replacing the City's public safety radio communications system, including but not limited to fiber infrastructure and radio tower installations, detail study and conceptual design, licensing and infrastructure implementation, (the "Project"); that to meet this appropriation the Treasurer with the approval of the Mayor and the Committee on Finance is authorized to borrow $7,662,000 under Chapter 44 of the General Laws or any other enabling authority; that the premium received by the City upon the sale of any bonds or notes hereunder, less any such premium applied to the payment of the costs of issuance of such bonds or notes, may be applied to pay project costs and the amount authorized to be borrowed hereunder shall be reduced by the amount of any such premium so applied; and that the Mayor is authorized to take any other action necessary to carry out this project; provided, however, that the Chief Financial Officer shall approve the amount and timing of the borrowing for each of the four phases of the Project.

FURTHER ORDERED: That the Treasurer is authorized to file an application with the appropriate officials of The Commonwealth of Massachusetts (the "Commonwealth") to qualify under Chapter 44A of the General Laws any and all bonds of the City authorized by this Order, and to provide such information and execute such documents as such officials of the Commonwealth may require in connection therewith.

MANAGEMENT INFORMATION SYSTEMS DEPARTMENT

MARIA PINA-ROCHA
MIS DIRECTOR

CITY OF NEW BEDFORD

JONATHAN F. MITCHELL, MAYOR

TO: **Jonathan F. Mitchell, Mayor**

FROM: **Joseph Cordeiro, Police Chief**
Michael Gomes, Fire Chief
Maria Pina-Rocha, Director of MIS

DATE: **November 30, 2018**

SUBJECT: **Proposed Radio Frequency Communications Upgrade**

In early 2017 a steering committee was formed to evaluate the current state and condition of the public safety radio communications system. This committee included the MIS Director, the Police Chief and Deputy Chief, the Fire Chief and District Chief, Emergency Management Director, and the Emergency Medical Services Department Head and Deputy Director. Below is a summary of our findings:

The New Bedford Public Safety radio communication infrastructure and equipment has reached the end of life. The core equipment was installed around 1995. Although some mobile and portable equipment have been replaced most of the inventory is aged. Replacement parts are no longer available. Refurbished parts and custom-built parts are much harder to locate. A minor malfunction would leave police dispatch unable to communicate with the police officers on the street. There is currently no backup plan that could effectively continue communication between dispatch and other officers.

Radio coverage within the city is also challenged. There are several areas of New Bedford that prevent police officers from communicating with the dispatch office. Currently all 8 remote radio locations are connected to the NBFD HQ and NBPD HQ communication centers by Verizon leased copper lines, costing the City 39K annually. These lines are increasingly subject to outages as Verizon is reducing its support for this very old infrastructure and increasing support for its IP/Ethernet infrastructure. In addition, not all areas of New Bedford have radio coverage.

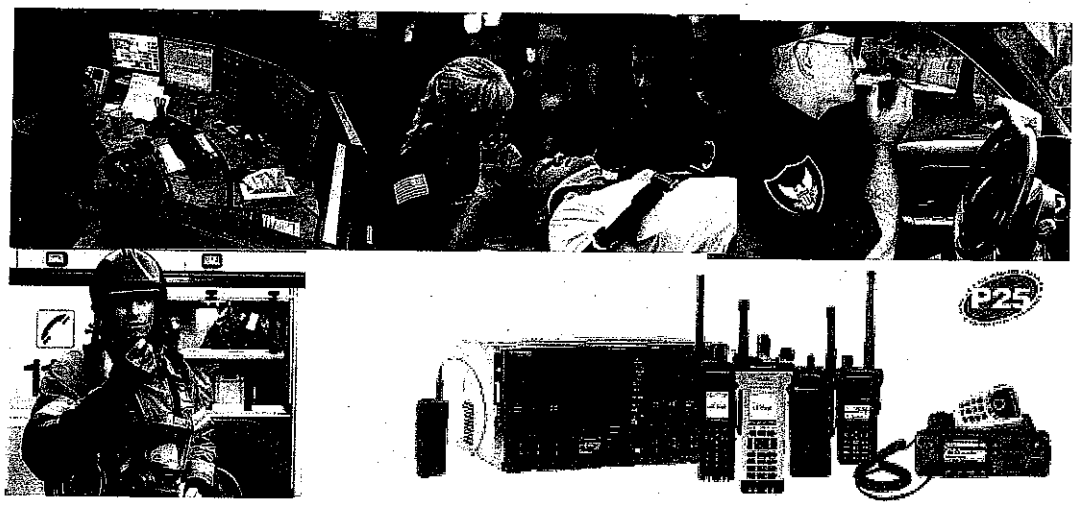
To identify funding for the Public Safety Nationwide Broadband Network (FirstNet), Congress passed a law (T-Band Giveback Law) in 2012 requiring that all current users vacate the T-Band/UHF frequencies. The NBFD and NBPD frequencies are part of the T-Band Giveback Law. This Law requires the FCC to auction these T-Band frequencies by 2021 and affects public safety agencies in 11 major cities in the US with many in eastern Massachusetts. Each T-Band user is required to be off the T-Band frequencies within two (2) years after the auction is completed. New Bedford operates on the T-Band set of frequencies. Because the infrastructure built to operate analogue frequencies cannot be utilized to operate any new or enhanced public safety digital radio infrastructure, the copper lines cannot be used.

In July 2017 the City began consulting with leading industry experts to consider our alternatives. Langone & Associates was tasked to perform an Abbreviated Radio Communications Study. This study identified the necessary changes to improve radio communications throughout the City for Fire, Police, Emergency Management and Emergency Medical Service radio users. This would require the City to transition from an analog technology to a digital technology which runs on fiber. Digital systems provide improved voice quality over a larger area than analog and include features such as seamless integration of voice encryption.

The City also leveraged the Community Compact grant to retain the services of a network communications solutions company to assist the City with the redesign of the City's Fiber Municipal Area Network that will connect the radio communication sites along with City and School buildings to a redundant ring network.

The city's public safety radio communication system is in a critical state. Based on the current T-Band giveback Law, we have a federal mandate to transition to a new frequency by 2023. Our recommendation is to upgrade the public safety radio communications infrastructure to achieve both full and secure communications coverage for our public safety departments. We have attached a presentation of this proposal.

City of New Bedford
Public Safety Radio Communications



Radio Communications Overview

- Current Challenges
- Current State
- Steps Taken
- Proposed Upgrade
- Timeline and Cost Projections
- Recommendations

Radio Equipment Challenges

- Radio Communications infrastructure was installed around 1995.
  - This includes equipment such as: repeaters, receivers, antenna systems, office/portable/mobile radios, vehicle repeaters, comparators, and radio dispatch consoles.
- New parts are no longer available.
- Refurbished parts and custom built parts are much harder and more expensive to locate.
- A minor malfunction would leave police dispatch unable to communicate with the firefighters and police officers on the street.

Radio Coverage Challenges

- Not all areas of New Bedford have adequate radio coverage.
- Verizon leased lines are increasingly subject to outages which impacts radio coverage.
- Verizon is reducing its support of these copper lines. The long term solution is to connect radio sites by Microwave or Fiber.

Radio Frequency Challenges

- Equipment can only be used for the UHF frequency band it was built for.
- New Bedford Public Safety operates on the T-Band (470 to 512 MHz) set of frequencies.
- In an effort to identify funding for the Public Safety Nationwide Broadband Network (FirstNet), Congress passed a law (T-Band Giveback Law) in 2012 requiring that all current users vacate the T-Band/UHF frequencies.

Current State

- The city's public safety communications system is aging and subject to increasing vulnerability.
- Fire and Police Dispatch have centralized their dispatch operations.
- 100% of the copper analogue line that connects the radio towers for police and fire to dispatch are owned by Verizon.
  - The cost of those lines to the city is $39,000 annually. (an increase of $5K annually after fire dispatch moved to police headquarters).

Steps Taken

- In July 2017 the City began consulting with leading industry experts to consider our alternatives.
- Among those experts were:
  - Langone and Associates – Abbreviated Radio System Study
  - Comm-Tract – Fiber Design
  - CyberComm Inc – Public Safety Interim Plan

Proposed Radio Communications Upgrade

- Improve radio coverage by
  - Running the radio communications network on city owned fiber
  - Replace all outdated equipment at all the radio tower locations
  - Increase the number of towers and improve configuration
- Prepare for the frequency change requirements under the T-Band Giveback Law
- Replace all outdated equipment carried by public safety personnel, within public safety vehicles and at public safety locations

Timeline and Cost Projections

Fiscal Year	Task	Cost
Fiscal 2019	Fiber Infrastructure and Radio Tower Installations	$1,662,000
Fiscal 2020	Detail Study & Conceptual Design / Surveys / Coverage Analysis / Licensing	$1,600,000
Fiscal 2021	Prepare & File FCC for New 700/800 Frequencies / Procurement Specifications / Infrastructure Implementation	$1,600,000
Fiscal 2022	System Tests & Acceptance / User Training / Program & Install subscribers / Transition to New System	$2,800,000
Total Project Cost		**$7,662,000**

Recommendation

- The city's public safety radio communication system is in a critical state.
- Based on the current T-Band giveback Law, we have a federal mandate to transition to a new frequency by 2023.
- Our recommendation is to upgrade the public safety radio communications infrastructure in order to achieve both full and secure communications coverage for our public safety departments.