

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Implementation of Sections 309(j) and 337 of	)	
The Communications Act of 1934 as Amended;	)	WT Docket No. 99-87
	)	
	)	
Promotion of Spectrum Efficient Technologies	)	RM-9332
On Certain Part 90 Frequencies;	)	
	)	
	)	
	)	
	)	

**REQUEST FOR WAIVER ON BEHALF OF THE CITY OF NEW YORK  
OF COMMISSION RULES  
REGARDING THE MIGRATION OF PRIVATE LAND MOBILE  
RADIO SERVICES TO 12.5 kHz OR NARROWER  
TECHNOLOGY BY JANUARY 1, 2013  
  
WAIVER—EXPEDITED ACTION REQUESTED**

**I. Introduction**

The City of New York ("City"), on behalf of the City's Police Department ("NYPD"), Fire Department ("FDNY"), Department of Corrections ("DOC"), Department of Environmental Protection ("DEP"), and Department of Information Technology and Telecommunications ("DoITT"), respectfully requests a waiver of the January 1, 2013 narrowband deadline pursuant to the *Public Notice* released by the Federal Communications Commission ("Commission" or "FCC").<sup>1</sup>

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<sup>1</sup> *Wireless Telecommunications Bureau, Public Safety and Homeland Security Bureau, and Office of Engineering Technology Provide Reminder of January 1, 2013 Deadline for Transition to Narrowband Operations in the 150-*

The City supports the Commission's efforts to establish greater spectral efficiency,<sup>2</sup> and has been taking measures to transition to narrowband operations. Nevertheless, as described below, certain unique operational needs and situations will impact the City's ability to meet the compliance date of January 1, 2013, established by 47 C.F.R. §90.209(b).<sup>3</sup>

## II. Background

New York City, with a population exceeding 8 million residents, is among the most densely populated areas of the nation. The City's five boroughs comprise approximately 300 square miles of land and are bordered by 600 miles of shoreline. The skyscraper canyons of Manhattan, the intensively occupied areas of Brooklyn, Queens, and the Bronx, and the more suburban areas of Staten Island, plus the in-building, tunnels, below ground and surrounding waterway environments, present in total an extremely varied and challenging radio frequency environment for effective wireless communications. The massive transportation infrastructure for highway, rail, subways, airports, and harbors and the additional overlay of special public safety and emergency preparedness demands after the events of September 11, 2001, heighten even further the challenging nature of the City's communications landscape. The New York Metropolitan region has promoted effective and coordinated emergency response spanning several agencies. Ensuring that the correct resources and coordination are in place to support both operable and

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*174 MHz and 421-512 MHz Bands and Guidance for Submission of Requests for Waiver and Other Matters*, Public Notice, 26 FCC Rcd 9647 (July 13, 2011) ("Public Notice").

<sup>2</sup> *In the Matter of Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies*, Second Report and Order and Second Further Notice of Proposed Rulemaking, WT Docket No. 99-87, RM-9332, 18 FCC Rcd 3034 (2003).

<sup>3</sup> *In the Matter of Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies*, Third Memorandum Opinion and Order, Third Further Notice of Proposed Rulemaking and Order, WT Docket No. 99-87, RM-9332, 19 FCC Rcd 25045, 25051-52 ¶¶ 12-13 (2004) (requiring most PLMR licensees in the 150-174 MHz and 421-512 MHz bands to migrate to 12.5 kHz technology by January 1, 2013) ("*Narrowbanding Order*"); see also 47 C.F.R. §90.209(b)(5).

interoperable communications is critical to the safety of the City's residents, its businesses, and visitors.

As described below, the City has already made extensive efforts to bring its communications systems into compliance with the January 1, 2013 narrowbanding mandate. Nevertheless, various interdependencies associated with operation of the City's networks, and unanticipated problems associated with transitioning to narrowband transmissions in a system as complex as the City's, with its varied topography and dense population, have made it impossible to comply with the January 1, 2013 deadline, while also assuring uninterrupted effective communications for the systems described below.

Pursuant to Section 1.925 of the Commission's rules, the Commission may waive the application of a rule if the petitioning party establishes either that:

“(i) the underlying purpose of the rules would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or

(ii) In view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.”<sup>4</sup>

In addition, in its *Public Notice*, the Commission provided various criteria that would be relevant to its analysis of whether to grant a waiver of the narrowbanding deadline under Section 1.925.<sup>5</sup> Consistent with the *Public Notice*, the instant Petition describes the efforts made by the NYPD, FDNY, DoITT, DEP, and DOC to meet the narrowbanding mandate and provides timeframes for completing the process. As shown below, inflexible enforcement of the January

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<sup>4</sup> 47 C.F.R. § 1.925(b)(3)(i)-(ii).

<sup>5</sup> See *Public Notice* at 9649.

1, 2013 deadline with respect to the spectrum uses described in this petition would be contrary to the public interest of ensuring the safety and well-being of New York City residents, businesses, and visitors, and would be unduly burdensome given recent changes in federal spectrum planning mandates as they affect New York City. The grant of this waiver is also needed to minimize unnecessary costs as the City of New York, along with other State, County, and other city governments are not only dealing with a prolonged fiscal crisis and current budgetary constraints, but also deferring financial investments to migration of communications platforms that are consistent with the future state of T-Band operations.

Consequently, the City seeks this waiver for extensions of the narrowbanding deadline in the manner described below. Because the instant Petition covers the activities of multiple City agencies, the City is seeking two waiver dates. As the FDNY's and the NYPD's operations using spectrum that continues to be subject to narrowbanding are closely interwoven with operations in the T-Band, which is now subject to a relocation mandate instead of narrowbanding, the City seeks a waiver for specific call signs (see Appendix A) for FDNY and NYPD to two years after completion of competitive bidding for re-use of the UHF T-Band is complete, as specified in the Middle Class Tax Relief and Job Creation Act of 2012<sup>6</sup> (the "Proposed Extension Date"). Such a revised schedule will allow the FDNY and NYPD to operate and maintain a consistent radio air interface technology, while allowing push-to-talk ("PTT") technology over LTE to develop and evolve to meet public safety mission critical voice requirements. For the remaining City operations, the City seeks a waiver for specific call signs (see Appendix A) extending the narrowbanding deadline to December 31, 2014.

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<sup>6</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012) ("Act").

### **III. Steps Taken by City Agencies to Comply with the Narrowbanding Mandate**

#### **A. NYPD**

##### **(i) Background**

The NYPD is the largest municipal police force in the Nation, with plenary law enforcement authority within the five boroughs of the City. The mission of the NYPD is to enforce the laws, preserve the peace, reduce fear, and provide for a safe environment. The NYPD maintains numerous specialized units, including the Emergency Services Unit, Canine Unit, Mounted Unit, Harbor Unit, Aviation Unit, Bomb Squad, Detective Bureau, Counterterrorism Bureau, Intelligence Division, Anti-Crime Units, Narcotics Units, Transit Bureau, Housing Bureau, Traffic Division, and School Safety Division. The NYPD maintains extensive crime scene investigation and laboratory facilities, as well as specialized units to assist in computer crime investigations.

In 1995, the New York City Transit Police Department and New York City Housing Authority Police Department were integrated into the NYPD, and in 1998, the NYPD assumed responsibility for safety in public schools, formerly handled by the Board of Education. The NYPD's current uniform force consists of 35,354 sworn police officers, 2,539 Traffic Enforcement Agents, 4,954 School Safety Agents, and approximately 4,369 Auxiliary Police Officers, all of whom utilize the NYPD radio system in the performance of their duties. In addition the NYPD employs 14,804 civilians, some of whom utilize the NYPD radio system. NYPD police officers patrol the over 300 square miles of land mass that make up the City of New York. Additionally, the NYPD Harbor Unit patrols the waterways within and around the City. Currently, there are 76 police precincts within the City grouped into larger entities known

as Patrol Boroughs. Units within the NYPD generally operate either within Precincts, within Patrol Boroughs, or as Citywide units.

**(ii) NYPD Radio System Size and Complexity**

The NYPD voice radio system is organized in a three strata fashion - Citywide, Patrol Borough, and Precinct - reflecting the Department's organizational structure. Contiguous local Precincts are grouped into Radio Zones. NYPD units assigned to local Precincts generally respond to jobs within their home Radio Zone. There are 38 Radio Zones; each Radio Zone utilizes one radio channel. Although there are five political boroughs within the City of New York, the NYPD divides the City geographically into eight Patrol Boroughs. NYPD units whose areas of responsibility extend to the Patrol Borough boundary communicate on Patrol Borough channels. There are 19 channels dedicated to Patrol Borough operations. Similarly, units with Citywide responsibility operate on Citywide radio channels. There are 28 Citywide radio channels.

The NYPD Housing Bureau, Transit Bureau, Traffic Enforcement Division, and School Safety Division do not conform to the three strata organizational structure described above, in light of certain legacy aspects of their operations. Consequently, the radio systems supporting these organizations reflect their own operational structures.

The NYPD voice radio system infrastructure equipment includes approximately 160 base station repeaters, and 1,400 voting receivers, which are dispersed throughout the coverage area at over 300 radio sites. In addition, there are 130 Emergency Control Stations installed at two locations that provide an emergency wireless backup capability in the event of a catastrophic failure of the wired backhaul network.

The backhaul network consists of wired links and point-to-point microwave links, connecting over 300 remote radio sites to five hub locations, which in turn connect to two dispatch centers. The backhaul network consists of over 770 radio tie lines (“RTL’s”), 168 T1 circuits, and 51 microwave links. The NYPD radio system provides multiple levels of redundancy and operational fall back, ensuring reliable communications under the most adverse conditions.

**(iii) Steps Taken to Plan for, Initiate, and Complete Transition to Narrowband**

The NYPD has been proceeding on a path to attempt to complete the narrowbanding process as fully as practicable. This effort has been designed to proceed with narrowbanding by converting the majority of NYPD voice channels from 25 kHz analog to 12.5 kHz analog, while converting a few voice channels from 25 kHz analog to 12.5 kHz APCO Project 25 (“P25”) digital encrypted channels for security reasons. The radio channels that the NYPD uses for mobile data communications currently meet the spectral efficiency standard for data transmissions required by the *Narrowbanding Order* without modification (4,800 bps per 6.25 kHz of spectral bandwidth).<sup>7</sup>

Table 1 below summarizes actions that have either been completed or are scheduled for completion prior to January 1, 2013, in an effort to comply as fully as practicable with the *Narrowbanding Order*, and the cost associated with each item. Since subscriber units have not been reprogrammed, this cost is an estimate, all other costs are actual. All of the infrastructure equipment is dual mode (25 kHz /12.5 kHz). The infrastructure equipment listed in Table 1 has been purchased, and installed, and is currently operating in the 25 kHz analog mode.

Table 1: Narrowbanding Preparations to Date and Associated Costs	
Replaced 160 wideband only base station repeaters	\$5,700,000

<sup>7</sup> See Public Notice at 9647.

Replaced 1,400 wideband only voting receivers	\$13,300,000
Replaced 4,390 wideband only mobile radios	\$5,766,097
Replaced 130 Emergency Control Stations	\$3,000,000
Replaced 450 Desktop Control Stations	\$1,701,900
Replaced 52,246 wideband only portable radios	\$57,980,000
Estimated cost to reprogram subscriber units	\$1,150,000
Total	\$88,597,997

**(iv) Justification for NYPD Waiver**

The *Public Notice* pertaining to the *Narrowbanding Order* and the waiver process, references Section 1.925 of the Commission’s rules.<sup>8</sup> These rules require the petitioner to demonstrate either that “(i) [t]he underlying purpose of the rule(s) would not be served or would be frustrated in the instant case, and that a grant of the waiver would be in the public interest; or (ii) [i]n view of unique or unusual factual circumstances of the instant case, application of the rule would be inequitable, unduly burdensome or contrary to the public interest, or that the applicant has no reasonable alternative.”<sup>9</sup> Despite the NYPD’s efforts to comply with the narrowbanding mandate as fully as possible, as described above, additional information and developments now provide a compelling basis for a waiver extending the January 1, 2013 deadline to two years after completion of competitive bidding for re-use of the UHF T-Band is complete, as specified in the Act (*i.e.*, the Proposed Extension Date). It is important to note in this respect that in light of the new plan to re-allocate, rather than narrowband, frequencies in the T-Band spectrum, only a small subset of the frequencies used by the NYPD that were previously subject to the

<sup>8</sup> See *Public Notice* at 9648.

<sup>9</sup> *Id.*

narrowbanding mandate now remain subject to it. It is thus only that small subset (see Appendix A for call signs) that remains relevant to NYPD's instant waiver request.

**a. The underlying purpose of the current deadline would not be served.**

The intent of the narrowband mandate is to provide additional channels within the land mobile radio bands to accommodate prospective licensees. Since the low power tactical channels used by the NYPD are in fact interstitial channels spaced 12.5 kHz from incumbent 25kHz licensees, no new channels will become available for prospective licensees regardless of whether the NYPD narrowbands their low power tactical channels in the 450 – 470 MHz band.

**b. Application of the current deadline would be contrary to the public interest.**

Application of the January 1, 2013 deadline would be contrary to the public interest due to a reduction in public safety radio coverage that would result from narrowbanding, on the NYPD Traffic Division channels, as well as on the tactical channels within the 450–470 MHz band used by the NYPD for point-to-point operations. Analog narrowband has been shown to reduce usable coverage by degrading audio quality in fringe areas. A drive test of the New York City Borough of Queens comparing 25 kHz analog, 12.5 kHz analog, and 12.5 kHz digital P25 signals revealed that compared to a 25 kHz analog signal, a 12.5 kHz analog signal will provide coverage that is effectively reduced by 3dB. Field audio tests performed by NYPD technical personnel revealed that the 25 kHz analog signal provided better delivered audio quality (“DAQ”) than the 12.5 kHz analog signal. These results are consistent with other studies.<sup>10</sup> Comparison between a 25 kHz analog channel and a 12.5 kHz digital P25 channel had initially revealed that the 12.5 kHz P25 channel produced similar coverage to the analog 25 kHz channel.

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<sup>10</sup>See *Coverage Impact of Implementing Narrowband Equipment* (noting particularly slides 4 and 6), at [http://www.simulcastsolutions.com/PDF/forumXIV/3coverage\\_nb\\_vs\\_wb\\_F14.pdf](http://www.simulcastsolutions.com/PDF/forumXIV/3coverage_nb_vs_wb_F14.pdf); see also [http://transition.fcc.gov/pshs/public-safety-spectrum/narrowbanding-faq.html#question\\_2\\_3](http://transition.fcc.gov/pshs/public-safety-spectrum/narrowbanding-faq.html#question_2_3)

However, field testing showed that, when a user ventures into the fringe of the coverage area, although DAQ remains acceptable, venturing further resulted in a total loss of coverage without warning, presenting a potential danger to public safety personnel who are unaware of their proximity to the edge of coverage.

Narrowbanding interstitial point-to-point tactical channels will result in a loss of range, degrading operational capability and potentially compromising officer safety. Since these channels are dynamically assigned and are used in the absence of a supporting network, infrastructure modifications or enhancements cannot remedy the problem.

Programming both 25 kHz (T-Band) tactical channels, and 12.5 kHz (450-470 MHz) tactical channels into the same portable radio will also result in two different coverage patterns, potentially compromising officer safety. Police Officers will be unaware of this coverage disparity. It is unreasonable to expect Police Officers responding to public safety emergencies to differentiate between the coverage patterns of wideband and narrowband tactical channels programmed into their portable radio.

Employing digital modulation in portable public safety radios engaged in unit to unit tactical communications, in an attempt to recover lost range, presents technical issues and operational problems. Specifically, experience has shown that a loss of communications may result due to data collisions resulting from two radios attempting to transmit simultaneously.

**c. A grant of the waiver would be in the public interest.**

The continued use of 450–470 MHz, 25kHz low power interstitial tactical channels within the geographic limits of the City of New York will not impact any other licensee. Moreover, *since all other network channels used by the NYPD are T-Band channels, which have been exempted from the narrowband waiver, the requirement to narrowband three network*

*channels places an undue burden upon the NYPD*, both from a financial and a technical perspective. Requiring the NYPD to reprogram over 50,000 portable radios that use these channels for point-to-point tactical communications is financially burdensome to the City. Given the reallocation of the T-Band, grant of this waiver would minimize unnecessary costs, as the City of New York, along with other State and local governments, deals with a prolonged fiscal crisis. To undertake the immense cost of narrowbanding operations that will soon move to a different frequency range would not be fiscally prudent. Finally, as noted above, narrowbanding of these channels is also contrary to the public interest, because it would create a confusing mix of tactical channels with disparate coverage characteristics within the same user device.

**d. In view of unique factual circumstances, application of the rule would be unduly burdensome.**

The dense urban environment of New York City, characterized by a large number of buildings, particularly large buildings in a relatively small area, makes New York City a unique RF environment. The NYPD responds to a great number of emergency calls requiring Officers to enter large buildings, and is therefore particularly concerned with indoor radio coverage. The loss of coverage due to narrowbanding is particularly acute in tactical or point-to-point applications since there is no infrastructure that can be modified to compensate for coverage loss. Consequently, the NYPD believes that an extension of the deadline is warranted since strict application of the rule would be unduly burdensome, and contrary to the public interest in view of the factual circumstances presented herein.

**(v) Recent Legislation and Commission Order**

On February 22, 2012, President Obama signed the Middle Class Tax Relief and Job Creation Act of 2012. The Act requires incumbent public safety land mobile radio licensees to vacate T-Band spectrum channels within the next eleven years. As a result of this legislation, the Commission released an Order on April 26, 2012 that waived the deadline for private land mobile radio licensees in the 470-512 MHz band to migrate to narrowband technology.<sup>11</sup>

The NYPD operates the vast majority of its systems on the T-Band channels. The few remaining channels operated by the NYPD that are subject to the *Narrowbanding Order* but outside the T-Band, most of which are low power tactical channels, are operationally integrated with the T-Band channels being used. Continuing to provide uniform coverage and avoiding a time-consuming and expensive re-programming effort, which would ultimately be unnecessary due to relocation of the T-Band, would be consistent with the purpose of the *T-Band Waiver*. The City reiterates that continuing to operate at 25 kHz bandwidth on the low power direct mode channels in particular would not impact any licensees, and further notes that these are interstitial channels.

For all the reasons described above, we urge the Commission to grant a waiver to the NYPD for its private land mobile radio channels in the 450-470 MHz band, extending the deadline for compliance with the *Narrowbanding Order* until two years after the date on which the system of competitive bidding on the UHF T-Band is complete, as specified in section 6103 (a)(2) of the Act, to permit the NYPD to operate and maintain a consistent (25kHz) radio air interface technology, while allowing PTT technology over LTE to develop and evolve to meet public safety mission critical voice requirements. Such an action by the Commission would allow the

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<sup>11</sup> See *In the Matter of Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies*, Order, WT Docket No. 99-87, RM 9332, DA 12-642 (rel. April 26, 2012 (“*T-Band Waiver*”).

NYPD to continue to operate its entire public safety land mobile radio system coherently and consistently in 25 kHz mode for the interim period contemplated by the Act, while the public safety community and wireless industry work in harmony to develop mission critical voice over LTE.

## **B. FDNY**

### **(i) Background**

The FDNY provides fire protection and emergency medical services to the City's residents and visitors, with over 200 firehouses, 30 EMS stations and 2,000 vehicles. The FDNY uses various frequencies and types of subscriber equipment to support Citywide Fire and EMS dispatch and support services within the City. The FDNY supports over 8,700 portable radios, 3,000 mobile radios, and hundreds of base stations within the City. The FDNY uses various radio systems to expedite services that protect life and property in the City. The FDNY operates in various frequency bands to effectively provide those services. The FDNY operates infrastructure-based systems to support dispatch and other wide area communications, while employing tactical point-to-point radio communications (T-Band UHF), as well as subway amplifier systems (non T-Band UHF) and in-building repeaters (T-Band UHF) supporting fire ground operations at the scene.

The following subsections describe the relevant systems operated by the FDNY and those operated by others that the FDNY uses. These subsections describe the significant steps taken, and progress made, by the FDNY to meet the narrowbanding mandate, while also describing how interdependencies with other systems have affected the FDNY's ability to meet the FCC's January 1, 2013 deadline.

**(ii) FDNY's Efforts to Comply with the FCC's Narrowbanding Mandate with Regard to its Dispatch Operations**

In understanding the FCC requirement for spectrum efficiency, the FDNY partnered with the DoITT to develop a simulcast narrowband T-Band UHF radio infrastructure. New systems were placed into service in August, 2009, and consist of both a 20 channel simulcast radio system ("simulcast system") for fire and EMS dispatch and a 24 channel trunked radio system that serves the FDNY and other City agencies supported by the DoITT. Significant resources have been focused on a reasoned migration to the new T-Band UHF systems while maintaining the integrity of legacy systems. To provide a migration path that would not adversely affect dispatch operations, the FDNY configured the conventional simulcast system to operate in parallel with the legacy equipment. This allows users operating on the legacy systems to seamlessly and transparently migrate onto the T-Band UHF narrowband systems. As part of this migration plan, only upon 100% migration onto the new T-Band systems would it be possible to initiate the narrowbanding of the legacy frequencies (see Appendix A VHF Dispatch) to support the FDNY's operations.

As part of the narrowbanding process from a subscriber perspective, the FDNY examined its subscribers and identified which subscribers can be reprogrammed or reconfigured and which ones cannot. The FDNY procured software and flash upgrades for the equipment that could be updated and new equipment for those subscribers that could not. Once this equipment and software was received, the FDNY scheduled upgrades or replacements in an aggressive manner. To date, the FDNY has completed the transition to narrowband dispatch for all municipal<sup>12</sup> EMS ambulances and officer response vehicles and has replaced all portable subscriber units used by municipal EMS personnel. The FDNY is presently working with private ambulances that work

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<sup>12</sup> Municipal units are units owned and operated by the City of New York.

in the City's 911 system who have purchased radios to work on FDNY's radio systems to assist in their migration to narrowband. Furthermore, the FDNY has updated or replaced subscriber equipment in some municipal fire apparatus and continues to move forward with the replacements and upgrades.

### **(iii) EMS MED Stations Operated by the FDNY**

In addition to dispatch operations, the FDNY operates EMS MED stations in the UHF band (see Appendix A MED Channels). The transmission of medical telemetry has increased through the years as improvements in support of certain medical conditions require early intervention of a medical doctor. The FDNY has been running a STEMI program (for emergency response to heart attacks) that has proven very successful.<sup>13</sup> This program requires that medical telemetry is reviewed by a doctor as soon as possible. This medical telemetry is transported via telephone or radio to a FDNY doctor at the FDNY's On Line Medical Control ("OLMC"), which reviews the telemetry data and advises the paramedics on patient care. While a variety of signal transport methods may be used, the FDNY-owned EMS MED equipment provides a reliable communications path, especially at scenes where cellphone connections become unavailable.<sup>14</sup>

Although most existing FDNY MED bases are not currently capable of supporting narrowband operation, the FDNY has purchased replacement base stations and receivers and is in the process of replacing that equipment. The FDNY has ten MED sites and has upgraded two at this time. As these stations are located in various private buildings citywide, coordination and scheduling for access creates delays in removal and installation of equipment. Portable and

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<sup>13</sup> *Door-To-Balloon Time Decreases with Pre-Hospital Wireless Electrocardiogram Transmissions in Patients with ST-Segment Elevation Myocardial Infarction at* <http://www.newswise.com/articles/nyu-langone-medical-center-s-cardiac-vascular-institute-present-at-american-heart-association-scientific-sessions-2011>

<sup>14</sup> See <http://newyork.cbslocal.com/2011/08/26/cell-phone-outage-concerns-rise-as-hurricane-irene-barrels-up-east-coast/>; see also [http://www.cio.com/article/127901/Minneapolis\\_Bridge\\_Collapse\\_Why\\_Cellular\\_Service\\_Goes\\_Down\\_During\\_Disasters?page=1&taxonomyId=3061](http://www.cio.com/article/127901/Minneapolis_Bridge_Collapse_Why_Cellular_Service_Goes_Down_During_Disasters?page=1&taxonomyId=3061)

mobile subscribers can send medical telemetry and voice while operating in a narrowband mode once the infrastructure is upgraded, but, given that some of the factors associated with this transition relate to private property facilities outside the FDNY's control, it is not possible to guarantee completion of the upgrade by January 1, 2013. Based on its experiences to date in working with building owners, the FDNY estimates that a more realistic date for meeting the narrowbanding mandate for EMS MED stations is December 31, 2014.

**(iv) The FDNY's Use of Systems Maintained by Others**

The FDNY uses some of the City's licensed channels on systems that have been procured and maintained by others. These systems are of varying complexities and are difficult to upgrade or reconfigure for narrowband operation. The unfunded narrowbanding mandate requires funding to be provided by other means to support these upgrades and reconfigurations. Some of these systems are privately owned and maintained on behalf of the FDNY, and funding from public grants cannot be obtained. These systems include:

- NYC Subway Underground Radio System. The New York City Transit Authority ("NYCTA") hosts an underground radio system that includes the FDNY's Fire Operation and EMS channels that provide coverage on the trains, platforms, emergency exits, tunnels, and other areas throughout the system. Due to the layout of the subways, the NYCTA radio network in the subway system is designed as a series of separate "systems." Each system has base stations, signal boosters, and related equipment that support the FDNY. The FDNY has been conducting various narrowband tests with the NYCTA, in an effort to better understand the challenges that narrowband operations pose in the below ground environment so as to ensure that any modifications related to narrowbanding do not compromise the existing communications capability. The FDNY

Fire Operations operate on two channels for use in the subway systems in the City. As described earlier, the NYCTA maintains and operates this equipment on behalf of the FDNY. Although the NYCTA equipment can operate in a narrowband mode, the FDNY's fire ground operations must remain intact at 25 kHz as these two subway channels are integral to all other T-Band frequencies including dispatch (T-Band UHF), citywide fire ground point-to-point radio (T-Band UHF) as well as all other in-building repeaters (T-Band UHF). The NYCTA waiver request, which anticipates completion of its own narrowbanding projects by June 30, 2016,<sup>15</sup> demonstrates the challenging environment associated with the narrowbanding of its own subway underground radio system.

Specific to the FDNY Subway Channels (see FDNY Subway in Appendix A), we urge the Commission to grant a waiver to the FDNY extending the deadline for compliance with the *Narrowbanding Order* until two years after the date on which the system of competitive bidding on the UHF T-Band is complete as specified in section 6103 (a)(2) of the Act, to permit the FDNY to operate and maintain all fire ground operations consistent with (25kHz) radio air interface technology, while allowing PTT technology over LTE to develop and evolve to meet public safety mission critical voice requirements. Such an action by the Commission would allow the FDNY to continue to operate all of its fire ground public safety land mobile radio systems coherently and consistently in 25 kHz mode for the interim period contemplated by the Act, while the public safety community and wireless industry work in harmony to develop mission critical voice over LTE.

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<sup>15</sup> See *Request for Waiver of Commission Rules on Behalf of New York City Transit Authority*, WT Docket No. 99-87 and RM-9332, at 16 (filed Dec. 22, 2011).

- Volunteer Emergency Service Providers. The FDNY has volunteer ambulance corps (“VAC”) and volunteer fire departments (“VFD”) that work within the City in support of 911 services as well as provide mutual aid assistance to municipal units. These VACs and VFDs use equipment that may or may not be owned by the FDNY but operate on FDNY channels. The FDNY is in the process of reviewing each agreement with each entity, and guiding them in the proper direction either in procuring new equipment, reprogramming narrowband capable equipment, or providing updated FDNY radios. The VACs and VFDs rely on donations to fund and support their operations. While the FDNY assists, when possible, in the procurement and provision of this equipment, each VAC and VFD is ultimately responsible for purchasing FDNY-recommended subscriber equipment in order to participate. The time associated with reviewing each individual agreement, and the difficulty for the VACs and VFDs in obtaining funding has made it impossible to meet the January 1, 2013 deadline. Based on its experiences to date, the FDNY estimates that a more realistic date is December 31, 2014.
- Voluntary Hospital Service Providers (“Voluntaries”). Voluntaries are for-profit ambulance companies that are either privately owned or work for a hospital within the confines of the City. Voluntaries execute agreements to provide 911 response services to the FDNY. Up to one third of ambulances providing 911 response services within the City are Voluntaries. Each Voluntary is required to purchase and maintain radio equipment as directed by the FDNY. As some of these Voluntary hospitals are under fiscal duress, and in some cases are even in bankruptcy, pursuing the costly programming or replacement of each radio unable to operate in narrowband requires the Voluntary to acquire and allocate very scarce funds towards this effort. Voluntaries, especially

hospital-based ones, have had difficulty in procuring subscriber equipment due to budget cutbacks and reduced income. The FDNY is working with these groups to encourage the purchase and deployment of compliant equipment. Based on the time this process has taken to date, the FDNY expects narrowbanding of the Voluntaries' services to be completed by December 31, 2014.

**(v) Dispatch Systems Simultaneously Supporting Narrowband Operations and Legacy Systems**

A final factor in determining when the FDNY will be able to fully comply with the narrowbanding mandate is that the FDNY's dispatch system supports both narrowband operation as well as legacy systems simultaneously. As previously mentioned, to provide a migration path that would not adversely affect dispatch operations, the FDNY configured the conventional simulcast system to operate in parallel with the legacy equipment. This allows users operating on the legacy systems to seamlessly and transparently migrate onto the T-Band UHF narrowband systems. As part of this migration plan, only upon 100% migration onto the new T-Band systems is it possible to initiate the narrowbanding of the legacy frequencies (see Appendix A VHF Dispatch) to support FDNY operations.

The FDNY cannot remove the connections allowing this parallel operation until all services, groups, and organizations have fully migrated to the narrowband system. Once they have all moved, the FDNY will need to disconnect the legacy systems. But this is not a simple task. The systems are entwined through various circuits and systems that must be removed in a methodical and calculated way as to not inadvertently disconnect dispatchers from the narrowband system. The FDNY's resources are finalizing migrations onto the new T-Band UHF systems and will be

focusing on the narrowbanding of its legacy frequencies. The FDNY will complete narrowbanding of the legacy frequencies by December 31, 2014.

### **C. DEP**

The DEP is a City agency of nearly 6,000 employees that manages and conserves the City's water supply, distributes more than one billion gallons of clean drinking water each day to nine million New Yorkers, collects wastewater through a vast underground network of pipes, regulators, and pumping stations; and treats the 1.3 billion gallons of wastewater that New Yorkers produce each day in a way that protects the quality of New York Harbor. To achieve these mandates, the DEP oversees one of the largest capital construction programs in the region. As the City agency responsible for New York City's environment, the DEP also regulates air quality, hazardous waste, and critical quality of life issues, including noise.

The DEP has been working diligently to meet the narrowband mandate but has encountered many difficulties in its efforts to meet the January 1, 2013 deadline. The DEP has been heavily involved in an inventory analysis and process to determine what equipment within the agency can be retuned, or needs replacement. Over the course of this effort, the DEP has developed plans to replace localized UHF repeater systems located at 14 DEP water treatment plants. The DEP's inventory effort identified a fleet size of 753 portable radios, and 16 on-site repeaters across the 14 DEP plants needing replacement.

As a result, a recommendation and decision was made by the DEP to establish a direction and plan for the long term. Based upon its inventory analysis, the DEP determined that 75% of its portable radios and 62.5% of its repeaters needed to be replaced. With such a significant portion of the systems being replaced, standardization for all plant operations could be achieved, and with this standardization a move to digital operation could also be achieved.

The DEP is now fully engaged, funded, and committed to replacement of its aging systems to meet the narrowband mandate. While the goal is to replace all fourteen Plant radio systems and have them in operation prior to the January 1, 2013 deadline, there are many challenges, risks, and safety issues associated with this implementation that raise concerns due to the safety regulations and installation procedures at these water treatment plants. The DEP's current schedule for completion of narrowbanding all of its radios and infrastructure is as follows: a) all site design and engineering work to be completed by September 1, 2012; b) all portable radio programming to be completed by January 1, 2013; and c) installation of new systems in all fourteen plants to be completed by May 1, 2013. Hence, the DEP anticipates a complete finalization of its narrowbanding process by December 31, 2014.

#### **D. DOC**

The DOC (or "the Department") provides for the care, custody, and control of persons accused of crimes or convicted and sentenced to one year or less of jail time. The Department manages 15 inmate facilities, 10 of which are located on Rikers Island. In addition, the Department operates two hospital Prison Wards (Bellevue and Elmhurst hospitals) and court holding facilities in Criminal, Supreme, and Family Court in each borough. The Department handles over 100,000 admissions each year and manages an average daily inmate population of approximately 14,000 individuals. The DOC has an average daily inmate population that fluctuates between 13,000 and 18,000, greater than many state correctional systems. On a typical weekday, the Department logs more than 3,000 miles transporting inmates to courts in the five boroughs and to medical and other jail or prison facilities throughout the City and State.

The Department also operates four borough facilities, 16 court detention facilities and three hospital prison wards. The borough jails in Manhattan, Queens, Brooklyn, and the Bronx have a

combined capacity of approximately 3,000 detainees facing, or on, trial. The court pens are located in the Criminal, Supreme, and Family Court buildings in each borough. In Manhattan, an additional court pen is operated in the special Narcotics Court. These courthouse facilities hold inmates scheduled for the day's proceedings. A portion of the West Facility on Rikers Island contains specialized housing units for inmates with tuberculosis and other communicable diseases. Seriously ill inmates and those requiring intensive psychiatric observation are held in prison wards that the Department operates in Elmhurst General Hospital and Bellevue Hospital. The North Infirmery Command on Rikers Island houses detainees with less serious medical problems and persons with AIDS not requiring hospitalization, as well as high security inmates.

The DOC holds radio licenses for several UHF band frequencies (see Jail Channels in Appendix A) used for communications and operations at these jails and correctional facilities throughout the City's five boroughs. The DOC found, as part of its inventory and analysis effort that it needed to purchase 1,500 portable radios and 43 repeaters to be fully narrowband compliant. The DOC is in the process of programming and installing repeaters at several facilities. The DOC's funding has just been approved and it has started the procurement process. Due to unanticipated resource constraints, as well as complex migration issues in the unusually difficult New York City wireless transmission and reception environment, it has taken the DOC longer than anticipated to migrate its radio users to narrowband. The DOC expects to complete its narrowbanding process in a manner consistent with public safety by December 31, 2014.

#### **IV. Conclusion**

As shown above, the City and its agencies have worked diligently and in good faith to meet the Commission's narrowbanding mandate, without risking public safety. In fiscally constrained times, City agencies have worked hard to obtain funding, update purchasing

specifications to include narrowband capable radios in vehicles and infrastructure locations, reprogram a multitude of subscribers, and implement large new systems consistent with the FCC mandate, while still maintaining current systems at the highest performance levels. These arduous undertakings were made even harder by the fact that the federal government has not provided dedicated funding toward narrowbanding to assist in complying with the mandate.

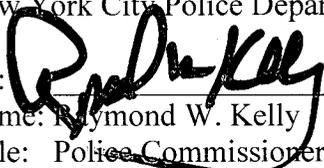
In short, the variety of systems associated with the City's operations, the interdependencies both between these systems (T-Band UHF and non-T-Band UHF) and those operated by non-City entities, combined with the sheer volume of traffic that traverses these systems, and the extraordinarily complex environment for wireless communications that prevails in New York City, has made it impossible to guarantee effective operation of the systems described above in full compliance with the narrowbanding mandate by January 1, 2013. The City appreciates the various pro-public safety provisions contained in the Middle Class Tax Relief and Job Creation Act of 2012 (*e.g.*, assignment of the D Block to public safety). Nevertheless, the recent change in direction regarding T-Band spectrum, which has long been an essential component of the City's public safety communications systems, will require reconsideration of the City's planning with respect to public safety communications as a whole, including, as described above, some aspects of its narrowbanding initiatives.

Consistent with the guidance provided in the Commission's *Public Notice*, the City has described its efforts to date, and its prospective schedule, for meeting the narrowbanding mandate, as well as the unanticipated obstacles that precluded conformance with the January 1, 2013 deadline. Consequently, to ensure that the City's transition to 12.5 kHz does not jeopardize, or detrimentally impact, the safety and well-being of the City's residents, businesses, and visitors, the City contends that it would not be in the public interest to require compliance by

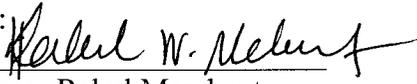
the City with the January 1, 2013 deadline. Rather, the City urges the Commission to grant waivers of the narrowbanding mandate as detailed in Appendix A. For the reasons stated above, the grant of this waiver would be in the public interest.

Respectfully Submitted,

New York City Police Department

By:   
Name: Raymond W. Kelly  
Title: Police Commissioner  
Address: One Police Plaza, Room 1400  
New York N.Y. 10038

CITY OF NEW YORK  
Department of Information Technology  
and Telecommunications

By:  8/8/2012  
Name: Rahul Merchant  
Title: Chief Information and Innovation  
Officer  
Address: Department of Information  
Technology and Telecommunications  
75 Park Place, 9th Floor  
New York, NY 10007  
Date: \_\_\_\_\_

CITY OF NEW YORK  
Fire Department

By:   
Name: Salvatore Cassano  
Title: Commissioner  
Address: Fire Department  
9 Metrotech Center  
Brooklyn, New York 11201

## APPENDIX A

**Waiver Request Date #1:** The City of New York ("City"), on behalf of the City's Police Department ("NYPD") and Fire Department ("FDNY") respectfully request a waiver to two years after completion of competitive bidding for re-use of the UHF T-Band is complete, as specified in the Middle Class Tax Relief and Job Creation Act of 2012 (the "Proposed Extension Date").

### CALL SIGNS FOR WHICH WAIVER OF SECTION 90.209(B) IS REQUESTED NYPD UHF 450-470 MHz Frequency Licenses

(FRN 0003462421)

Frequency	Call Signs
453.825	KQP434; KSI296
453.950	KQP434
453.250	KEH307; WJC79
458.825	KQP434; KQP434; KSI296 KQP434; KSI296 KQP434;
458.950	KQP434
458.250	KJ7505; WJC79; WJC80; WJC81; WJC82; WJC 83
460.525	WQNA692
465.525	WQNA692

(FRN 0003462512)

### NYPD Tactical UHF 450 – 470 MHz Channels

Frequency	Call Signs
465.1125	WBPQ 332
465.1875	WBPQ 332; WPKY 646
465.2375	WBPQ 332
465.3125	WBPQ 332
465.4625	WBPQ 332
465.4875	WBPQ 332
460.1125	WBPQ 332
460.1875	WBPQ 332; WPKY 646
460.2375	WBPQ 332; WPKY 646
460.3125	WBPQ 332
460.4625	WBPQ 332
460.4875	WBPQ 332

(FRN 0003462512)

### FDNY Subway Radio UHF 450 – 470 MHz Channels

FDNY-SUBWAY 1 RPT	460.5750	KY8033, KLO329-332
FDNY-SUBWAY 2 RPT	460.6250	KY8033, KLO329-332
FDNY-SUBWAY 1 RPT-MO	465.5750	KY8033
FDNY-SUBWAY 2 RPT-MO	465.6250	KY8033

**Waiver Request Date #2:** The City of New York ("City"), on behalf of the Fire Department ("FDNY"), Department of Corrections ("DOC"), Department of Environmental Protection ("DEP"), and Department of Information Technology and Telecommunications ("DoITT"), respectfully request a waiver extending the narrowbanding deadline to December 31, 2014 for the following frequencies and call signs.

**CALL SIGNS FOR WHICH WAIVER OF SECTION 90.209(B) IS REQUESTED  
(FRN 0003462512)**

**FDNY Dispatch VHF Channels 150 – 174 MHz Channels**

154.1900	KEB523, KEB524, KEB525, KEB526, KEB527, KED962, KYE994
154.2500	KEB523, KEB524, KEB525, KEB526, KEB527, KED962, KYE994
154.3700	KEB523, KEB524, KEB525, KEB526, KEB527, KED962, KYE994
154.4000	KEB523, KEB524, KEB525, KEB526, KEB527, KED962, KYE994
154.4300	KEB523, KEB524, KEB525, KEB526, KEB527, KED962, KYE994, KV2288, WNJG268, WNSU962
154.8300	KV2288, WPFS461
154.0700	KV2288
154.0100	KV2288
153.9500	KV2288
153.7700	KV2288
153.8900	KV2288

**(FRN 0003462512)**  
**FDNY UHF MED Channels 450 – 470 MHz Channels**

MED 1	463.000/468.000	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 2	463.025/468.025	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 3	463.050/468.050	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 4	463.075/468.075	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 5	463.100/468.100	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 6	463.125/468.125	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 7	463.150/468.150	KA3875, KGC452, KKL715, KUN595, KUN596, KUN597, KUN598, WRU931
MED 8	463.175/468.175	KGC452, KKL715, KMB268, KUN595, KUN596, KUN597, KUN598, WRU933
MED 9	462.950/467.950	KGC452, KKL715, KMB268, KUN595, KUN596, KUN597, KUN598, WRU933
MED 10	462.975/467.975	KGC452, KKL715, KMB268, KUN595, KUN596, KUN597, KUN598, WRU933

**(FRN 0003462512)**  
**DOC UHF Jail Channels 450 – 470 MHz Channels**

155.310/.370/.520	KB21980
155.5950	WYC886, WYC876, WYC877, WYC878, WYC879, KA35345
158.9100	KB76551
453.1000	KJV315-318
453.7500	KFO831, KJV301, KJV303, WNJM507
458.100/.175/.200/.300	KH9216
453.2125/458.2125	WPKY646
453.3625/453.3625	WPKY646
453.4125/458.4125	WPKY646
460.3625/465.3625	WPKY646, WPGA632
460.1250/465.1250	WNYF842
460.4125/465.4125	WNYI442
453.4875/458.4875	KD41458, WQAA847
453.5125/458.5125	KD41458, WQAA847
453.5375/458.5375	KD41458, WQAA847
453.0625/458.0625	KD41458, WQAA847
453.3125/458.3125	KD41458, WQAA847
453.2625/458.2625	KD41458, WQAA847
460.0375/465.0375	WNYI446

**(FRN 0003462512)**  
**DEP UHF Water Treatment Channels 450 – 470 MHz Channels**

451.1625/456.1625	WNYZ288
451.1625/456.1625	WNY401
451.4125	WPIB472
453.2000/453.2000	WNMC275
453.6625/458.6625; 458.7625	WQGY510
458.2250	WPGV747
458.2500	WYR2549
458.2250	WPDC661
453.6125/458.6125	WNUZ671
453.9000/458.9000	KCT611, KDB505, KGV249, KJC708, KWI649, KXM866, KXM867