NYS·TEC
NEW YORK STATE TECHNOLOGY ENTERPRISE CORPORATION

January 19, 1999

RECEIVED
JAN 21 1999
FCC MAIL ROOM

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
1919 M Street, NW
Room 222
Washington, DC 20554

RE: WT Docket No. 96-86

Dear Ms. Salas:

The New York State Technology Enterprise Corporation (NYSTEC) hereby submits the following original plus eleven copies of comments to the Federal Communications Commission regarding the First Report and Order issued in WT Docket No. 96-86. The petition and copies contained herewith have also been filed via the Federal Communications Commission's Electronic Comments Filing System (ECFS) on January 19, 1999 with confirmation number of **1999119275217.**

You may direct any questions concerning this material to the undersigned.

Respectfully submitted,

Scott R. Leonard

Scott R. Leonard

Enclosures

No. of Copies rec'd 0+10
List ABCDE

75 Electronic Parkway, Rome, NY 13441
Phone (315) 338-5818 / **FAX** (315) 338-6124 / **e-mail** nystec@syrres.com / **Internet** www.nystec.com

Before the
Federal Communications Commission
Washington, D.C. 20554

RECEIVED

JAN 21 1999

FCC MAIL ROOM

In the Matter of	)	
	)	
The Development of Operational,	)	WT Docket No 96-86
Technical and Spectrum Requirements	)	
For Meeting Federal, State and Local	)	
Public Safety Agency Communication	)	
Requirements Through the Year 2010	)	

COMMENTS FROM THE NEW YORK STATE TECHNOLOGY ENTERPRISE CORPORATION IN RESPONSE TO THE THIRD NOTICE OF PROPOSED RULEMAKING

75 ELECTRONIC PARKWAY
ROME, NEW YORK 13441

RECEIVED

JAN 21 1999

FCC MAIL ROOM

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
The Development of Operational, Technical, and	)	WT Docket No 96-86
Spectrum Requirements for Meeting Federal, State	)	
and Local Public Safety Agency Communications	)	
Requirements Through the Year 2010	)	

To: The Commission

COMMENTS FROM THE
NEW YORK STATE TECHNOLOGY ENTERPRISE CORPORATION
IN RESPONSE TO THE
THIRD NOTICE OF PROPOSED RULEMAKING

75 ELECTRONIC PARKWAY
ROME, NEW YORK 13441

I. INTRODUCTION AND SUMMARY

1. The New York State Technology Enterprise Corporation (NYSTEC) hereby submits the following comments in response to the Third Notice of Proposed Rulemaking WT Docket 96-86 (FCC 98-191) of the Federal Communications Commission (FCC or Commission) on January 19, 1999.

2. NYSTEC is a private not-for-profit technology, engineering and commercialization company. Its mission is to accelerate applications of advanced technologies to new markets, create innovative technology

solutions for government and commercial clients, and assist economic revitalization in New York State (NYS) through technology innovation. Currently, NYSTEC is providing technical assistance to New York State in defining and procuring a next-generation, statewide wireless communications system.

3. In 1997 the New York State Police (NYSP) with the support of the New York State Office For Technology (OFT) and the Division of Budget (DOB) started the New York Statewide Wireless Communication Network (NYSWCN) Project. Because of its urgent need, the NYSP was designated by OFT as the lead agency on the project. The effort, however, is to support all state, and potentially local, agencies' needs. As a model of interagency cooperation, the project has been developing the requirements for the system and plans to prepare and issue a Request for Proposal (RFP) in 1999.

4. The need for NYSWCN is critical. A number of New York State agencies currently have radio systems at the end of their operational life that need to be replaced. This is also true of other state and many local agencies. The concept of NYSWCN is a common, statewide, multi-agency radio communications network that:

- simultaneously accommodates individual agency requirements,
- allows agencies to retain independent operations, while sharing infrastructure,

- supports electronic data transmission as well as voice communications,
- and provides Land-Mobile Radio system functionality.

5. NYSWCN will provide radio coverage throughout the entire state for all levels of Public Safety. To achieve the goals of the project sufficient spectrum must be obtained as quickly as possible. New York State consists of 54,000 square miles of varying topography with over 18 million people in population. While the propagation characteristics of 700 MHz are less desirable for a statewide system than lower frequencies, it is the only band that currently has sufficient spectrum to meet the demands of NYSWCN.

6. As stated in our previous filings the need for spectrum becomes ever more evident as we move into the next millenium.[1] Radio frequencies available for Public Safety use have become scarce in many areas. This congestion is most evident in highly populated urban areas. The Commission's plan to allocate 24 MHz in the 746 – 806 MHz band is crucial to meeting the needs of Public Safety.

7. An additional need for increased interoperability across all bands also exists. In the Third Notice of Proposed Rulemaking the Commission has

[1] Petition submitted to the Commission for reconsideration of the First Report and Order pursuant to WT 96-86 (FCC 98-191) on December 02, 1998.

proposed ways to alleviate this problem. The Commission has proposed allocating five channels in the VHF band and five channels in the UHF band.[2] NYSTEC commends the Commission for this action; the additional channels will help improve interoperability. However, NYSTEC is also concerned that this allocation will not be fully useable in many areas due to coordination issues. In many instances the frequencies proposed in the NPRM are too close to existing allocations creating the real possibility of interference from, and to existing users. It is also important to realize that while this new spectrum will be extremely beneficial, it will not be a long-term solution to the interoperability problems.

8. The Commission requests comments on a proposal to allocate a portion of the 138–144 MHz band for interoperability. The allocation of this spectrum for Public Safety and Public Service use will prove to be extremely beneficial. It will help alleviate the spectrum deficiencies in the VHF band. NYSTEC does not support allocating this spectrum totally for interoperability. NYSTEC supports using a portion of this spectrum for statewide systems and a portion for interoperability. Statewide use of a portion of this band will prove extremely beneficial in allowing system

[2] *See* Third Notice of Proposed Rulemaking WT Docket No. 96-86 (FCC 98-191) at ¶ 192.

design to alleviate the ever-expanding needs of Public Safety and Public Service.

9. The Commission is also seeking comment on allocating a portion of the 8.8 MHz of reserve spectrum for statewide or region-wide basis in order to facilitate the construction of statewide systems.[3] Spectrum is not only needed for interoperability; it is also needed for the design and implementation of statewide or region-wide systems. One of the biggest problems facing states with plans of procuring statewide communications systems is the lack of usable spectrum. Furthermore states with existing region-wide system, have stated that for expansion and finalization purposes they will need spectrum in the 700 MHz band.[4] This is not a future need; it is an immediate need that cannot be put off any longer. Delays in this will only jeopardize the health and lives of Public Safety personnel while limiting their ability to perform their duty to protect the lives and property of all Americans.[5]

10. When designing any communications system one must have the ability to obtain the appropriate spectrum. This becomes ever more important when implementing larger systems. One must be concerned with adjacent and

---

[3] *See* Third Notice of Proposed Rulemaking WT Docket No. 96-86 (FCC 98-191) at ¶ 178.

[4] *See* the State of Florida's Comments to the Third Notice of Proposed Rulemaking, WT Docket No. 96-86 (FCC 98-191) submitted on January 04, 1999.

co-channel interference along with frequency reuse. Large system planning is extremely difficult, and it is important to give states a clean protected portion of spectrum in order to properly implement the cost effective systems they require. Therefore, NYSTEC suggests that the Commission allocate a portion of the reserve spectrum for statewide use. In order for states to obtain the communications that they need, the Commission's rules and guidelines must be sensitive to the needs of states, and adopt policies fostering the development of such systems.

11. The Commission also seeks comments on the ramifications of second harmonic interference on GPS (Global Positioning System) and GLONASS (GLobal Orbiting NAvigation Satellite System) receivers. The use of satellite navigation represents a revolutionary change in the technology of navigation, positioning, and time. The civil sector has been quick to recognize the potential value of these positioning systems in the fields of aviation, marine and surface navigation, surveying and geodesy.

12. Although GPS and GLONASS are very important aspects of navigation, NYSTEC is concerned that stringent emission standards may severely impact the use of the 700 MHz spectrum for land mobile communications. Specifically there is a concern that the second harmonics from mobile transmitters in the 799-802.5 MHz band will interfere with GLONASS

[5] Final Report of the Public Safety Wireless Advisory Committee, September 11, 1996, at page 2.

users in the 1598-1605 MHz band. NYSTEC believes that the protection levels called for in the NPRM are too stringent. The future of the GLONASS system is questionable, and there needs to be some guarantee of use of the system before protection is forced. The GLONASS constellation remains sparse and the political and economic difficulties in the former Soviet Union continue to be a source of uncertainty about its future.[6] It does not benefit the public to protect a system from interference, which may not be functional in the near future. This is not to say that the GLONASS system could not become a valuable tool but at this point it is obviously uncertain. NYSTEC suggests that the appropriate detailed analysis be performed in order to obtain a realistic measure of interference protection required to protect GLONASS user equipment in reasonable operational scenarios. By reviewing both experimental and theoretical data, one can better ensure that unnecessary restrictions are not mandated.

13. NYSTEC also understands that a GPS/GLONASS combination offers promise of an accurate and economical sole-means navigation system for en-route and terminal phases of flight. By using a combination of these systems accuracy, coverage and integrity monitoring can be enhanced.[7]

---

[6] Pratap N. Misra, MIT Lincoln Laboratory, "Integrated Use of GPS and GLONASS in Civil Aviation" http://satnav.atc.ll.mit.edu/papers/Lljournal/Misra.htm.

[7] Pratap N. Misra, "Integrated use of GPS and GLONASS in Civil Aviation" MIT Lincoln Laboratory, http:\\satnav.atc.ll.mit.edu/papers/Lljournal/Misra.htm

NYSTEC supports this conclusion although NYSTEC suggests that other, more viable, methods be fully explored before the United States incorporates a navigation system, which is not domestically owned or maintained.

II. THE THREE MHZ OF DOD SPECTRUM IS PARTICULARLY WELL SUITED FOR PUBLIC SAFTEY AGENCIES AND SHOULD BE ALLOCATED FOR PUBLIC SAFETY USE.

14. The National Telecommunications and Information Administration (NTIA) identified the frequency bands 139.0 – 140.5 MHz and 141.5 – 143.0 MHz for reallocation in their Spectrum Reallocation Report.[8] The scheduled reallocation date is not until January 2008, but most of the Federal users of this spectrum will be cleared before this time.[9] Therefore, it would be possible for this spectrum to be used on a shared basis in the interim. Allowing sharing would promote spectrum efficiency, which is one of the main goals of the Commission.[10]

15. The Commission is required by the Balanced Budget Act of 1997 to consider the needs of existing Public Safety radio services.[11] When the

---

[8] *See* National Telecommunications and Information Administration. Spectrum Reallocation Report, February 1998, Reallocation Options page 3-11.

[9] NPSTC Petition for Further Rulemaking, § 2

[10] *See* Balance Budget Act of 1997, Title III 3002 (c) (2) (A), Public Law No. 105-33, 111 Stat. 261.

[11] *See* Balance Budget Act of 1997, Title III 3002 (c) (2) (C), Public Law No. 105-33, 111 Stat. 261.

Commission reviews the issues concerning the DoD spectrum, the Commission should allocate these frequencies for Public Safety use.

16. The VHF[12] band will continue to be attractive because of its propagation characteristics, legacy equipment and its relatively low equipment cost. Direct line of site is not required in this band, and this permits relatively few base stations per unit land area. This is especially beneficial in hilly to mountainous terrain. This is in contrast to the 700 MHz band where it will require more expensive equipment, and 700 MHz propagation limitations will require four to five times as many towers as in VHF. This drawback becomes ever more prevalent in mountainous and heavily foliated areas.

17. One example of such an area is the Adirondack Mountains in New York State. Areas such as these are much better suited for VHF than the 700 MHz band when considering propagation characteristics. Furthermore the difficult terrain in these areas makes tower deployment difficult. An additional problem in New York State is the zoning and environmental laws protecting millions of acres of land. In accordance with Article 14 of the NYS Constitution; "lands of the state, now owned and hereafter acquired, constituting the forest preserve as now fixed by law shall be forever kept as wild forest lands. They shall no be leased, sold, or

exchange, or be taken by any corporation, public or private."[13] Because of these state constitutional mandates the addition of towers required for coverage in the 700 MHz band will be extremely difficult.

18. These factors significantly increase the costs of providing wireless communications services in the 700 MHz Band. In addition, systems and technologies developed for urban areas may be less than optimal for rural areas.[14] Another factor that ensures the continued use of this band is the fact that many Public Safety and Public Service entities already reside in the VHF band. Many fire departments and Seventy-three percent of law enforcement agencies currently reside in the 150 – 174 MHz band.[15],[16] For these reasons many Public Safety entities plan on remaining in the VHF band while others actually planning on moving to this band.

19. NYSTEC is also aware of the implications of the Balanced Budget Act of 1997 section 3002(e). It has been stated by the Office of Management an

---

[12] For purposes of this document VHF is considered frequencies in the 138.0 MHz - 174 MHz band.

[13] *See* New York State Constitution, Article XIV, §1, ¶1

[14] *See* U.S. Survey of Rural Information Infrastructure Technologies, U.S. Department of Commerce, September 1995, §5-3.

[15] *See* National Institute of Justice Research Report, "Wireless Communications and Interoperability Among State and Local Law Enforcement Agencies", January 1998 – page 3.

[16] *See* National Institute of Justice Research Report "State and Local Law Enforcement Wireless Communications and Interoperability: A Quantitative Analysis". Of all the agencies with plans to upgrade, forty percent of them have plans to remain or move to the 150 – 174 MHz band. Therefore, this band will continue to be used by Public Safety agencies January 1998, exhibit 16- page 25.

Budget that spectrum that is to be reallocated and assigned by auction will not be available for assignment by any other means.[17] NYSTEC suggests that the Commission take the necessary steps to ensure that this portion of spectrum is allocated to Public Safety. If necessary, the Commission should seek congressional guidance or other such means in order to allocate this spectrum appropriately.

20. Therefore, NYSTEC suggests that the Commission take the steps necessary to allocate this band for Public Safety purposes. Specifically, NYSTEC recommends 2.5 MHz of this spectrum be allocated for statewide shared systems, and the remaining 0.5 MHz be allocated for interoperability. This will increase the ability of states to implement affordable, efficient, and effective statewide-shared systems, while providing spectrum relief for interoperability.

III. INTEROPERABILITY IS NEEDED BELOW 512 MHZ.

21. In the Third Notice of Proposed Rulemaking the Commission requested comments on the proposal to allocate five channels in the VHF band and five channels in the UHF band for interoperability. NYSTEC, as previously mentioned, agrees with the PSWAC final report and realizes that interoperability spectrum is needed below 512 MHz. We fully

[17] Comments filed on behalf of the Executive Office of the President, January 4, 1999, ¶4.

support the Commission's proposal to designate ten nationwide interoperability channels in the 150-174 MHz band and in the 450-512 MHz bands. However, this allocation is only ten channels, and does not fully relieve the need for interoperability spectrum in these bands. Furthermore, the availability of the identified spectrum for widespread use is also unclear.

22. Although most of this spectrum is free for use nationwide there are still areas using this spectrum. The Commission also should consider the coordination issues associated with these channels. The existence of channels next to these will make this spectrum unusable in many areas. For example, the four UHF frequencies are spaced 6.25 kHz from existing 20KOF3E allocations making coordination necessary. Similarly, the proposed VHF channels are spaced 7.5 kHz away from existing 20K0F3E allocations. Careful coordination will be necessary everywhere and impossible in certain areas. In order for this allocation to truly helpful, the spectrum needs to be free for use.

23. All in all, this allocation will give some spectrum relief, but not in all areas. We also believe that allocating interoperability channels in the 700 MHz and 800 MHz bands is necessary, but will not provide a comprehensive short term solution to the interoperability problem. Therefore, NYSTEC commends the Commission for this allocation, while

simultaneously urging the Commission to do as the PSWAC recommends and allocate the appropriate amount of spectrum for interoperability below 512 MHz.[18] As a starting point the FCC can allocate the aforementioned DoD spectrum for Public Safety and Public Service.[19]

24. We also concur with the proposal to require every Public Safety mobile radio in these bands to be capable of both transmitting and receiving on at least one of these channels.

IV. GLOBAL ORBITING NAVIGATION SATELLITE SYSTEM(GLONASS) AND GLOBAL POSITIONING SYSTEM (GPS)

25. The commission is also seeking comment on the potential for interference to the GNSS (Global Navigation System Service), which includes the GLONASS and GPS satellites, from Public Safety systems operating in the 794-806 MHz band.[20] The Commission seeks comment on the effects of second harmonic transmissions to GPS and GLONASS receivers, and the potential impact of additional requirements to Public Safety systems in the newly allocated spectrum. Specifically there is a concern that the second harmonics from mobile transmitters in the 799-802.5 MHz band will interfere with GLONASS users in the 1598-1605 MHz band. The

[18] PSWAC Final Report §2.2.1 Page 21 - One of the PSWAC's key recommendations is that 2.5 MHz of spectrum in the VHF and UHF bands should be allocated for interoperability.

[19] *Supra* ¶ 22

United States Department of Transportation (DOT) has strongly suggested that the Commission set technical standards sensitive to the potential impact on GPS and other navigational systems in the 1559-1610 MHz band.[21]

26. NYSTEC is in agreement with the comments of the DOT in that GPS is a critical system for our Nation's well being. GPS is rapidly becoming the basis for air, marine and land navigation and transportation; it also is of great importance to industry, science, engineering, and recreation. The DOT also comments that the requirement to protect GPS extends to the Russian GLONASS system. The DOT states "In setting domestic policy, the Commission should acknowledge... the potential international effects of decisions made regarding spectrum. Although the United States enjoys, as does any sovereign nation, the right to manage domestic spectrum to best meet its own needs, domestic spectrum policy is not separable from international spectrum policy and regulation."[22] In general NYSTEC is in agreement with the notion that spectrum policy does extend into the international arena. However, NYSTEC believes that the foreign system potentially impacted must be understood prior to adopting policies which

---

[20] Report and Order at ¶ 197

[21] Comment of the United States Department of Transportation, ¶ 1.

[22] Comment of the United States Department of Transportation, ¶ 5.

do not allow our Public Safety and service agencies to fulfill their duty to protect life and property of the people of the United States.

27. NYSTEC does not believe that the Commission should mandate unnecessary and overly restrictive technical standards, which will ultimately limit the use of the 700 MHz band for Public Safety purposes, to protect GLONASS receivers. Requiring second harmonic attenuation of -80dBW/700 Hz of narrowband mobile and portable Public Safety equipment would severely limit the Public Safety's ability to use this band.[23] Full analysis of the actual effects and the specific channels should be explored before any rules are adopted.

28. In 1995 the GLONASS achieved a full constellation of twenty-four satellites, but currently the GLONASS constellation consists of only fourteen satellites of which three are three have been classified as unhealthy since the middle of December 1998.[24] The remaining eleven satellites all have exceeded the end of their design life. Although three new GLONASS satellites were launched on December 30, 1998, the first launch in over three years, it is highly unlikely that the GLONASS system will ever be a viable system.

---

[23] Report and Order at ¶ 197.

[24] Massachusetts Institute of Technology Lincoln Laboratory Satellite Navigation Group, http://satnav.atc.ll.mit.edu/glonass/images/health.gif

29. These inadequacies certainly question the viability of the system. This is without mentioning the current economic turmoil that is occurring in Russia. With the GLONASS system less than operable the Russian Ministry of Defense must refurbish the system. Along with the refurbishment they must also continually upgrade and restore the system as needed. With a substantial amount of effort being placed on reaching economic stability, one would be hard pressed to expect Russia to apply the effort needed for the GLONASS system.

30. It is not useful to protect this system from harmful interference while the system is unable to meet even basic operational standards for an extended period of time. Therefore, NYSTEC recommends that the Commission fully consider the viability of the GLONASS before implementing rules protecting a system, which has limited practical use in the near future.

31. One of the reasons for using GLONASS in conjunction with GPS is to help ensure coverage, accuracy and integrity monitoring. NYSTEC agrees that a combination of signals from GPS and GLONASS will improve coverage, accuracy and integrity monitoring. NYSTEC comments that other solutions will produce these same results. In fact, there are several solutions being actively pursued, which do not involve using the GLONASS system.

32. Selective Availability (SA) is the intentional degradation of the SPS (Standard Positioning Service), which inevitably reduces the accuracy of the system.[25] It is the opinion of many agencies and organizations that selective availability should be removed.[26] In fact a Presidential Decision Directive specifies that initial consideration for the removal of selective availability will occur in the year 2000, with selective availability itself removed from GPS in 2006.[27] NYSTEC supports this view and suggests that selective availability be removed in order to increase accuracy.[28] Therefore, protecting GLONASS from interference in order to increase accuracy at the expense of the public's safety is not practical because there are other means to improve accuracy.

33. Another approach to solving navigational problems without using GLONASS is to enhance GPS capabilities by expanding the constellation. There are a few approaches, which could be used. First, a near term

---

[25]Peter H. Dana, Department of Geography, University of Texas at Austin, "The potential accuracy of the C/A code of around 30 meters is reduced to 100 meters (two standard deviations)." http://www.utexas.edu/depts/grg/gcraft/notes/gps/gps.html

[26] , Launchspace April 1998, Keith McDonald, "Locating GPS: Future, Present, & Past" states "The National Research Council (NRC) and other advisory committees have recommended the removal of selective availability.

[27] Id. at page 36

[28] There are other reasons to increase the accuracy of GPS such as solar maximums. The solar maximum will increase the effects of ionospheric group delay on the GPS system. The ionospheric group delay is the single largest error component in GPS (Once selective availability is removed). The next solar maximum will occur in the year 2000 and will be significant for a year or two. There is also talk of using another signal in order to reduce ionispheric-induced errors.

solution which would solve the problems over the United States would be by using geostationary satellites (GEOs). This approach would ensure that more satellites could be seen at any given time anywhere in the United States. The geostationary approach could be implemented with as few as two satellites.[29] Using such technologies as the INMARSAT Civil Navigation Overlay can also increase capabilities. INMARSAT has carried out extensive studies and trials leading to the development of civil geostationary satellite overlay to both GPS and GLONASS. This overlay can be used in conjunction with the satellite navigation systems to meet the stringent requirements of reliability and integrity of information required by aviation and maritime authorities.[30] A more exhaustive approach would be to expand the total constellation making the number of GPS satellites thirty or more. DGPS (Differential Global Positioning System) as outlined by the International Association of Lighthouse Authorities offers yet another solution.[31]

---

[29] Pratap N. Misra, MIT Lincoln Laboratory, "Integrated Use of GPS and GLONASS in Civil Aviation" http://satnav.atc.ll.mit.edu/papers/Lljournal/Misra.htm

[30] "Understanding GPS: Principles and Applications", Chapter 11, page 467, ¶ 1.

[31] "List of Radionavigation Services - DGNSS Reference and Transmitting Stations in the Maritime Radionavigation (Radiobeacons) Band," Association Internationale de Signalisation Maritime/International Association of Lighthouse Authorities, http://www.navcen.uscg.mil/dgnss/IALADGNSSOCT97.pdf, October 1997.

34. The FAA (Federal Aviation Administration) is currently developing the means of improving GPS position estimates. In order to meet stringent navigational requirements critical for the safety of flight, the FAA has plans for implementing a WAAS (Wide Area Augmentation System) and a LAAS (Local Area Augmentation System). WAAS will provide navigational information for en-route travel and non-precision approaches as well as Category I approaches to selected airports. LAAS will meet the more stringent Category II/III approaches. Neither the WASS nor the LASS use the GLONASS system.

35. NYSTEC strongly suggests that the Commission fully review the health of the GLONASS system. In conjunction, the Commission should give full consideration to the future viability of this system before implementing any regulations, which will considerably impact Public Safety agencies duties and the general well being of those people performing their jobs. GLONASS could be used to enhance the coverage, accuracy and integrity monitoring, but there are clearly other methods, which should be explored. We would also like to reiterate the concerns we have with adopting policies which will put a substantial amount of faith in a system which is not domestically maintained and owned.

36. If a combined GPS/GLONASS navigation system is required, careful analysis and testing of the effect of interference on the system

performance must be performed. In fact, the GLONASS system will probably operate better than the GPS system in the presence of narrowband interference. GLONASS uses a frequency plan that assigns independent frequencies to individual satellites. In the presence of narrowband interference, as might be generated from Public Safety equipment, the signal from only one GLONASS satellite would be lost due to the interference. The loss of a single GLONASS satellites would have minimal affect on the position estimate developed, and in fact, would probably go unnoticed by the user.

37. If the commission decides that it should adopt guidelines for interference, NYSTEC strongly suggest that the rules be based on appropriate engineering analysis. Industry has the ability to perform theoretical and experimental analysis and NYSTEC expects that the Commission will acquire this information from Industry through these proceedings. Fully giving consideration to this issue will prevent the Commission from implementing undue constraints, and costs, on Public Safety user equipment.

V. A PORTION OF THE 8.8 MHZ OF RESERVE SPECTRUM SHOULD BE ALLOCATED FOR USE BY STATE OR REGIONWIDE SYSTEMS.

38. NYSTEC believes that it is necessary to allocate a portion of the reserve spectrum for use by state or region-wide systems.[32] A significant amount of spectrum must be preserved in order to ensure that states and regions have the ability to implement statewide systems. One of the problems with implementing statewide systems is the lack of clear spectrum. It is absolutely necessary that there is enough "green" space available for the proper development of frequency plans over large areas. Licensing spectrum scattered throughout a band can make planning extremely difficult for large-scale systems, and it becomes more difficult as the band is fragmented by issuing licenses for non-statewide purposes.

39. The planning and procurement of a statewide system is extremely difficult. It involves a substantial commitment by a state and its people. NYSTEC urges the Commission to support policies, which ensures the implementation statewide systems. NYSTEC suggest that the Commission allocate enough spectrum to allow the proper design and implementation of statewide systems. Thereby, the substantial benefits of a technologically advanced statewide system may be realized.

40. One of the benefits of a statewide system is a lowered per user cost. As the amount of users on a statewide system from differing agencies and

[32] Region-wide system for the purposes of this document are defined as a system which encompasses at least one state and extends into areas of neighboring states. Therefore, statewide systems are a subset of region-wide systems.

jurisdiction increase, the cost per user decreases. The economies of scale begin to take effect dramatically (the cost of many trunked localized systems is higher). Statewide systems are also cost effective because they limit the duplication of infrastructure. In most cases the smaller municipalities do not have the ability to fund systems which best fit their needs. Advanced wireless services are viewed as highly desirable by many Public Safety entities although they do not have the funds to procure the communications system they need.[33]

41. The use of new technologies will give Public Safety personnel the ability to perform their job effectively and efficiently. Not only would many small independent trunked systems cost more; they do not reap the interoperability and operational advantages of new and emerging technologies. Because of the benefits of statewide systems, NYSTEC strongly suggests that the Commission adopt policies and rules that foster the growth and implementation of statewide systems. Specifically, NYSTEC recommends that at least 2.5 MHz of this spectrum be allocated for implementation of statewide system. NYSTEC is also concerned about the availability of this spectrum near the borders of Canada and Mexico. NYSTEC suggests that the Commission fully consider the international agreements the U.S. has with both Canada and Mexico.

[33] *See* National Institute of Justice Research Report, "Wireless Communications and Interoperability Among State and Local Law Enforcement Agencies", January 1998 – page 5.

When allocating

must ensure that

areas near the bo

Respectfully Submitted,

New York State Technology En

By:

Scott R. Leonard
Communications Group
NYSTEC
75 Electronic Parkway
Rome, New York 1344