

Feasibility Study for Participating in Regional E911 Communications Services

Shirley, Massachusetts



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In Cooperation with:
Montachusett Regional
Planning Commission

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EXECUTIVE SUMMARY

The Montachusett Regional Planning Commission awarded a contract to the Center for Technology Commercialization, Inc. (CTC) to conduct a **Feasibility Study for Regional Dispatch Services for Town of Shirley, MA**. CTC investigated three possible scenarios for the Town of Shirley to develop or participate in a regional dispatch center. Those options included the following:

- Option 1: Join the existing Nashoba Valley Regional Dispatch District (Devens)
- Option 2: Create a new Regional Dispatch Center in conjunction with the Town of Ayer
- Option 3: Join the existing Regional Dispatch Center in the Town of Groton

CTC has been qualified by the Massachusetts State 911 Department to provide Technical, Operational and Governance Feasibility Consulting Services in compliance with RFR State 911 10-005 under a contract with the State 911 Department on April 12, 2010. CTC has conducted numerous studies throughout Massachusetts since 2010.

The study includes investigating the technical and cost requirements for each possible above option including but not limited to the cost of set up, technology necessities, cost of operation, response time, and adherence to the State and National Standards for Dispatch Centers; and, drafting of recommendations for the Feasibility study.

The study, through assessment and analysis, identified comparative elements of each option and provided a recommendation for the Town to consider as the best option based upon the RECC that would provide the most robust option and at the least cost.

The Methodology utilized interviews, site surveys and document research.

The **Shirley Public Safety Answering Point (PSAP)** is located at the Shirley Police Station was well planned for the time that the station was built but there is not a great deal of growth potential to invite Ayer into this center. The consultant was advised, that at this current time, Ayer is not interested into joining with Shirley to develop a regional emergency communications center at either the Ayer or Shirley locations. A separate radio and communication assessment of the Shirley radio system was conducted Beltronics Communications and was provided to CTC for inclusion into this report for analysis. The Shirley PSAP is a two console center with limited space to expand.

Nashoba Valley Regional Dispatch District/Nashoba Valley RECC (NVRDD) is now providing their services to five communities and will soon to be joined by the Town of Berlin. Current feedback from those communities provides that they are providing those services quite effectively. The Director, Nathan Kenney is a very progressive leader who has a strong working relationship with these six communities. Mr. Kenney's expertise is relied upon to provide input to the state's working committee that feedback to the development of Next Generation 911. This is a very professional, forward looking organization that is providing 911 dispatching services. The Director has indicated that the NVRDD would be quite willing to add Shirley into the NVRDD. The NVRDD was established as a regional governmental entity by an act of the Massachusetts Legislature. The Town of Townsend has recently

Groton Regional Emergency Communication Center (GRECC) is hosted by the Groton Police Department and is managed by Chief Donald Palma. The GRECC was established through agreement with the Town of Dunstable to provide regional emergency communication for the public safety services in both communities. Chief Palma has provided excellent leadership to the GRECC and has a vision of expanding those services to additional communities.

Interviews

The interviews revealed that there was a willingness of the public safety leaders to achieve more effective 911 dispatch services. They felt the key outcomes that could be achieved by regionalizing these services are:

1. Provide for a more robust center to manage large critical incidents
2. Enhanced technology and communication equipment
3. Better trained dispatchers

Recommendations:

1. Consolidate Shirley into the Nashoba Valley Regional Dispatch District. Both the GRECC and NVRDD provide excellent opportunities for Shirley. The rating scale that was used to assess both of these options was based upon seven variables and allows the consideration of long term cost and operational considerations. NVRDD was rated the highest. The primary reasons include the fact that NVRDD has a strong governance agreement that has a formalized process for both administrative and operational input to the center for Shirley and it is a more robust Regional Emergency Communication Center (RECC) with established infrastructure and operational practices, strong leadership and effective supervision. The NVRDD has a governing body of like communities with strong municipal oversight for the significant role that 911 dispatch services provide for each community. There is equal participation by all six of the communities in this center. The purpose of doing such a move would be to:
 - a. Enhance the emergency communication services
 - b. Provide for a more robust emergency communication capability
 - c. Provide for cost savings to all communities through greater economy of scale
 - d. Reduce the cost of future replacement of communication equipment
 - e. Provide for greater information sharing between communities regarding crime patterns and suspects through the NVRDD information technology
2. Leverage the capability of the NVRDD to enhance Emergency Medical Dispatching services by providing greater shift dispatcher staffing
3. Develop an outreach program to all of the communities to inform the citizens and the public safety personnel of timelines of the potential changes, the rationale for the change and the benefits to them in the form of enhanced services
4. Develop a plan to provide the administrative support that the dispatchers have been providing and to allow community members to interact with the Police and Fire Departments for administrative matters. Strategies should include:
 - a. Provide administrative support during certain hours of the day during the week to support this effort with either full-time or part-time employees such as considering putting their records function and storage in the current dispatch area and using a records clerk to work on that function as well as other community business with the police department such as records requests
 - b. Schedule hours for those administrative functions and inform the public
 - c. Review the administrative functions that could be put online through the internet such as the Burn Permit system that NVRDD has at this time. The online burn permit system allows community members to apply online. The system is managed by the community fire department and provides notice to applicant when it is an appropriate day to burn. The data base is a very useful tool for both the community fire department and the dispatch center.

5. Utilize the established operational policies and procedures of the NVRDD/NVECC that meet the unique needs of the disciplines of the emergency response agencies in that district to ensure the appropriate resources are provided at the time they are needed.
6. Assist NVRDD to seek State 911 RECC Developmental Funding to implement the needed changes necessary to connect to the Regional Emergency Communications Center. Those elements include the cost of:
 - a. Radio communications interoperability between the NVRECC and the police and fire departments.
 - b. Enhanced security for the Shirley Public Safety Facilities during the times when the facility may not be staffed.
 - c. A regional software system for Computer Aided Dispatch (CAD) and Records Management Systems (RMS) currently being used by NVRECC.
 - d. Project Management.
 - e. Transitional Training.

INTRODUCTION

The Montachusett Regional Planning Commission (MRPC) applied for and received funding to hire a pre-qualified consultant to conduct **Feasibility Study for Regional Dispatch Services for Town of Shirley, MA.** to investigate three possible scenarios for the Town of Shirley to develop or participate in a regional dispatch center. Those options included the following:

- Option 1: Join the existing Nashoba Valley Regional Dispatch District (Devens)
- Option 2: Create a new Regional Dispatch Center in conjunction with the Town of Ayer
- Option 3: Join the existing Regional Dispatch Center in the Town of Groton conduct a feasibility study for the Town of Shirley to identify

The contract was awarded to CTC, Inc., a Massachusetts based private non-profit 501c3 company was qualified by the Massachusetts State 911 Department on April 12, 2010 to provide Technical, Operational and Governance Feasibility Consulting Services in compliance with RFR State 911 10-005 under a contract with the State 911 Department, was awarded a contract to conduct this study.

The CTC Chief Executive Officer (CEO) and former Massachusetts State Police Lt. Colonel/Deputy Superintendent (ret.) Thomas J. Kennedy conducted this study in the methodology described below.

METHODOLOGY

CTC adhered to the following methodology in collecting and assessing the data elements and information from the existing 911 PSAP services in Bolton and Berlin to assess the feasibility of developing a RECC between both communities or to join the NVRDD. Methods for collecting information relied on interviews, on-site assessments and document review. The process included the following:

- Met with the principals of project.
- Visited each PSAP/dispatch site.
- Interviewed the Chiefs of the Shirley Police and Fire Departments, the Groton Police Chief responsible for the Groton Emergency Communication Center (GRECC) and the Director of the Nashoba Valley Regional Dispatch District (NVRDD)
- Relied upon the Shirley assessment of their communications and information technology systems conducted by Beltronics Communications.
- Gathered computer aid dispatch call volume from 2015 for analysis
- Gathered 911 call volume data from the State 911 Department for 2015
- Gathered information on current emergency communications staffing levels.
- Collected the following information:
 - Current operating budgets of communications centers.
 - Call volume for each 911 center.
 - Additional administrative tasking performed by the dispatch staff.

SITE ASSESSMENTS AND FINDINGS

Community/RECCs Profiles

	Population (2010)	2015 – 911 Call Volume
Shirley	7,211	1,117
Ayer	7,427	1,614
NVRDD/Total	34,264	6,094
Groton/RECC	13,825	1,690

Current Regional Emergency Communication Center Options and their status:

1. The **Shirley Public Safety Answering Point (PSAP)** is located at the Shirley Police Station was well planned for the time that the station was built but there is not a great deal of growth potential to invite Ayer into this center. There are two consoles in the dispatch area. Total calls for services serviced by center amounted to 5,917 for 2015. The consultant was advised, that at this current time, Ayer is not interested into joining with Shirley to develop a regional emergency communications center. A separate radio and communication assessment of the Shirley radio system was conducted Beltronics Communications and was provided to CTC for inclusion into this report for analysis.
2. **Nashoba Valley Regional Dispatch District/Nashoba Valley Regional Emergency Communication Center.**
 - o Established by agreement with the towns of Devens, Lancaster, Harvard and Lunenburg that was spearheaded by the Massachusetts Development in 2011. Bolton was added in during 2016 and Berlin is being added into the District in the first quarter of 2017. Townsend is undergoing the assessment process to join the center in 2017.
 - o The NVRDD governance model used by the communities to establish the center was ultimately used as a model by the Massachusetts Legislature to establish regional emergency communications centers a regional entity. See Appendix A for a summary of the enacted law. The governance agreement provides for the NVRDD to be overseen by an Administrative Board made up of either Town Administrators or representatives of the Boards of Selectmen and an Operations Board made up of the community Police and Fire Chiefs.
 - o Mission is to provide regional emergency communications services for the member communities. The center provides emergency call taking and dispatching services. It does not provide walk-in services. There is a strong focus on continuous improvement in the delivery of these services.
 - o The NVRDD is located at 270 Barnum Road, Devens, MA 01434. A groundbreaking occurred in 2012 after receipt of a \$1.39 million dollar grant awarded by the State 911 Department. The NVRDD currently occupies 5,000 square feet of the 25,000 square-foot building. The Evergreen Garden Play School occupies 10,000 square feet leaving a great deal of expansion space available for the NVRDD to add communities. This state-of-the-art center has sufficient infrastructure at that site to meet all of the requirements of a much larger center for future expansion. There are six dispatch consoles. There is a new radio tower

- that allows the community public safety response vehicle to communicate with the center via radio frequency (RF). Within the center there are two offices, a training room, a large technology back room, a locker room and a kitchen area.
- Currently there are nine full-time dispatchers, one part-time dispatcher, four supervisors and one Director.
 - Total Budget \$1,071,019 in 2015.
 - Benefits that were identified by NVRDD for its participating communities:
 1. Improved dispatching services
 2. Lower operating costs
 3. More staff to handle multiple calls
 4. Access to better training and experience
 5. Modern state of the art equipment
 6. Meet mandates of EMS 200 Legislation required for Emergency Medical Dispatching (EMD).
 - Value added to communities – Using a regional approach to solve public safety problems, i.e., regional grant request for mobile data terminals for police and fire departments with coordinated set-up and installation, and a regional solution for an online process to issue and manage burn permits.
 - The NVRDD is interested in adding communities to the NVRECC.
 - The current cost for participating communities is \$187,000 per community. The greater number of communities in this shared service reduces the cost per community. When Bolton and Berlin complete the process of joining NVRDD the cost per community was estimated to be \$159,009. When Townsend joins the center the anticipated cost to each community is estimated to be \$157,000.
 - Prior feedback from the original four communities provided the following: The anticipated services are being provided quite effectively. Performance and cost savings have exceeded anticipated levels. The NVRDD Director, Mr. Kenney, is a very progressive leader who has a strong working relationship with the NVRDD communities. Mr. Kenney's expertise is relied upon to provide input to the state's working committee that feedback to the development of Next Generation 911. This is a very professional, forward looking organization that is providing excellent 911 dispatching services. The Director has indicated that the NVRDD would be quite willing to add additional communities.
 - The Towns of Berlin and Bolton agreed to join the NVRDD earlier in 2016. Bolton has completed the transition process and Berlin is projected to be integrated into the NVRDD by February 2017. Townsend is planning to join the center in 2017.

Implementation Steps to Join NVRDD

1. Approve within each community the transition of emergency dispatch services to the Nashoba Valley Regional Dispatch District
2. Submit a letter to the Director of NVRDD requesting to be a participant in the NCRDD/NVRECC. The Director will submit the request before the NVRDD Administrative Board for acceptance.
3. Shirley will enter into an agreement with the NVRDD.
4. Shirley will notify the State 911 Department of this agreement and request their approval to transition to the NVRECC.
5. NVRDD will submit a proposal to the State 911 Department that includes the needed equipment and transition expenses.
6. Upon approval by State 911, NVRDD will review the requirements for the equipment with requesting communities Police and Fire Chiefs. Those requests will include the following:
 - a. CAD/RMS with TriTech/IMC

- b. Charter and Comcast for the fiber connection from Bolton and Berlin to NVRDD
 - c. Radio systems into NVRDD consoles
 - d. Fire Alarm systems
 - e. Security systems – Galaxy Integrated Solutions
7. NVRDD will review their staffing analysis in order to ensure that sufficient dispatchers are available to accommodate the requesting community.

Timetable – one year in total for one community depending upon available State 911 Development Grant funds.

3. Groton Police Department – Regional Emergency Communication Center

- o Established through agreement with Dunstable to provide regional emergency communication for the public safety services in that town.
- o Mission – to provide regional emergency communications services for the member communities. The center provides emergency call taking and dispatching services. It does provide walk-in services for primarily Groton.
- o The Groton Regional Emergency Communications Center (GRECC) is located at 99 Pleasant Street, Groton, MA 01450 and currently occupies a space for two dispatch consoles overlooking the entrance of the station. The Police Station formerly also housed the Groton Rescue and Ambulance Squad which was consolidated into the Groton Fire Department and the Fire Department facility. The open space from this relocation has doubled the space available for the Police Station. The Town of Groton has recently appropriated funds for renovation of the building including the dispatch center. The immediate project is to remodel the dispatch space from two consoles to three and to relocate the electronics and communications back room expanding the dispatch space further. The Town has also appropriated \$650,000 to upgrade the radio systems for the police and fire departments including the dispatch center. Currently Groton has car to car and dispatch center interoperability with both Tyngsborough and Pepperell. Within the center is a training room.
- o Currently there are six full-time dispatchers, two part-time dispatchers and one unfilled supervisor's position.
- o Total Budget \$483,992.
- o Value added to communities – Using regional approach for prisoner lock up at the Groton Police Department for Dunstable.
- o In 2015 the cost to join was \$68,000 per community.
- o GRECC Strategy for additional available space:
 - Dedicate two rooms to serve as IT and 911 dedicated rooms.
 - Provide for the ability to expand into space that was formerly two equipment bays to use as a larger 911/dispatch area should they take on another town.
 - Space would provide for additional dispatch area, locker and break areas.
 - Back room space for technology systems separate from dispatch area.
 - Strongly supports adding communities to the GRECC.

Implementation Steps to Join GRECC:

1. Approve within each community the transition of emergency dispatch services to the Groton Police Regional Emergency Communication Center
2. Submit a letter to the Groton Police Chief requesting to be a participant in the GRECC.
3. Shirley will enter into an agreement with Groton.
4. Shirley will notify the State 911 Department of this agreement and request their approval to transition to the GRECC.
5. GRECC will submit a proposal to the State 911 Department that includes the needed equipment and transition expenses.
6. Upon approval by State 911, GRECC will review the requirements for the equipment with requesting communities Police and Fire Chiefs. Those requests will include the following:
 - a. CAD/RMS with TriTech/IMC
 - b. Fiber Connection between the Groton RECC and the participating communities for information technology, administrative phones, radio and security systems.
 - c. Radio systems into the Groton RECC consoles
 - d. Fire Alarm systems
 - e. Security systems – Galaxy Integrated Solutions
7. GRECC will review their staffing analysis in order to ensure that sufficient dispatchers are available to accommodate the requesting community.

Analysis

RECC Site Options

Category	Shirley		NVRDD		Groton RECC	
Governance	NA	1	Model follows state legislation for RDD. Creates Regional entity	5	Agreement between Groton and Shirley to provide dispatch services	3
Operations Input	Informal	2	Operations Committee	5	Informal	2
Administration Input	Informal	2	Admin. Board	5	Informal	3
Enhanced Technology	Dependent upon town funding	1	Provided by State 911 Department through competitive grants	5	Provided by State 911 Department through competitive grants	3
Recurring Costs	\$254,532.50	2	\$159,000	4	\$68,000	5
Non-Recurring Costs	Radio \$291,550	1	All RECC equipment cost paid by grants	5	All RECC equipment cost paid by grants	5
Robust Operation	2 consoles 1 dispatcher on duty	1	6 consoles 3-4 dispatchers on duty	5	2 consoles 1-2 dispatchers on duty	3
Rating Total*	10		34		24	

*Rating scale estimates each category into a scale of (1) to (5) with one being the least desirable and five most desirable.

Information Technology

Currently Shirley, Groton RECC and the Nashoba Valley Regional Emergency Communications Center utilize Trittech/IMC Computer Aided Dispatch (CAD) and Records Management Software (RMS) and Mobile systems. The Trittech/IMC system provide for:

1. Records Management System (RMS) - information to be taken from the CAD system and then utilized for crime analysis and deployment of personnel. The patrol officers complete their reports regarding the response and investigation to criminal incidents and traffic crashes in the station or cruisers using laptop computers. Follow-up investigations are completed by detectives and their information is filed in the RMS. City, state and federal reports are generated from this system. Separate modules are used by the Fire Departments for their investigative reports and fire reporting systems.
2. Computer Aided Dispatch (CAD) software that allows 911 calls to be categorized, tracked and then inserted into reports.

Interviews

Both the Shirley Police and Fire Chiefs provided excellent information regarding their insight of regional dispatch centers and their recommendations regarding the most effective process to transition into a regional emergency communications center. Both chiefs had a strong focus on the communities that they serve as well as a desire to provide very professional public safety services to their citizens. Both were very knowledgeable of their professional services and of their community. Both expressed that, if their community transitioned into a RECC, they would ensure that the process would be accomplished to the best of their ability. Their desire was focused on enhanced emergency communications services for citizens and public safety personnel for Shirley. A summary of the results of the interviews with the chiefs is as follows:

1. A summary of the **strengths or potential benefits** of regionalization of 911/PSAP services were identified as follows:
 - More robust systems/center for major incidents
 - Better dispatch services
 - Better trained dispatchers
 - New equipment/technology
 - Provide more focus on fire department dispatch procedures
2. The **weaknesses or concerns** of regionalization as identified as follows:
 - Lack of community knowledge of Shirley people and places
 - Officer safety for prisoner processing
 - Loss of morale if jobs lost
 - RECC Operational Procedures
3. **Recommendations were provided from the interviewees that they identified as important for a successful integration** of both communities into a single emergency communication center
 - Focus attention on officers and the community
 - Involve officers in the transition process/transparency
 - Ensure that the departments of the RECC meet on a regular basis
 - Use same/common dispatch protocols
 - Town departments need to be involved in the transition process

Leadership

Leadership is a critical factor to successfully consolidate or outsource any services that are important to the mission of the public safety agency. This requires the skills to work with their staff and the community to manage the change process. In the course of the interviews CTC has found the chiefs of the police and fire/rescue departments have very good leadership skills and a willingness to successfully undertake this transition. They have recognized the benefits of such a transition and have offered recommendations to make this a successful consolidation. Their key focus was always on the mission of their agencies and their communities. Both leaders of the two options for a regional emergency communication center, Director Kenney and Chief Palma, are effective leaders who can provide the leadership to transition Shirley into either of their centers.

Administrative Functions

Dispatchers in Shirley perform many functions that support the police, fire and EMS departments within their communities and also are the first people you meet when you go into the Police

Station. They also provide a physical presence for the security of the facilities and are able to monitor prisoners being booked and incarcerated in the station cell blocks. Over the years these duties have evolved and went far beyond the duties of a public safety dispatcher that the positions were created for. Keeping the dispatcher focused on the services that are needed by today's environment to manage events that require knowledge of advanced technology in computer and radio systems, the incident command system and most importantly emergency medical dispatch protocols. Dispatch services are in the planning stages both nationally and in Massachusetts that will allow information to be transmitted over social media, texting/twitter and video from citizens in need of public safety services to the 911 Dispatch Centers. We are providing a number of recommendations for both communities to analyze how they will provide administrative support for these functions at their public safety facilities, identify which can benefit from an online system or which can better be managed by in collaboration with a regional center.

Governance

This is one of the most important documents for the communities to consider prior to joining an RECC. This is the framework that the emergency communication/dispatch services will be provided that goes beyond the current tenor or the current chiefs and town administrators. The document will identify who is going to operate the RECC and under what conditions. The role of the community will be identified for oversight, monitoring of performance, administrative terms of the agreement, as well as, the method of cost assessment. A District agreement that is compliant with the state law that allows two or more communities to establish a Regional Emergency Communications Center (District) provides for a District Agreement to be intended to set forth the responsibilities and obligations of the Participating Communities for cost-efficient, shared, and effective municipal emergency dispatch and communications services. The purpose of this District Agreement is to provide for the establishment, operation and maintenance of a consolidated regional 911 emergency communication center (RECC) by constructing, equipping, staffing, maintaining and operating a facility or facilities, which provide call receiving and dispatching services to the Participating Communities, by providing computers, radios and other equipment for use in the field.

A District Agreement provides in its language, criteria for responsibilities that include the following elements that are very relevant to Shirley joining an RECC. The agreement provides for community administrative and operational input into the services provided to the citizens of Shirley which I believe is crucial for long term involvement. Critical sample language from the legislation that NVRDD was built upon is as follows:

- A. The Town Manager or Chief Administrative Officer of each of the participating towns shall serve as the town's respective representative on the Board of Directors. The Participating Communities shall each have one (1) vote on the Board of Directors to act upon matters before the Board. Votes shall only be cast in accordance with Paragraph 4(H) below. As required under Chapter 500 of the Acts of 2014, the Finance Advisory Subcommittee will submit an annual budget to the Board of Directors. The subcommittee shall be comprised of the Chief Financial Officer and Chief Administrative Officer in each Participating Community.
- B. There will be an established Operations Committee to provide general oversight of the performance of the District, including operational protocols and procedures. The Police Chief and Fire Chief for each participating

community shall serve as their community's respective representatives on the Operations Committee.

The Police Chief and Fire Chief for each Participating Community may also appoint an alternate representative to serve in place of the primary Committee representative in the event the primary Committee representative can't serve at one or more meetings of the Committee. An alternate representative shall have the authority to vote in the name and stead of the person who appointed him/her. The Participating Communities shall each have one (1) vote on the Operations Committee to act upon matters before the Committee. Votes shall only be cast in accordance with Paragraph 4(H) below. A Committee representative shall cease to be a Committee representative if his/her community ceases to be a party to this District Agreement.

- C. The Board of Directors shall appoint an Executive Director. The Executive Director shall be an employee of the District and his/her salary and benefits shall be established by the Board of Directors. The Executive Director shall be responsible for the day-to-day operation and maintenance of the District, subject to the specific authority retained herein by the Board of Directors and the general supervisory authority of the Board of Directors. The specific job qualifications, duties and responsibilities of the Executive Director shall be recommended by the Operations Committee and approved by the Board of Directors. The Executive Director shall report to the Board of Directors.
- D. The Board of Directors shall have responsibility for all matters relating to the overall administration of the District, such as establishing the annual operating budget and capital budgets, as well as all human resource matters. Notwithstanding the above, the Board of Directors may, by a majority vote of its members, delegate to the Operations Committee such administration and budgetary matters as it may deem appropriate.
- E. The Operations Committee shall have responsibility for the effective and orderly operation of the District, including, without limitation, communications equipment and systems, maintenance, operations, protocols, policies and procedures, facilities, personnel, training, billing, and making budget recommendations to the Finance Advisory Subcommittee. The Committee shall coordinate with each of the Participating Communities all local protocol and standard operating procedures required to implement regional dispatch services for each of the Participating Communities and shall ensure compliance with all applicable, local, state and federal protocol, rules, regulations, directives and laws.

The Operations Committee will also formally appoint a Technology Subcommittee to address, manage and maintain the technology and equipment, including hardware and software, necessary for efficiently operating the District.

Notwithstanding the above, the Operations Committee may, by a majority vote of all its members, delegate to the Executive Director such operational matters as it may deem appropriate.

See Appendix A for a summary of the legislation

Professionalism of Communications Centers/Future Trends

The primary goal of all of the leaders of the agencies that were interviewed was to increase the level of communication services to their communities and to their departments. A number of the interviewees recommended that a strength of an RECC is the development of long term professional dispatch services. Professionalism is a determination of specific practitioners, methods, and performance criteria for a particular profession. The current trend of the 911 communication discipline is strongly focused on standards, best practices, personnel selection, training requirements and utilization of technology. To enhance professionalism of communications centers requires a better understanding of the current plans to modernize our nation's emergency communications services. The trends are focused on:

- Increase the capability to handle data, voice and video.
- Inter-connect with other communications centers such as traffic management centers to coordinate movement of resources, personnel, equipment and supplies.
- Enhance the cost effectiveness of human and technical resources.
- The integration of text messaging into our PSAP center operations and personnel training to meet the trends in society.
- Challenges of dealing with multiple calls for service to the same events from the transition from wire to wireless communication devices.
- Video is now second nature to our younger generation.

Geographic Information Systems (GIS)

- Nothing is more important to dispatching a call for service than location. The old adage of "Location, Location, and Location" cannot be truer than in responding to a Call for Service (CFS).
- More and more dispatching centers are adding layers of geographic information for not only home and business, but also fire hydrant, hazmat and highly critical infrastructures.
- Provides for better routing of resources.

Technology is making the combining of PSAP 9-1-1 Centers more cost effective through:

- More robust communications systems.
- Economy of scale in purchasing.
- Establishment of dispatching and resource tracking standards.
- Increased employee morale through professionalism.
- Better dispatching systems in the marketplace allow pass off of resource control to Police, Fire, and EMS.

Improved ability to work with the disabled through:

- Telecommunications devices for the hearing impaired.
- Interpreting services for foreign languages.
- Texting for the speaking impaired.
- Coordinating with local, country, state, federal planning organizations for standards in address assignments.

Working toward planning a better tomorrow for our communications infrastructures and standards development are:

- Massachusetts State 911 Department.
- APCO - Association of Public-Safety Communications Officials.
- NENA – National Emergency Number Association.
- USDOT – U.S. Department of Transportation.
- IETF – Internet Engineering Task Force.
- TIA – Telecommunications Industry Association.

Personnel Selection and Training Standards

The Massachusetts Communications Supervisors Association (MCSA) provides recommendations for minimum basic training standards for full and part-time public safety telecommunicators or dispatchers in Massachusetts. Those standards include the following elements:

1. Standards for telecommunicators for taking 911 calls and dispatching police, fire and medical services.
2. In-service and continuing education standards.
3. Supervisor and center management standards.

First Net

In response to the identified problems with the associated problems from the lack of radio interoperability for first responders to the tragic events of September 11, 2001 FirstNet was created by congressional action and is being planned and implemented throughout the country. Massachusetts is in the second year of planning this effort. FirstNet is establishing a nationwide, interoperable public safety broadband network dedicated for first responders. In establishing this network, FirstNet is guided by these ten important principles:

1. FirstNet will be a public safety-grade network built to meet the needs of our nation's first responders
2. FirstNet will provide public safety users with true priority access to the network
3. FirstNet will harden the network to assist with resiliency during natural disasters, incidents and man-made threats
4. FirstNet will enhance public safety communications by delivering mission-critical data and applications that augment the voice capabilities of today's land mobile radio (LMR) networks
5. FirstNet will enable local communications management and keep incident commanders in control
6. FirstNet will be judicious with taxpayer dollars while remaining focused on offering its services to public safety at a compelling cost
7. FirstNet will have effective security controls that protect data and defend against Cyber Threats

Next Generation 911

Although the 9-1-1 system has been an unqualified success story for more than 30 years, changes in the public's use of technology, the saturation of the mobile market, and the spread of Voice over Internet Protocol (VoIP) telephony over broadband are contributing to greater expectations that the current system will need to address. Because text, data, images, and video are increasingly common in personal communications and are critical to future transportation safety, the 9-1-1 system will be expected to accommodate highly mobile, dynamic communications modes. The architecture of these communication nodes directly counters the fundamental structure of the current 9-1-1 system. To guide and foster a nationwide vision of a 9-1-1 system for the 21st century, the U.S. Department of Transportation (USDOT) is taking a lead role in the research and development needed to bring about a more capable Next Generation 9-1-1 (NG 9-1-1) system that supports emergency call delivery and a response based system that maximizes impact across a diverse stakeholder community. Requirements for the technology have been assessed to allow the systems to be developed and implemented nationwide. Each state is currently assessing those requirements and the cost associated with NG 911. A recent update on that progress revealed that the Federal Communications Commission (FCC) announced that the nation's four largest wireless carriers have agreed to relay text messages to text-enabled 911 centers by May 2014. Under the agreement announced on December 6th, texters will get an answer, whether their call center is able to receive texts or not. If they can't they'll get an automated response, telling them to call instead. The FCC advised that people should always call during an emergency if they can. Costs are being analyzed for line and systems upgrades, dispatch center systems, increased call taking/dispatcher time and training. Massachusetts has awarded a contract to General Dynamics Information Technology to develop the Next Generation 911 for Massachusetts to allow 911 call information to be received from mobile texting, video and web-based information platforms and has an expected completion date at the end of 2015.

Prior 911 Center Consolidation Research

The prior research results on this topic that CTC has reviewed from studies across the nation are summarized most succinctly in an overarching study that was conducted by the John J. Heldrich Center for Workforce Development in 2005-2006 in New Jersey. This report provided an analysis of that state's E911 system along with information from the experience of other states with consolidation of 911 operations. Key findings from that study were as follows:

- a. Local officials in New Jersey and 911 officials from other states cite improved service and public safety as potential benefits of consolidation.
 - Consolidated call centers are likely to have more qualified, trained staff on duty and to provide more training opportunities for staff. Large operations will likely benefit from efficiencies in the long term because local jurisdictions can share operating and capital costs.
- b. There are clear economies of scale in the cost of handling 911 calls.
 - An analysis of the costs of handling 911 calls demonstrates the potential for achieving efficiencies from consolidating small communication centers. Costs per call drop dramatically as call volume increases.
- c. There is potential for improved efficiency through consolidation of PSAPs (Public Safety Answering Points) and PSDPs (Public Safety Dispatch Points) that have a low workload or call volume.
 - Centers that receive a relatively low number of incoming calls and tend to have one person on duty at any time have substantially higher costs per call, compared to larger centers.

- d. Reducing the number of PSAPs and PSDPs has the potential to generate cost savings for state and local government.
- While it is difficult to quantify local cost savings resulting from 911 consolidation, local and out-of-state officials indicate that cost savings can be realized when 911 services are consolidate.

Cost Analysis

Recurring costs:

This analysis covers the cost of wages/labor, supplies and services of the **Shirley PSAP** that would be compared to services that would be transferred to either NVRDD or the GRECC. It does an estimate 25% for retirement, medical, Medicare, payroll tax/unemployment benefit expenses. A breakdown of those costs include the following:

Wages/hourly - \$188,326.32

Other employee expenses - \$49,562.83

Expenses identified - \$9,925.00

Estimated CAD/RMS software annual license - \$8,000.00

The total cost of the current Shirley PSAP for FY17 is \$255,814.15.

The Administrative Board of the **NVRDD** has elected to share the costs of the center into equal expenses. It is budgeted for each community, when Bolton and Berlin have completed their transition process, for \$158,127.71. As more communities are added into the center the cost per community will go down. Each community shares the services and has equal participation in the center.

Chief Palma, Groton Police Department and GRECC has provided an estimate of \$68,000 to add Shirley to their center.

Non-recurring costs:

These transition equipment costs as well as needed radio system improvements would be sought by the NVRDD or the GRECC in a grant request after the towns have approved this transfer of services to the NVRDD and have submitted a letter that requests to be a participant in the NVRDD or the GRECC. Generally these costs are absorbed by the State 911 Department through their competitive Developmental Grant process. The State 911 grants pay for the following cost categories: Radio consoles and systems, computer aided dispatch and records management systems, fire alarm receiving and alerting equipment. A requirement of the radio systems is to allow the RECC and the community to achieve regional interoperability.

Capital replacement costs for emergency communication centers must be planned for can be substantial. The centers are operated 24 hours a day, seven days a week place great demands on the equipment used. The life cycle of dispatch equipment is estimated as follows:

- PC's and laptops – 3 year cycle
- Servers and routers – 5 year cycle

- Software upgrades – 7 year cycle
- Radio console – 7 year cycle
- Dispatch Furniture – 10 year cycle

Implementation phase costs would include:

- Consolidated CAD/RMS
- Security system for the Shirley Public Safety Facilities
- Fiber Optic connection for Shirley to NVRDD for radio, security and IT systems
- Radio systems for Shirley to be incorporated into the NVRDD consoles

A recent assessment of the Shirley radio system by conducted by Beltronics Inc., identified radio coverage gaps in the town. Recommendations and cost estimates provided were as follows:

Police and Fire Departments \$261,500

(4) Site system (Receive) at Water Tank, FD HQ, Middle School and Garrison Road – all sites to be linked via UHF links back to the water tank.

Replacement of current 100 Watt VHF repeater (Police)

Includes all FCC licensing, all new antenna systems at all sites.

Requires a small 25 foot antenna tower on the roof of Middle School and authorization from School District for small area to mount internal equipment.

DPW \$30,050

Replacement of DPW base radio and antenna, utilizing UHF links from control stations to base station location.

Total Cost of Radio system upgrade \$291,550

Currently Shirley bears the cost of communication system upgrades and improvements. Under an RECC these costs are borne by the state.

Role of State 911 Department

The State 911 Department is charged with the responsibility of coordinating and effecting the implementation of enhanced 911 service, and administering such service in the Commonwealth. In fulfilling this responsibility, the State 911 Department provides the public safety answering points (PSAP) in Massachusetts that serve as the first point of reception of a 9-1-1 call with call processing equipment, and database, network, and technical support services, with training for personnel handling the calls at the PSAPs, and with funding to support the operation of the PSAPs through the administration of an extensive grant program.

The State 911 Department has been committed to a more effective and economical 911 system through regionalization of those services. Earlier this year they provided that they currently support two hundred and forty nine (249) PSAPs. One hundred and thirty six (136) of them receive 10 or fewer 911 calls per day. The State wants to reduce this number and is providing the funds to do so.

The Massachusetts State 911 Department provides a specific grant program to develop and operate Regional Emergency Communications Centers.

Those grant funds include the following:

Support Grant

Primary PSAPs, regional PSAPs, regional secondary PSAPs, and RECCs are eligible to participate in the Program and are eligible to receive support grant funding.

For Fiscal Year 2017, \$22,435,861 of the total surcharge revenues of the previous fiscal year shall be allocated to the support grant awards. Support grant awards shall be disbursed according to a formula that weighs both 911 call volume and population served.¹

Incentive Grant

In addition to amounts allocated as part of the above support grant, existing regional PSAPs and RECCs are eligible to receive additional incentive grant funding through the Program based on the following allocation formula:

- i) for regional PSAPs serving 2 municipalities, ½ of 1 percent of the total surcharge revenues of the previous fiscal year;
- ii) for regional PSAPs serving 3 to 9 municipalities, 1 percent of the total surcharge revenues of the previous fiscal year;
- iii) for regional PSAPs serving 10 or more municipalities, 1½ percent of the total surcharge revenues of the previous fiscal year; and
- iv) For regional emergency communication centers, 4.7 per cent of the total surcharge revenues of the previous fiscal year.

Funds shall be disbursed according to a formula that weighs both 911 call volume and population served.¹

Existing regional PSAPs and RECCs that expand through the addition of one more PSAPs shall be eligible to apply for funds to be allocated based on the population formula set forth in the chart below. Such additional grant funding shall be, for each PSAP that is added to the applicant or after January 1, 2015, the greater of: the amount that would otherwise have been allocated to the applicant for the fiscal year, pro-rated to allow for funding for the remainder of the grant cycle, for the addition of the PSAP(s), or the dollar amount set forth in the chart below.

Increase in Population Served ² (per PSAP added)	Funding Amount/ RECCs	Funding Amount/ Regional PSAPs
0-25,000	\$25,000	\$12,500
25,001-50,000	\$50,000	\$25,000
50,001-100,000	\$75,000	\$37,500
100,001 or greater	\$100,000	\$50,000

¹ 2015 Call Volume and 2010 U.S. Census will be utilized for Fiscal Year 2017. For Fiscal Year 2017, awards will be adjusted so that awardees negatively impacted by the use of 2015 Call Volume will receive the allocation equivalent to their Fiscal Year 2016 award.

² 2010 U.S. Census will be utilized.

The percentages in clauses i to iv, inclusive, and the percentages of the total amounts allocated to each grantee eligible within such clauses i through iv may be adjusted by the State 911 Commission to ensure a proper allocation of incentive funds as more regional PSAPs and RECCs are added.

The amount allocated to a grantee or grantees under the Support and/or Incentive Grants may be adjusted or capped. In addition, should the status and/or dynamic of a primary PSAP, regional PSAP, RECC or regional secondary PSAP change during this funding cycle, the State 911 Department may take the following actions:

- Should a primary PSAP, regional PSAP, RECC, or regional secondary PSAP cease to exist, said PSAP will no longer be eligible for funding under the Support and/or Incentive Grants. The contract shall be terminated immediately;
- Should a primary PSAP, regional PSAP, RECC, or regional secondary PSAP increase its capacity through consolidation with another PSAP(s), the State 911 Department will re-calculate the eligible award amount taking into account the increased population and call volume and, if applicable, the chart above. This new allocation would then be off-set by the funding already received and the difference would be pro-rated to allow for funding for the balance of the grant cycle.
- The State 911 Department may limit allowable expenses and/or approved categories of expenses for a PSAP that is regionalizing.

Regional Development Grants

Use of Funding

Grant funds may be used by grantees only for the permissible categories of use listed within the specific categories set forth below. The use of all grant funding shall be: (1) associated with the provision of enhanced 911 service; and (2) approved by the State 911 Department.

Funds may be used for clerical, administrative, or other costs associated with administration of the Program, provided that funds may not exceed one (1) per cent of the total amount awarded to the Grantee. The services shall be specifically identified with the project, and the Grantee shall provide detailed documentation, to the satisfaction of the State 911 Department, supporting the services (including, without limitation, the time and dollar amount of the services).

The State 911 Department will allow funding for the purchase or lease of equipment, allowable construction items, and allowable structural improvement items and for debt service on equipment, allowable construction items, and allowable structural improvement items, including without limitation, principal and interest payments on loans, notes, and bonds. The State 911 Department will allow grantees to assign lease, debt service, and/or or incremental purchase costs to this grant. However, any and all funding requested under this grant program shall be for goods and/or services received. Funding will not be disbursed for obligations made without receipt of goods/services. The State 911 Department makes no guarantee of funding from year to year and does not assume any obligation, as guarantor or otherwise, under any purchase, lease, or debt instrument.

All technology or telecommunications related goods or services must be compliant with applicable laws, rules, regulations, and standards. Grantees shall specify that they have referenced www.mass.gov/accessibility, www.access-board.gov, www.ada.gov, the

Massachusetts Architectural Access Board regulations at www.mass.gov/aab, and the Massachusetts Office on Disability standards and best practices at www.mass.gov/mod to determine what laws, rules, and standards apply and what efforts they have made to ensure specific compliance therewith. Failure to adequately ascertain compliance will result in denial of funding for the requested goods or services.

Security Measures

Existing and proposed regional PSAPs and RECCs are eligible to apply for funds for the following allowable items within the transition expenses category:

Security measures (such as remote cameras, remote printers, and security doors) and one-time costs associated with the installation of such security measures.

Equipment

Existing and proposed regional PSAPs, regional secondary PSAPs, and RECCs, and the Middleborough and Northampton wireless state police PSAPs, are eligible to apply for funds for equipment associated with the provision of enhanced 911 service and that is not directly provided by the State 911 Department and/or equipment to be used to foster the development and startup of regional PSAPs, regional secondary PSAPs, and RECCs or the expansion or upgrade of existing regional PSAPs and/or regional secondary PSAPs.

Allowable items to be funded through this grant include, but are not limited to:

- Radio systems;
- Radio consoles;
- CAD;
- Records management systems;
- Fire alarm receiving and alerting equipment; and
- Consultant services in support of equipment.

All radio systems shall comply with EOPSS Statewide Inter-Operability Emergency Communications ("SIEC") special conditions, as may be amended from time to time. The State 911 Department will submit requests for such funding to the SIEC for review and confirmation that the requested item(s) comply with the SIEC special conditions. The SIEC special conditions are available at:

<http://www.mass.gov/eopss/docs/ogr/homesec/sdsiecspecialconditionsradiofrequenciesdec09.pdf>. Questions relating to the SIEC special conditions should be directed to the SWIC, Steve Staffier, who can be reached by email at steve.staffier@state.ma.us.

Funds for radio systems may be used to defray the costs associated with the acquisition of radio systems used for police, fire, emergency medical services, and/or emergency management communications.

If detailed quotes for any equipment item are not provided at the time of application, detailed quotes shall be submitted for review and approval prior to ordering equipment.

RECOMMENDATIONS:

1. Consolidate Shirley into the Nashoba Valley Regional Dispatch District. Both the GRECC and NVRDD provide excellent opportunities for Shirley. The rating scale that was used to assess both of these options was based upon seven variables and allows the consideration of long term cost and operational considerations. NVRDD was rated the highest. The primary reasons include the fact that NVRDD has a strong governance agreement that has a formalized process for both administrative and operational input to the center for Shirley and it is a more robust Regional Emergency Communication Center (RECC) than Groton with established infrastructure and operational practices, strong leadership and effective supervision. The NVRDD has a governing body of like communities with strong municipal oversight for the significant role that 911 dispatch services provide for each community. There is equal participation by all six of the communities in this center. The purpose of doing such a move would be to:
 - a. Enhance the emergency communication services
 - b. Provide for a more robust emergency communication capability
 - c. Provide for cost savings to all communities through greater economy of scale
 - d. Reduce the cost of future replacement of communication equipment
 - e. Provide for greater information sharing between communities regarding crime patterns and suspects through the NVRDD information technology
2. Leverage the capability of the NVRDD to enhance Emergency Medical Dispatching services by providing greater shift dispatcher staffing
3. Develop an outreach program to all of the communities to inform the citizens and the public safety personnel of timelines of the potential changes, the rationale for the change and the benefits to them in the form of enhanced services
4. Develop a plan to provide the administrative support that the dispatchers have been providing and to allow community members to interact with the Police and Fire Departments for administrative matters. Strategies should include:
 - a. Provide administrative support during certain hours of the day during the week to support this effort with either full-time or part-time employees such as considering putting their records function and storage in the current dispatch area and using a records clerk to work on that function as well as other community business with the police department such as records requests
 - b. Schedule hours for those administrative functions and inform the public
 - c. Review the administrative functions that could be put online through the internet such as the Burn Permit system that NVRDD has at this time. The online burn permit system allows community members to apply online. The system is managed by the community fire department and provides notice to applicant when it is an appropriate day to burn. The data base is a very useful tool for both the community fire department and the dispatch center.
5. Utilize the established operational policies and procedures of the NVRDD/NVECC that meet the unique needs of the disciplines of the emergency response agencies in that district to ensure the appropriate resources are provided at the time they are needed.
6. Assist NVRDD to seek State 911 RECC Developmental Funding to implement the needed changes necessary to connect to the Regional Emergency Communications Center. Those elements include the cost of:
 - a. Radio communications interoperability between the NVRECC and the police and fire departments.

- b. Enhanced security for the Shirley Public Safety Facilities during the times when the facility may not be staffed.
- c. A regional software system for Computer Aided Dispatch (CAD) and Records Management Systems (RMS) currently being used by NVRECC.
- d. Project Management.
- e. Transitional Training.

Appendix A

SUMMARY OF SENATE 1199, AN ACT RELATIVE TO REGIONAL 911 EMERGENCY COMMUNICATION DISTRICTS

The purpose of the legislation is to authorize two or more municipalities to enter into an agreement for the purpose of establishing, maintaining, and operating a regional 911 emergency communications center district (“District”). The legislation provides a governance structure that authorizes the formation of the District and that sets forth the manner in which the members may provide for the management of the District, financial terms and conditions of membership, the addition of new member municipalities, and other financial and operational matters.

The legislation provides that, in order to form a District, two or more municipalities may create a District planning committee to study the feasibility of establishing a District. If the planning committee recommends the establishment of a District, it shall propose a written agreement to establish, construct, equip, operate, and maintain the District and shall forward the findings and proposed agreement to the city council and board of selectmen or town council of the participating municipalities for a vote. If a majority of the members of each city council, board of selectmen or town councils vote in the affirmative, the District shall be established in accordance with the proposed agreement.

The legislation provides that the District would be overseen by a Board, and the District agreement shall provide for the terms and conditions of Board membership. The legislation provides that the District shall have a finance advisory subcommittee to approve certain fiscal matters. The District shall be a public employer and a body politic with powers to construct and equip a regional 911 center, purchase land, employ personnel, incur debt, issue bonds, and take other action as set forth in the legislation. The legislation provides for fiscal oversight of the District, including audit and reporting requirements.

The establishment of the District is expected to allow for lower operating and capital costs for the member municipalities. The legislation supports the State 911 Department’s goals of fostering and facilitating 911 regionalization efforts.