



Town of Redding  
Fire Districts'  
Radio Upgrade Project  
March 2019

# Redding Fire Districts' Radio Upgrade Project

## Overview:

- Background
- Current State
- Plan for the Future
- Next Steps



# Redding Fire Districts' radio infrastructure: Obsolescent and potentially unreliable

- Low-band frequencies were assigned 40+ years ago – the only band available at that time.
- Point-to-point communications for low-band frequencies are unreliable, especially given Redding's hilly terrain and unpredictable weather.
- Manual message conveyance is antiquated, error-prone, and creates risks for first responders:
  - Getting a message from point A to point B is a fully manual process – it is burdensome and overtaxes dispatchers and can be unreliable.
  - First responders in one part of Town cannot hear those in other parts of Town or those responding from out of Town. This causes inadvertent interference with each other, lost messages, poor coordination, and increases life and safety risks for all involved.
- Fire and EMS services throughout the country have abandoned the outdated system currently in place for the same reasons cited above. Redding remains one of only a few towns in the region still using simplex low-band communications.

# Redding Fire Districts' antiquated radio infrastructure

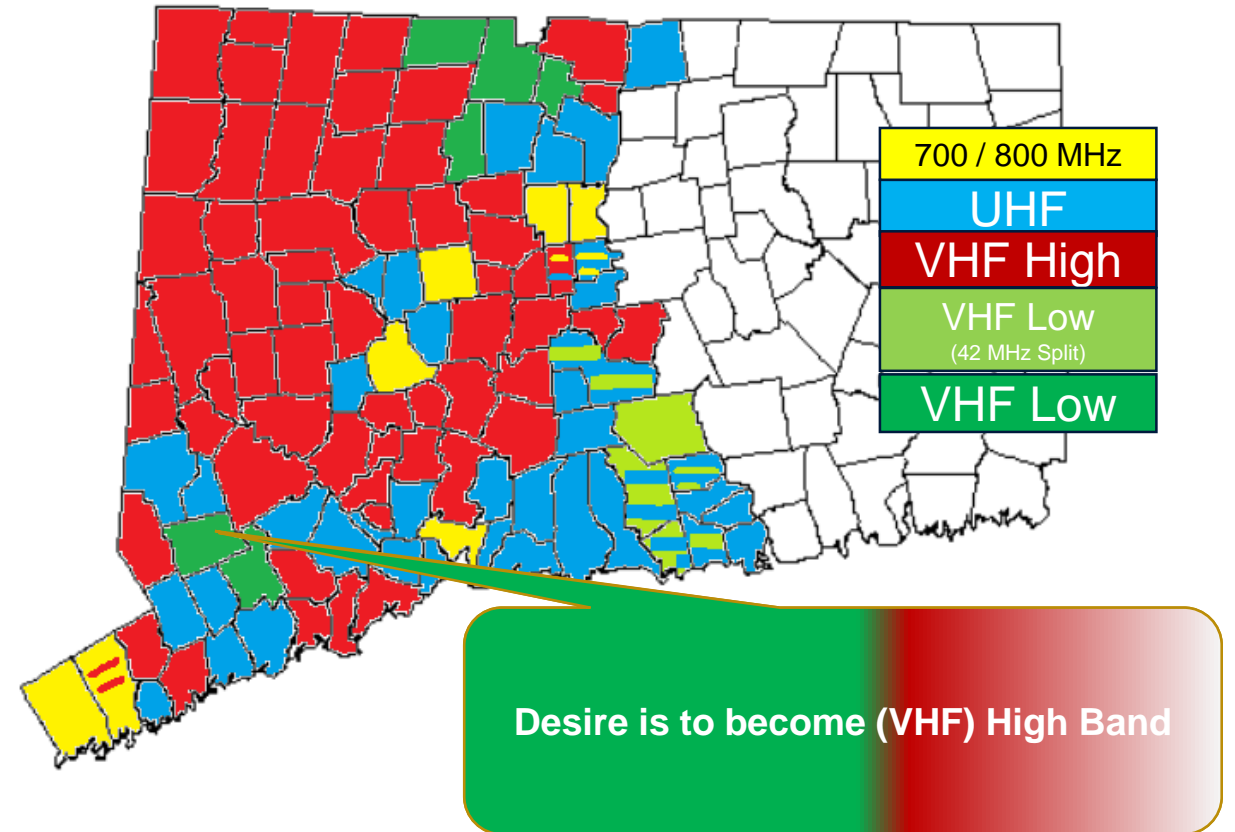
- Radio equipment repairs have become increasingly difficult due to the scarcity of replacement parts as well as more costly and time-consuming to maintain:
  - Low-band equipment is no longer being manufactured by key suppliers (e.g., Motorola).
  - Fire and EMS apparatus and our volunteer first responders depend on this equipment for emergency notifications and response. Reliance on outdated equipment extends volunteer and apparatus downtime.
- The vast majority of Redding is a “dead” zone for low-power handheld portable radio communications. Under certain conditions, handhelds are useless and can directly impact the public's and first responder safety.
  - We can only coordinate responses with higher-powered vehicle based mobile radio equipment.
- When more than one incident occurs in Town, first responders from the 3 Fire Districts may lack adequate coordination due to an inability to hear and communicate what's happening. Our personal safety and quality-of-service can be compromised as a result.
- Because Redding is among one of the last few CT Towns using low-band, our Fire and EMS vehicles must install multiple radios devoted to operating with our mutual aid partners (i.e., the surrounding towns and state agencies). This can pose technical difficulties and increases costs.

# To protect Redding and its first responders, dependable modern radio communications are critical

- Must abandon our antiquated and unreliable low-band radio system and replace it with VHF high-band, which will:
  - Meet or exceed the current national P25 standards for public safety two-way radio communications.
  - Address the Town's and Fire Districts' present and long-term needs and allow for timely future upgrades and modifications.
- Design and implement a modern and dependable radio infrastructure with technology that fully supports our Fire and EMS operations as well as our mutual aid partners.
  - Supports paging solutions and other up-to-date first responder volunteer notification techniques.
  - Supports first responder safety functions and provides mutual aid interoperability.
  - Prevents inter-agency interference and avoids need for manual point-to-point messaging.
- Takes advantage of existing Redding Police Department's VHF high-band licenses that were set aside for the Town's Fire and EMS services.
- Efficiently combines the Fire and EMS upgrade with the Town Police Department radio upgrade to cut costs.

High-band is embraced by public safety agencies as optimal for radio communications reliability and effectiveness

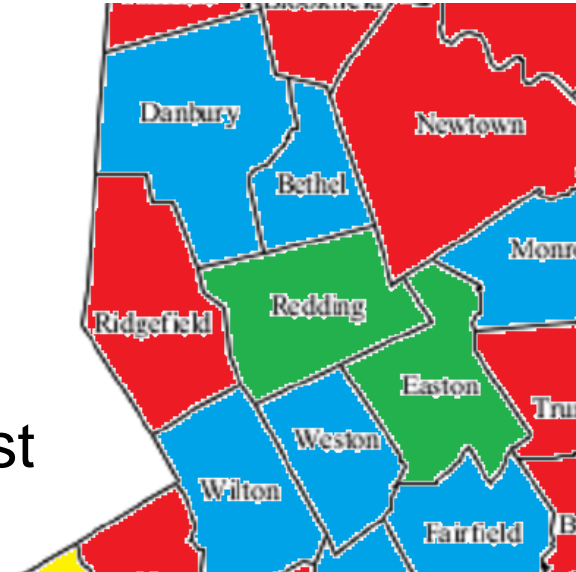
- Redding is one of very few remaining CT towns using **low band** (see map).
- VHF high-band licenses are difficult to obtain due to their popularity and many operational benefits.
  - But Redding had the foresight to secure these critical VHF high-band licenses years ago.
- Use of VHF high band is especially important in Redding due to its hilly terrain.



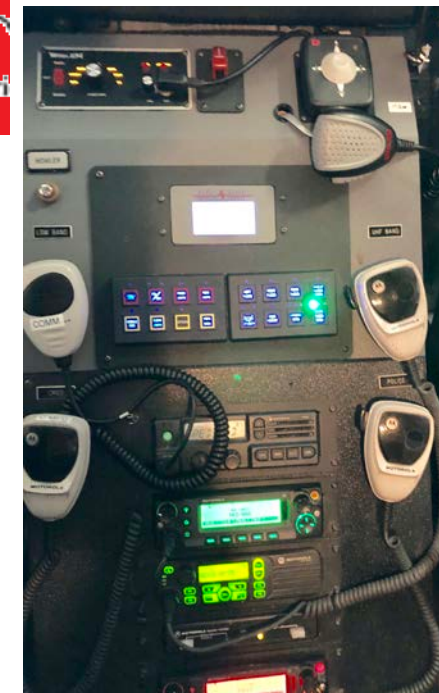


High-band is embraced by public safety agencies as optimal for radio communications reliability and effectiveness

- Currently, each separate radio band requires installation of a different piece of radio equipment.
  - Each Fire and EMS vehicle must install at least 3 mobile radios!
- Industry trends and modern equipment allow **UHF** and **VHF** high-band radios to be combined, which simplifies our work and reduces expense.



700 / 800 MHz
UHF
VHF High
VHF Low



# So how will the Radio Upgrade Project affect the Town financially?

- ✓ Enables the Town and its Fire and EMS services to cost-effectively acquire and maintain a dependable modern radio infrastructure and mobile equipment that meet or exceed current P25 two-way radio communications standards.
- ✓ The radio upgrade costs have already been factored into all 3 Fire Districts' budgets so no significant fire tax increases are anticipated.
- ✓ Coordinating the Fire and EMS radio infrastructure upgrade with the Police Department's is both efficient and should reduce costs for the Town.
- ✓ Radio upgrade should be functional for another 20+ years and provide greater dependability and interoperability.
- ✓ Critical FCC VHF high-band licenses already exist for Fire and EMS use, and the cost of adding 4 to 6 additional fire ground frequencies should be minimal.



## Key next steps:

- Technical Working Group (“TWG”) to assist PierCon with developing the radio upgrade design specifications responsive to the communications needs of the Town and 3 Fire Districts -- PENDING
- Presentation of radio upgrade project and infrastructure needs at March 14<sup>th</sup> Board of Finance meeting -- PENDING
- TWG progress report update presentations made to various Fire Company memberships – COMPLETED.
- PierCon design phase proposal approved and funded by Town and all 3 Fire Districts – COMPLETED.

# Timeline for Radio Upgrade Project: 2017 - 2019

## June 2018\*

PierCon Solutions, LLC ("PierCon") "needs analysis" report completed and shared with all 3 Fire Districts.

## Aug. 2018

PierCon in-person presentation of its final "needs analysis" report to Town and Fire Districts' representatives.

Town and Fire Districts' representatives discussed the PierCon report and agreed to follow its recommendations. Each Fire District requested to appoint representatives to participate in an advisory technical working group ("TWG") to thoroughly analyze every PierCon report recommendation.

## Sept. 2018

Dist. 1 and Georgetown appoint TWG representatives.

Dist. 1 Commissioner requested West Redding TWG participants at Dist. 2 meeting.

## Oct. 2018

1<sup>st</sup> TWG Meeting held.

Each Fire District's anticipated upgrade equipment needs were surveyed using the PierCon "needs analysis" report methodology.

WRFD TWG representatives not yet appointed or present at 1<sup>st</sup> TWG meeting, but its provisional upgrade equipment needs were projected based on Dist. 1 survey.

Dist. 1 Commissioners met with Dist. 2 requesting appointment of West Redding TWG representatives and presented progress report.

## Nov. 2018

Board of Selectman Meeting:

- Fire Districts' radio upgrade project requested to be coordinated with anticipated PD Comm Center upgrade.

At Dist. 2 meeting, TWG member raised concerns regarding elements of PierCon "needs analysis" report and rationale for using an independent contractor like PierCon for this upgrade project.

Dist. 2 Commissioners approved funding PierCon design phase pending receipt of other design phase quotes.

Bd. of Finance meeting attended by Dist. 1 Commissioners, and BOF members requested further information for next meeting .

## Jan. 2019

TWG meets and Dist. 2 concerns addressed point-by-point and resolved.

Dist. 1 Commissioners attend Town Selectmen Meeting:

- Selectmen propose that the Fire and EMS radio infrastructure upgrade be addressed in conjunction with the PD Comm Center upgrade and included in the Town's FY 2019-2020 budget.
- Town agrees to share the cost of the PierCon design phase with all 3 Fire Districts.

\*During 2017, Dist. 1 did background work regarding PierCon's qualifications based on surrounding CT town experiences and review of a sample report. PierCon submitted a "needs analysis" proposal, which was presented to and approved by all 3 Fire Districts on a shared cost basis. In 2017 and early 2018, PierCon conducted its "needs analysis" surveying the Town's and 3 Fire Districts' current radio communications capabilities and requirements. Its final June 2018 report was circulated to all concerned (see above timeline).