

LINCOLN PUBLIC SAFETY COMMUNICATIONS TECHNOLOGY COMMITTEE

COMMUNICATIONS SYSTEM SHORT-TERM RECOMMENDATIONS

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After many months of reviewing the issues and options around the public safety radio tower, we are confident that we finally have the key information about what we can request from the FAA. We must reduce the height by 14 feet and install an unactivated “conditional” light or face severe penalties.

Bringing the communications tower into compliance with the FAA may compromise the performance of our present public safety radio system; however, we are confident that it will remain superior to the prior utility-pole installation. We believe that this design will maximize tower use within parameters set by the FAA, the FCC and the Lincoln ZBA. It provides time to develop mitigation options as needed for aesthetic and functional shortcomings.

Here is a summary of our recommendations to meet these demands and move beyond them:

- 1. Short Term Goal: Lower the peak height of the radio tower and appurtenances by 14 feet to become FAA compliant at an overall height of 66 feet.**
- 2. Action Steps to Meet Short term goal:**
 - a. Replace the two longest top tier antennas with shorter, better-tuned antennas, as recommended by consultants, to maintain**

maximum radio signal beam height and to facilitate the overall height reduction.

- b. Lower the mounting points of the top tier antennas and the lightening rod to place their tops at 66 feet above ground level.**
 - c. Lower two of the four lower tier antennas as needed to prevent interference with the top tier.**
 - d. Accept the FAA required un-activated light on the 66 foot overall height.**
 - e. Remove some or all of the recently installed camouflage netting if needed to reduce its interference with the lower tier antennas.**
- 3. Long Term Goal: The committee will continue to work on a plan to protect the town from a future FAA requirement to turn on the light and to fill dead communications spots if there are any. This may require a back-up plan in case of tree failure and/or the installation of auxiliary antennas.**
- 4. For the future: We recommend that after that task is accomplished the committee be disbanded and a separate mechanism be formed. It will monitor technological/commercial developments for a not-now-available solution using future technology. The long-term goals are to further reduce the aesthetic impact of the radio system, and to further improve performance of the radio system.**

Notes

- a. Computer simulation of the proposed plan shows very little loss of public safety communications over the current system. Past simulations have been tested against reality and been proven accurate. But the simulation does not allow for some of the effects of foliage on the proposed plan. Only actual installation and use will reveal its effectiveness.**
- b. The benefit of replacing the existing longer antennas with shorter antennas (step 2a) is that they allow for a higher center of**

electrical radiation. They are thus more effective in minimizing the effects of foliage.

- c. The fire department uses the system to call in both full time and more remote “call firefighters” to the station as needed to cover fire and EMS events. Currently these call-ins are sent out over both UHF and VHF frequencies. Realignment of the antennas may effect this output and the department may need to use only VHF transmissions to reach the outlying employees residences. This may require purchase of additional VHF pagers.**
- d. The simulations behind these recommendations are based on the best technology review we have available, but they cannot predict with 100% accuracy the effectiveness of the proposed short term plan. We will not know its full effectiveness, or what additional steps are needed, until it is actually implemented and used over a period of time.**