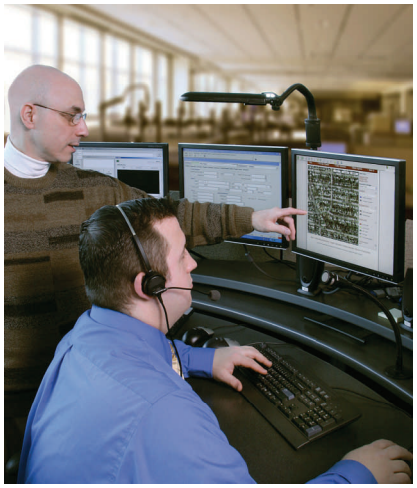

Report for

Consolidation Feasibility Study

prepared for

Office of Statewide Emergency Telecommunications State of Connecticut

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EXECUTIVE SUMMARY

Scope of Work

L.R. Kimball was commissioned by the Office of Emergency Telecommunications (OSET) to conduct of a feasibility study to determine under what conditions consolidation may be a more efficient and economical methodology for handling 9-1-1 calls within the state. The scope of work required:

- An examination of the workload, technology, cost and non-emergency communication responsibilities of all primary public safety answering points (PSAPs) and secondary PSAPs, and to consider the unequipped secondary dispatch centers and coordinated medical emergency direction (CMED) centers.
- A determination of the potential benefits and constraints that could impact further regionalization of 9-1-1 services.
- An assessment of the 9-1-1 workload in the context of geography and operational interactions among PSAPs and dispatch centers.
- A recommendation for the optimum number of PSAPs in the interest of creating an improved and cost effective environment for the delivery of emergency communications services, inclusive of 9-1-1 and dispatch services.
- An assessment of State funding for PSAPs.
- Development of specific recommendations regarding a more equitable balance of funding across public safety entities and how the State might further incentivize and assist local governments in their efforts to consolidate/regionalize the delivery of 9-1-1 and dispatch services.
- Development of a consolidation guide for local governments.

Methodology

Information from each PSAP was collected, using recent, existing data provided by the Office of Statewide Emergency Telecommunications (OSET) and the collection of new information gathered during each site visit. The information collected included:

- Workload, including 9-1-1 calls, non-emergency calls, incidents and ancillary duties and responsibilities of telecommunicators.
- Personnel and staffing.
- Population served.
- Current technology and radio systems.
- PSAP views and concerns regarding consolidation/regionalization, issues to be addressed to make consolidation more viable and known recent consolidation activity.

L.R. Kimball analyzed the data utilizing 9-1-1 industry standards and the project team's collective knowledge and experience.

Current Conditions

Our analysis of current conditions led to the following conclusions:

- The majority of PSAPs handle less than 8,000 9-1-1 calls per year and many average between one and four 9-1-1 calls an hour. These PSAPs would greatly benefit operationally from consolidation and the State and the municipalities would benefit financially.
- The level of service is fragmented in many areas requiring the transfer of 9-1-1 calls from PSAP to PSAP resulting in delays in dispatching emergency responders.
- The level of service to the public varies from PSAP to PSAP with emergency medical dispatch (EMD) provided inconsistently or not at all. EMD is pre-arrival instructions provided to 9-1-1 callers for medical emergencies.
- Regionalization would improve service levels statewide.
- Joint planning between OSET, local PSAPs and the State Police would be beneficial.

There are 18 different computer aided dispatch (CAD) systems in use in Connecticut. Seventy-five percent of the PSAPs have had those systems for more than five years. Any consolidation effort in this environment will require a high level of cooperation and compromise in order to ensure operations are not harmed and access to archived data is assured.

There is also a diversity of radio frequencies in use among Connecticut's PSAPs. In some cases PSAPs and responders may have difficulty communicating with neighboring jurisdictions that use different bands. The use of interoperability channels can be sporadic.

During the PSAP visits, L.R. Kimball primarily interviewed PSAP managers and/or police and fire command staff. Therefore, the results of the study reflect that perspective only and do not reflect the thinking of municipal officials, who may have a different opinion. The political feasibility of consolidation varies greatly from region to region and even within regions or municipalities. Public safety agencies often resist consolidation because of local control issues, while municipal decision makers are often interested in consolidation because of the improved level of service and cost efficiencies that may be achieved. There are currently seven RECCs, nine multi-town PSAPs and eighty-two municipal PSAPs. Thirty-one of the municipal PSAPs, five of the multi-town agencies and two of the RECCs are interested in further consolidation. Most of the multi-agency PSAPs are looking to increase in size. Many of the municipal agencies indicated they would consider consolidating if they were the host agency. Based on information gathered during the interviews, thirty-five of the municipal and one of the multi-town PSAPs have no interest in consolidating.

Overall, there is a desire to achieve the financial and operational efficiencies that are possible through a larger service area, but only if local control and decision making is retained and strengthened. It is possible to develop an organizational model that strikes this balance; others have done this successfully.

PSAP Configuration Recommendations

One of two PSAP configurations would best serve the State of Connecticut. The optimum model consists of four PSAPs including three regional PSAPs located in the northwest, southwest, and eastern areas of the state plus one statewide PSAP operated by the Connecticut State Police. This model would provide the most equitable and efficient use of resources statewide. The second configuration would be based on existing Department of Emergency Management and Homeland Security (DEMHS) regions. While not as effective operationally or financially as the first configuration, this model would provide substantial improvements from current conditions and it may be more politically acceptable.

Regardless of which configuration OSET prefers, L.R. Kimball suggests approaching the consolidation by grouping the PSAPs geographically and prioritizing their consolidation based on the likelihood of success due to shown interest in consolidation (Group 1), most likely to benefit from consolidation due to low 9-1-1 call volume (Group 2) and all other stand-alone and multi-town PSAPs (Group 3).

Finally, the migration to Next Generation 9-1-1 (NG9-1-1) is underway in Connecticut and throughout the nation. NG9-1-1 promises future enhanced communication capabilities via voice, data, pictures and video. NG9-1-1 will pose significant financial, operational and technological challenges to PSAPs, especially smaller ones. Larger, consolidated PSAPs will be better positioned than an individual center to support such a system.

Funding Recommendations

This aspect of the study assessed Connecticut's overall PSAP funding program, with a particular focus on incentives for consolidation or regionalization. Based on that assessment specific recommendations were developed for how the State could provide further incentives and assistance to local governments.

1. Boroughs and Municipal Subdivisions

For the purpose of the funding formula, L.R. Kimball recommends that boroughs and municipal subdivisions not be counted as though they were municipalities. Their inclusion in the formula exacerbates the current funding disparity.

2. PSAP Subsidization Program

L.R. Kimball's analysis revealed that the fund distribution formula subsidizes some PSAPs exponentially more than others solely because of the number of municipalities served. In the interest of reducing the inequity, L.R. Kimball recommends grouping statistically similar PSAPs into a bracket or pool. L.R. Kimball recommends phasing in this change over several annual budget cycles so the affected PSAPs have time to budget for any reduction in state funding.

3. Transition Grant Program

L.R. Kimball recommends the OSET provide supplemental funding in years two and three to augment costs in the first three years, which are critical years in a new consolidation.

4. Multi-town PSAP Funding

L.R. Kimball recommends OSET meld its current multi-town PSAP provision into the recommended bracket model.

5. Regional Emergency Telecommunications Service Credit

L.R. Kimball recommends that OSET require an accounting for how CMEDs use the $0.30 per capita they receive annually from the 9-1-1 fund.

6. Other Funding Recommendations

OSET should tie funding to compliance with its technical and operational standards and have the ability to withhold funding if the standards are not met. OSET should impose sanctions on municipalities that

continue to operate PSAPs even though call volumes are too low to justify the cost to provision a stand-alone PSAP.

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1. PROJECT OVERVIEW

1.1 Key Definitions

Public Safety Answering Point (PSAP) – An emergency communications facility that receives 9-1-1 calls. Dispatching of police, fire, and emergency medical services (EMS) field personnel may or may not be part of this facility. In Connecticut, all primary PSAPs offer dispatch services for at least one discipline (police, fire, or EMS).

Secondary PSAP – An emergency communications facility that receives all calls for service via transfer from a primary PSAP rather than directly from a 9-1-1 caller. Although primary and secondary PSAPs may be considered to be a single entity by a municipality, for the purposes of this report, a PSAP has been designated as secondary if:

- The PSAP does not share the same work area.
- The PSAP receives its 9-1-1 calls via call transfer from the primary PSAP rather than directly from the 9-1-1 caller.

Full PSAP Consolidation – Full consolidation is defined as the consolidation of police, fire, and EMS call handling and dispatch functions for a defined region into a single facility.

1.2 Scope of Work Summary

L.R. Kimball was commissioned to conduct of a feasibility study to determine under what conditions consolidation may be a more efficient and economical methodology for handling 9-1-1 calls within the state. The study will:

- Examine the workload, technology, cost and non-emergency communication responsibilities of the existing PSAPs and secondary PSAPs, taking into consideration the unequipped secondary dispatch centers and coordinated medical emergency direction (CMED) centers. The study will determine the potential benefits and constraints that impact further regionalization of 9-1-1 services in the state. It will assess the 9-1-1 workload in the state, taking into account geography and current interactions among PSAPs, and establish a recommended number of PSAPs for the State to achieve improved and more cost effective delivery of services.
- Assess the manner in which the State currently provides funding to PSAPs in order to develop specific recommendations detailing how the State can provide further incentives and assistance to local governments seeking to consolidate/regionalize their delivery of 9-1-1 and dispatch services.
- Provide a consolidation guide for local governments to assure that essential factors are addressed when determining the feasibility of and the requirements for consolidation/regionalization.
- Submit a final feasibility report with actionable recommendations.

1.3 Methodology

To complete the goals of the study, an initial meeting was held with the OSET staff to review the scope of the study, the schedule and the methodology to be used to complete the study. During that meeting, it was determined what information OSET would be able to supply and what information would need to be collected from the PSAPs.

Confirmation of the data collection methodology and the development of a list of interview questions to be asked of each PSAP were discussed. The format and approach for the three proposed public regional hearings was also defined.

Information from each PSAP was collected and included the most recent existing data provided by OSET as well as new information collected from each site visit including:

- Workload 9-1-1/non-emergency public safety calls, incidents and all ancillary local duties and responsibilities of telecommunicators.
- Personnel/staffing.
- Population served.
- Current technology and radio systems being utilized.

L.R. Kimball conducted on-site visits to 100 existing PSAPs statewide. The site visits had several purposes including data confirmation and high level operational and facility overviews. However, the primary purpose for the visits was to ensure all PSAPs had the opportunity to express their views and concerns about PSAP consolidation and to offer a forum where questions could be asked of L.R. Kimball. OSET staff recognized the importance of stakeholder input and was instrumental in achieving 100 percent PSAP participation. A 100 percent participation rate is extremely rare in studies where the PSAPs or municipalities themselves have not initiated the project. Commonly, participation rates can range from 30 percent to 75 percent, but seldom higher. OSET's efforts are to be commended.

The following table provides a summary of project activities including meetings, presentations and PSAP site visits.

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Table 1 – Project Activity Summary

Meeting Type	Group	Date/Time	Location
Project Kick-off Meeting with OSET Staff	OSET Staff and L.R. Kimball Project Team	February 18, 2011	Conference Call
Study Introductory Meeting	Study Stakeholders	March 17, 2011 10:00 AM	Camp Niantic 271 W. Main Street Niantic, CT
Study Introductory Meeting	Study Stakeholders	March 17, 2011 6:30 PM	East Hartford Community Cultural Center 50 Chapman Pl East Hartford, CT
Study Introductory Meeting	Study Stakeholders	March 18, 2011 10:00 AM	Norwalk Community College 188 Richards Avenue Norwalk, CT
Focus Group Meeting	Fire Service Stakeholders	April 25, 2011 1:00 PM	Department of Public Safety 1111 Country Club Road Middletown, CT
PSAP Site Visits	Various PSAPs Statewide	April 25 – 29, 2011	Various PSAPs Statewide
PSAP Site Visits	Various PSAPs Statewide	May 16 – 20, 2011	Various PSAPs Statewide
PSAP Site Visits	Various PSAPs Statewide	July 5 - 8, 2011	Various PSAPs Statewide
9-1-1 Commission Meeting Presentation	9-1-1 Commission Members and Other Stakeholders	July 8, 2011 9:00 AM	Department of Public Safety 1111 Country Club Road Middletown, CT
Connecticut State Police	State Police Representatives and L.R. Kimball	July 8, 2011 11:00 AM	Department of Public Safety 1111 Country Club Road Middletown, CT

1.4 Data Limitations

A number of issues impacted L.R. Kimball's ability to provide a comprehensive assessment of emergency communications in the state of Connecticut. Data was limited as follows:

- Specific PSAP-related budgetary information was unavailable for many agencies. Where actual data was unavailable, estimates were sometimes used. Calculations that contain estimated data are noted throughout the report.
- Participation by PSAPs throughout the state was remarkable. However the level of information that participants were willing or able to share was vastly different from PSAP to PSAP. At times, the technology present in each PSAP, the organizational structure, and/or specific staff opinions impacted the amount and quality of the information gathered.

- Administrative call volumes were estimated where it was not available. Estimated data is noted where it was used.
- Analysis of long-term costs and identification of any potential savings could not be done with any accuracy in this report for two primary reasons.
  - Emergency communications is comprised of two interwoven components, 9-1-1 call taking and the dispatch of field personnel. In general, a portion of the emergency communications system, 9-1-1 call delivery, is funded by the State while the dispatch of field personnel is funded at the local level. Given the split funding, it is not possible to estimate what consolidation related cost savings may be achievable at the local level. In addition, whether any cost savings are achieved is dependent upon the specific municipalities involved and the variables unique to that group.
  - A large number of variables must be decided upon for each regional PSAP before costs could be estimated. Examples of these variables include location, size of the facility, new construction versus renovation, and the specific technology chosen for each regional PSAP.

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2. CONSOLIDATION OVERVIEW

The purpose of this section is to provide background information and a high level overview of PSAP consolidation.

The evolution of 9-1-1 and the associated technology, coupled with difficult economic times, have encouraged state, county (where present), and local governments, as well as public safety agencies, to investigate the concept of shared services or consolidation. The simplest definition of consolidation is the combining of two or more PSAPs into a single facility and/or organization. A single set of critical PSAP technology and protocols is used. In reality, four basic models are commonly used: full, partial, co-location, and hybrid. Customization of each of these four models is possible to meet unique regional and stakeholder needs. While the consolidation process is complex and difficult, if implemented correctly, it can yield substantial improvements in service levels, regional interoperability, responder safety, employee retention, and potential cost savings. From a state perspective, consolidation encourages interagency cooperation, more effective use of resources and large scale incident management. It would also mean more efficient, streamlined, and cost effective technology.

Although this study was done from a state-level perspective, the following general information on consolidation is provided for clarity and background purposes.

Consolidation is considered for a number of reasons. Commonly cited reasons include the following:

- Service level improvements – This is the single most important reason to consider consolidation. 9-1-1 telecommunicators are truly the "first responder on the scene" and can substantially affect the outcome of an incident. Service improvements typically achieved are noted below.
  - Reduction or elimination of the transfer of 9-1-1 calls between PSAPs improves response times and lowers the potential for human or technology errors. OSET recognizes the need to minimize transfers and has addressed this issue in its funding program.
  - Quicker call processing and dispatch times which may result in faster on-scene times for field personnel.
  - Sharing of physical space facilitates communications between telecommunicators, law enforcement, fire, and EMS. Improved communications enables field personnel to receive information more quickly and accurately, which is particularly important in multi-jurisdictional incidents. Although this benefit is the least tangible or quantifiable, it is one of the most important.
  - If large enough, a consolidated PSAP can utilize a call taker/dispatcher organizational structure. This structure enables call takers to focus solely on the incoming call and obtain the best information possible. The dispatcher's ability to focus solely on field personnel improves responder safety.
  - Standardized training of all PSAP employees increases consistency of service delivery regionally.
  - A single regional PSAP allows resource management during major incidents from a single point of control rather than fragmenting control among multiple PSAPs.
  - A consolidated environment will offer the opportunity for smaller participants to benefit from state-of-the-art technology, improved training, and expanded career opportunities that would not be otherwise financially or organizationally feasible.

- Personnel – Individual agencies no longer wish to support training or handle personnel issues for PSAP staff. Consolidation of PSAPs allows sworn personnel to be redeployed to other law enforcement or fire department responsibilities.
- Cost savings – While cost savings are possible, understanding two main points is critical before consolidating for financial reasons alone. First, not all consolidations result in cost savings. A common misconception is that consolidating will result in significant personnel reductions, thus significant cost savings. Consolidations do not normally involve large staff reductions unless a reduction in the number of dispatch positions is achieved. Such a reduction would result from agencies sharing dispatch frequencies where possible and practical. Combining separate agencies onto a single dispatch frequency is often politically difficult to achieve and may not be part of an initial consolidation effort.

Commonly, the real cost savings come from the elimination of redundant and expensive technology such as CAD systems, 9-1-1 answering equipment, radio consoles, and logging recorders, as well as maintenance costs associated with these systems. The single set of technology and systems found in a consolidated environment reduces costs associated with procurement, connectivity and maintenance. The level of savings is dependent upon the number of participants and the technology costs for which the municipalities are responsible. For example, in many states all of the costs associated with procuring and maintaining PSAP technology are the responsibility of the PSAP and the participating agencies/municipalities, while in other states, like Connecticut, the State bears the cost of the 9-1-1 system network and answering equipment and provides PSAP funding.

Second, in scenarios where cost savings are achievable, the actual realization of the savings may not occur for several years. The consolidation process can be expensive and can generate substantial one-time start-up and capital costs for facility and technology needs. These costs can delay the realization of cost savings.

2.1 Human Resources

The merging of multiple agencies into a single one requires the solution of a multitude of human resource issues. Issues commonly found are:

- Pay scale disparities. Disparities in pay scales from PSAP to PSAP can sometimes be substantial and must be resolved when merging multiple PSAPs into a single organization
- Benefits such as health insurance must be standardized for all employees.
- Vacation, sick, personnel and other paid time off disparities
- Seniority. The primary question to resolve is whether each telecommunicator's current seniority level will be carried with him or her into the newly consolidated PSAP.
- Job titles and descriptions. Job titles and descriptions must be standardized and, potentially, an employee skill assessment conducted to identify what position each employee will fill.
- Retirement plans. Employees must move to a single retirement plan if each PSAP has a different one prior to consolidation.
- Union contracts. Employees in a newly consolidated PSAP should be represented by a single union.
- Automatic acceptance of existing PSAP staff or a re-hire process.

These issues are of critical importance to existing PSAP staff, but resolution does not normally occur until the planning phase. Keeping existing PSAP staff informed throughout the consolidation process is paramount to easing

concerns and reducing rumors. Involving human resources personnel from all participating agencies helps to facilitate the resolution of these issues and improves communication.

The resolution of each of these issues may have a positive or negative financial impact on each municipality. Each of these issues must be resolved before an accurate estimate of personnel costs for a consolidated PSAP can be done. Once the estimate is calculated and added to the other operational costs, the cost per community can be determined using a funding distribution model decided upon by the consolidation participants.

2.2 9-1-1 Call Processing and Dispatch Functions

In recent years, difficult economic times, planning for Next Generation 9-1-1 (NG9-1-1) and the realization that regionalization has many benefits has encouraged all levels of government to consider consolidation of PSAPs. In addition, the number of existing PSAPs is examined to determine if the emergency communications system is functioning at its best operationally and financially.

In many states the 9-1-1 surcharge applied to wireline and wireless telephones is received by and administered by each state. Commonly, the State will have control over the 9-1-1 call receipt technology (9-1-1 answering positions and network connectivity), but not the technology associated with the dispatch function such as radio infrastructure and consoles.

In parts of the nation where the 9-1-1 technology is in control of the State, the State will sometimes force the consolidation of the 9-1-1 portion of the emergency communications system. In other words, the number of PSAPs that will receive 9-1-1 calls directly from callers is reduced to a more "efficient" number from the State's perspective. While this process does lower equipment and network costs for the State, it can severely fragment the system as a whole and create a system of PSAPs and dispatch-only sites. Often a municipality will give up its ability to receive 9-1-1 calls directly, if mandated to do so, but will retain the dispatch functionality. When this happens, the 9-1-1 equipment and network costs are reduced, but the number of call transfers increases and overall effectiveness of the emergency communications system is reduced. In summary, this approach fails to take into account the larger public safety picture and results in an emergency communications system that is less effective than would have been in place without any reduction in the number of answering points.

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3. CURRENT ENVIRONMENT

3.1 General Overview

With the recent merger of the City of Torrington with Litchfield County Dispatch, the state of Connecticut has 106 primary PSAPs statewide, inclusive of the Connecticut State Police. Data collection revealed that while regional emergency communications centers and PSAPs that provide police, fire, and EMS services exist, the majority of the PSAPs are small, between one and four physical workstations and generally staff a single person per shift. These PSAPs are commonly part of another public safety agency such as law enforcement agency.

These PSAPs are supported at the state-level by OSET. OSET's goal is to provide for the development and maintenance of emergency communications statewide. In keeping with this goal, OSET has ensured that a uniform, Phase II compliant 9-1-1 telephone network exists among the 106 PSAPs. However, the combination of several factors have highlighted the need to manage emergency communications at all levels as efficiently and as cost effectively as possible while delivering high quality service to the community through PSAP consolidation. These factors include:

- The need to replace outdated telephony equipment and prepare for new IP-based technology including NG9-1-1.
- Recognition that a higher level of interoperability between municipalities/agencies will improve responder safety and the level of service provided to the community.
- Increased training needs for PSAP staff as the role of the telecommunicator continues to become more complex and technology based.
- Budget constraints at all levels of government.

The following sections provide a high level overview of current conditions statewide.

3.2 Political Environment

Nationally, control of emergency communications is often managed at the county level as municipalities within each county begin to consolidate. County level control is often seen as a logical place for a regional communications center to reside in terms of support for the PSAP's organizational structure and governance. However, Connecticut and Rhode Island are the only two states where counties are geographically designated, but have no governmental jurisdiction. While Alaska designates their counties as boroughs and Louisiana as parishes, both these entities are empowered by state law with governmental authority. Due to Connecticut's absence of this middle tier of government, control of emergency communications has evolved primarily at the local level often as part of a town police or fire department.

The political environment in any PSAP consolidation effort is essential to success. Mandated consolidation, whether from state to local entities or from municipal decision makers to public safety leaders, brings with it a host of issues that can mean the difference between a successful consolidation effort and one that fails. Ideally, a champion is identified within each potential consolidation effort to take the lead, educate and keep momentum moving forward.

During the course of this study, L.R. Kimball found that views on PSAP consolidation varied widely statewide among the stakeholders, as it does in most communities, regions, or states. While views ranged from opposition to enthusiasm, a remarkable number of study participants were willing at least to consider the possibility of consolidation. At times, opinions differed between the municipal decision makers and public safety leaders, as a whole, the political environment statewide seems conducive to examining consolidation options, perhaps more so than in most states. A complete list of PSAP interest as reported to L.R. Kimball is found in Appendix C. Again, the data reflects the opinions of the PSAP, police, and fire management only and not the opinions of the chief decision makers of the municipalities involved.

3.3 PSAP Operations

The workload handled by each PSAP is generally comprised of four components; 9-1-1 calls, administrative or 10-digit calls, dispatch functions and ancillary duties. This section provides an overview of each of these components.

3.3.1 9-1-1 Call Volume

In 2010, Connecticut's PSAPs received and processed 2,239,141 9-1-1 calls[1]. The following figure and table breaks down the 9-1-1 number of calls collectively and those received by each PSAP. In addition, the per-PSAP calls are broken down into the average monthly (30 day month), daily, and hourly 9-1-1 call volume. L.R. Kimball understands that in reality 9-1-1 calls are not received equally across months, days, and hours of the day. However, this methodology does establish a benchmark for the actual amount of workload received from the 9-1-1 system, with full acknowledgement that call counts would be higher and lower from month to month, day to day, and hour to hour. Both the chart and the table provide an important snapshot which can be used to identify that the number of PSAPs currently in existence are not cost efficient in terms of 9-1-1 answering equipment and network usage, from the State's perspective, and personnel costs at the local level as compared to actual 9-1-1 call volume.

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[1] Data supplied by OSET

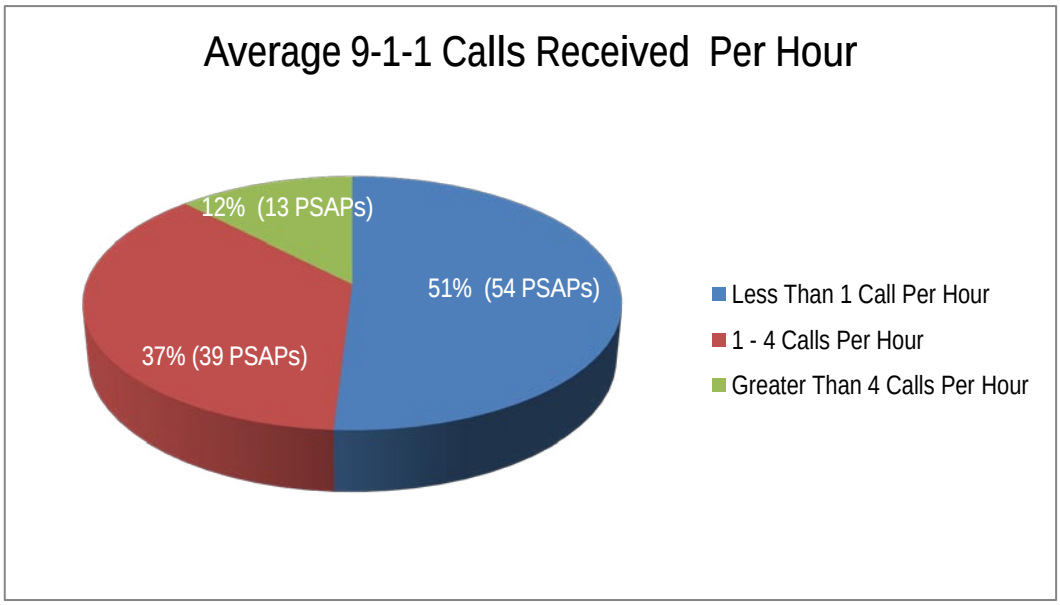

Figure 1 – Average 9-1-1 Calls Received Per Hour

This chart graphically illustrates that in 51 percent of the state's PSAPs less than one 9-1-1 call per hour, on average, is received and processed by PSAP staff. In 37 percent of the PSAPs, the PSAPs receive between one and four 9-1-1 calls per hour or a maximum of one call every 15 minutes. (Again, this is an average that assumes equal distribution of calls around a twenty-four hour clock. In reality, the per-hour call volume will be lower during some hours and higher during others.) Only 12 percent of the state's PSAPs handle an average call volume of greater than four 9-1-1 calls per hour.

Taking into account the low 9-1-1 call volume received by the majority of the PSAPs and the expected associated radio traffic two points become immediately clear:

1. When the emergency communications workload is as low as seen here, the effective processing of 9-1-1 calls and the associated dispatch activities become a very small portion of the daily duties performed by the PSAP staff. This environment reduces the focus on effective delivery of emergency communications.

2. The cost of critical 9-1-1 systems such as 9-1-1 call answering positions and other systems and personnel paid for at the local level (radio consoles, CAD and logging recorders) is disproportionately high when compared to the actual workload associated with emergency communications (including 9-1-1 and the associated dispatch functions).

The following table provides a PSAP specific breakdown of annual 9-1-1 call volume.

Table 2 – 2010 9-1-1 Call Volume Summary

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume**	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Ansonia Police Department	6,884	574	19	0.80
Avon Police Department	5,721	477	16	0.66
Berlin Police Department	7,028	586	20	0.81
Bethel Police Department	5,734	478	16	0.66
Bloomfield Police Department	12,246	1,021	34	1.42
Branford Police Department	9,790	816	27	1.13
Bridgeport ECC	118,472	9,873	329	13.71
Bristol Police Department	23,441	1,953	65	2.71
Brookfield Police Department	4,723	394	13	0.55
Canton Police Department	3,095	258	9	0.36
Cheshire Police Department	8,195	683	23	0.95
Clinton Police Department	3,878	323	11	0.45
Colchester Emergency Dispatch	18,617	1,551	52	2.15
CT State Police Troop A	74,417	6,201	207	8.61
CT State Police Troop B	5,356	446	15	0.62
CT State Police Troop E	44,244	3,687	123	5.12
CT State Police Troop G	258,029	21,502	717	29.86
CT State Police Troop H	157,934	13,161	439	18.28
CT. State Police Troop I	108,260	9,022	301	12.53
CT State Police Troop L	8,139	678	23	0.94
CT State Police Troop W	2,715	226	8	0.31
Cromwell Police Department	5,155	430	14	0.60
Danbury Fire Department	31,905	2,659	89	3.69
Darien Police Department	6,193	516	17	0.72
Derby Police Department	5,482	457	15	0.63
East Hartford Police Department	23,046	1,921	64	2.67
East Haven Fire Department	11,983	999	33	1.39
East Lyme Public Safety	3,658	305	10	0.42
East Windsor Police Department	4,944	412	14	0.57
Easton Police Department	1,683	140	5	0.19
Enfield Public Safety Comm. Center	12,704	1,059	35	1.47
Fairfield Emergency Communications	17,745	1,479	49	2.05
Farmington Police Department	12,281	1,023	34	1.42
Glastonbury Police Department	7,623	635	21	0.88
Granby Police Department	4,939	412	14	0.57

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume**	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Greenwich Police Department	23,474	1,956	65	2.72
Groton Emergency Dispatch Center	18,952	1,579	53	2.19
Guilford Emergency Communications	6,572	548	18	0.76
Hamden Central Communications	25,060	2,088	70	2.90
Hartford ECC	139,842	11,654	388	16.19
Ledyard ECC	7,153	596	20	0.83
Litchfield County Dispatch*	29,014	2,418	81	3.36
Madison Police Department	4,645	387	13	0.54
Manchester Police Department	22,657	1,888	63	2.62
Meriden Fire and Emergency Services	24,215	2,018	67	2.80
Middlebury Police Department	2,058	172	6	0.24
Middletown Central Communications	23,113	1,926	64	2.68
Milford Fire Department	17,345	1,445	48	2.01
Monroe Police Department	5,788	482	16	0.67
Montville Dispatch	6,805	567	19	0.79
Naugatuck Police Department	8,840	737	25	1.02
New Britain ERC	43,408	3,617	121	5.02
New Canaan Police Department	5,889	491	16	0.68
New Fairfield ECC	3,853	321	11	0.45
New Haven Communications Center	117,815	9,818	327	13.64
New London Police Department	16,764	1,397	47	1.94
New Milford Police Department	9,042	754	25	1.05
Newington Police Department	10,532	878	29	1.22
Newtown Police Department	7,068	589	20	0.82
North Branford Police Department	4,543	379	13	0.53
North Haven Emrg Telecommunications	7,711	643	21	0.89
Northwest Public Safety Comm. Center	17,040	1,420	47	1.97
Norwalk Police Department	34,718	2,893	96	4.02
Norwich Police Department	21,825	1,819	61	2.53
Old Saybrook Police Department	3,078	257	9	0.36
Orange Police Department	6,342	529	18	0.73
Plainville Police Department	6,494	541	18	0.75
Plymouth Police Department	4,323	360	12	0.50
Putnam Police/Fire Communications	2,483	207	7	0.29
Quinebaug Valley Emergency	34,959	2,913	97	4.05

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume**	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Communications				
Redding ECC	2,866	239	8	0.33
Ridgefield Police Department	6,817	568	19	0.79
Rocky Hill Police Department	6,765	564	19	0.78
Seymour Police Department	3,639	303	10	0.42
Shelton Police Department	11,353	946	32	1.31
Simsbury Police Department	6,352	529	18	0.74
South Central RCC	7,573	631	21	0.88
South Windsor Police Department	7,066	589	20	0.82
Southbury Public Safety	5,692	474	16	0.66
Southington Police Department	11,542	962	32	1.34
Stamford ECC	64,969	5,414	180	7.52
Stonington Police Department	6,191	516	17	0.72
Stratford ECC	21,605	1,800	60	2.50
Suffield Police Department	3,945	329	11	0.46
Thomaston Police Department	1,973	164	5	0.23
Tolland Co Mutual Aid Dispatch Center	34,376	2,865	95	3.98
Trumbull Police Department	10,023	835	28	1.16
University of Connecticut PD	7,751	646	22	0.90
Valley Shore Emergency Communications	31,065	2,589	86	3.60
Vernon Police Department	10,233	853	28	1.18
Wallingford Police Department	12,779	1,065	35	1.48
Waterbury Police Department	66,215	5,518	184	7.66
Waterford ECC	9,691	808	27	1.12
Watertown Police Department	7,189	599	20	0.83
West Hartford Police Department	21,028	1,752	58	2.43
West Haven E.R.S. 911 Center	29,032	2,419	81	3.36
Weston Communications	3,194	266	9	0.37
Westport Police Department	10,390	866	29	1.20
Wethersfield Police Department	9,657	805	27	1.12
Willimantic Switchboard Association	14,431	1,203	40	1.67
Wilton Police Department	6,796	566	19	0.79
Windsor Locks Police Department	4,241	353	12	0.49
Windsor Police Department	9,573	798	27	1.11
Winsted Police Department	3,692	308	10	0.43

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume**	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Wolcott Police Department	5,628	469	16	0.65
Woodbridge Police Department	4,130	344	11	0.48
Total	2,239,141	186,595	6,220	259

*Includes the City of Torrington

**Average monthly, daily and hourly call volumes assumes an equal distribution of calls from day to day and around a 24 hour clock. L.R. Kimball acknowledges the actual call distribution will vary.

3.3.2 Administrative Calls

The total call volume handled by a PSAP generally includes three types of calls; 9-1-1 (wireline and wireless), non emergency (10-digit lines) and administrative. Alarm companies are an exception to this definition since they generally are located out of the area and must call in on 10-digit lines for emergency responses. Generally, administrative calls are those that do not require a response by field personnel and may not have any relation to emergency communications. For example, a small PSAP may answer incoming calls for the entire police or fire department or even the entire municipality. Often, the PSAP is charged with answering after-hours calls for other municipal departments. The PSAP's 24-hour staffing requirement makes it a logical place for these types of calls to be handled in small jurisdictions where 24-hour staffing for other departments would be cost prohibitive and inefficient. In most PSAPs, especially smaller ones, administrative calls represent the majority of the total call volume. In L.R. Kimball's experience, on average, the ratio of administrative calls to 9-1-1 calls is often in the 3 – 5:1 range, but could be as high as 10:1 depending on the variables present at individual PSAPs. In the state of Connecticut, small communities have been educated to call a local 10-digit number for any non emergency police or fire response that may be needed. This approach assists the PSAP telecommunicators in prioritizing the answering of incoming calls. The degree to which this occurs in any specific PSAP is dependent upon the number of administrative calls and, by extension, the total call volume.

L.R. Kimball attempted to determine the number of administrative calls being handled by each PSAP, but many PSAPs were not able to supply the data as existing in-house technology did not include the ability to count these calls. In order to provide the call volume managed by the PSAPs statewide, a ratio of 5:1 (administrative to 9-1-1 calls) was applied which resulted in an estimated annual administrative call volume of 11,195,705. The total call volume, inclusive of administrative and 9-1-1 calls, is estimated to be 13, 434,846. Overall, 9-1-1 call volume represents only 16.67 percent of the total call volume workload. The following table provides a total call volume summary.

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Table 3 – Total Call Volume Summary

Call Type	Call Ratio Used	# of Calls	Total	% of Total Call Volume
9-1-1 Calls	N/A	2,239,141	2,239,141	16.67%
Administrative	5:01	2,239,141	11,195,705	83.33%
Total			13,434,846	100%

3.3.3 Dispatch Functions

PSAPs across the state perform both 9-1-1 call taking and dispatch functions. Not all PSAPs provide dispatch services for police, fire and EMS, however. For example, a PSAP may provide police and fire dispatch services, but transfer calls to another agency for EMS and/or emergency medical dispatch. This situation is one of the main reasons for the transfer of 9-1-1 callers statewide. These transfers slow the dispatch process and the dissemination of information to field personnel. In addition, NG9-1-1 is likely to add a layer of complexity to these types of transfers. As the technology to receive photos, text, and other types of data becomes a reality, each PSAP will need the ability to forward this data to field personnel which becomes more complex if a transfer is involved.

Approximately, 60 percent of the PSAPs statewide provide dispatch services for all three public safety disciplines: law enforcement, fire and EMS. Approximately ten percent of the PSAPs transfer law enforcement calls, 15 percent transfer fire related calls, and 25 percent of the PSAPs transfer EMS related calls to a secondary PSAP for dispatch and/or EMD. These percentage groupings total more than 100 percent since each percentage grouping is not mutually exclusive of the others as all PSAPs do not provide service for police, fire and EMS.

9-1-1 call taking and dispatch functions are intertwined and, depending on the size of the PSAP, often performed by the same person. As the 9-1-1 call taker interviews the caller, he or she either is entering the information into the CAD system for dispatch from another employee in the same room or is dispatching the call themselves. In either case, the information received from the caller is quickly disseminated to responding field personnel. The transfer of information from caller to field responder is quick and efficient. In addition, the benefits of having call takers and dispatchers in the same room cannot be underestimated. All employees have a “big picture” view of active incidents and can function effectively as team.

Dispatch functions and 9-1-1 call answering located together in the same PSAP will provide the best level of emergency communications services.

3.3.3.1 Call Processing

All PSAPs reported that their telecommunicators answered both 9-1-1 calls and non-emergency calls. In most cases, when a call is directed to the PSAP, emergency or non-emergency, the first available operator will answer the call, gather the information, contact the proper unit or agency and dispatch or otherwise process the call. If a call for service arrives at a PSAP, but is for another agency, the call will be transferred to the appropriate agency.

Five PSAPs utilize separate positions for call taking and dispatching functions. The call taker answering the call will conduct an interview, determine the nature of the incident, prioritize the call and enter the information into CAD. Upon completion of the interview by the call taker and entry in CAD, the dispatcher will be notified by CAD and the call information will be available for the dispatcher to reference for resource allocation. The CAD entry may also be entered while the caller is still being interviewed in the case of high priority calls to ensure field personnel are sent as quickly as possible. The dispatcher then sends field personnel with the basic information and updates them as they respond to the incident location. This organizational structure is generally found in larger PSAPs, with modified versions found in medium sized facilities. In small PSAPs, the dispatcher will perform all call processing and dispatch functions.

For the most part, PSAPs reported that only incidents regarded as "calls for service" were entered into CAD and assigned an incident number. Less than ten percent of the PSAPs indicated that administrative calls are entered and assigned a CAD incident number. An administrative call that is entered into CAD is generally one that provides documentation for a notification made by the PSAP staff. For example, a call received on a 10-digit non emergency line reporting railroad gates stuck in the down position would require that the PSAP staff report the needed repair to the appropriate agency. The call would be entered into CAD to provide documentation that the notification was made in a timely manner by the PSAP staff.

3.3.3.2 Call Transfers

According to the PSAP Surveys, 60 percent of the 106 PSAPs dispatch police, fire and EMS from their PSAP. The remaining 40 percent of the PSAPs must either transfer the call or relay the call information to a separate dispatch agency. This information indicates that response to many of the urgent calls for assistance are being delayed because police, fire, and EMS are often not all dispatched from the same PSAP which results in the transfer of 9-1-1 calls.

When 9-1-1 call takers receive a call that must be transferred, the call taker must conduct a preliminary interview to determine the nature and location of the emergency. The call must then be transferred to the appropriate dispatch agency. The dispatcher then must re-interview the caller and dispatch field personnel. The average length of time added to a call during this process is 30 seconds.

In emergencies, seconds count. Should a call need to be transferred a second time to obtain all necessary services, another 30 seconds is added to the call processing time. Further, additional information that is received from other callers is also delayed when the call is processed in this manner. This means that information critical to responding agencies' safety and ability to effectively manage the emergency is delayed, as the call must be processed by the receiving PSAP first. These lost seconds can literally mean the difference in survival and subsequent quality of life for not only the people in emergency situations, but for police, fire and EMS responders as well. For example, 30 seconds to a minute of lost time can mean the difference between not surviving and being able to resuscitate a heart attack or drowning victim and whether that person will have a meaningful quality of life. In another example, a delay in receiving information regarding suspects with weapons or the presence of hazardous materials on-scene can have potentially fatal consequences for responders. While these examples are dramatic, they accurately illustrate the types of emergencies handled every day in PSAPs across the state.

Transfers increase the likelihood that human and/or technological errors will occur. High levels of training can minimize the amount of human errors, but even the best trained employees will still make errors from time to time. When a caller must speak with a minimum of two call takers, the potential for human error rises.

The quality of technology available today has reduced issues such as calls lost during the transfer process, but the possibility still exists and increases with each transfer. In addition to inherent time delays, secondary PSAPs may not have 9-1-1 answering equipment to receive ALI and ANI. This information is critical to locating callers when 9-1-1 calls are dropped from the network, when callers are in moving vehicles and when callers are unable to speak. The following points should be noted:

- While the PSAP that originally receives a 9-1-1 call can pass along location information verbally to the appropriate PSAP or secondary PSAP, this verbal exchange adds another opportunity for human error.

- For wireless calls, the PSAP receiving a call from a moving vehicle would need to stay on the phone with the caller and the receiving dispatch-only site to update locations via the re-bid process.

The cause and the effect of this system in Connecticut varied from place to place. Four different types of transfers were noted:

1. RECC to Police Agencies
   Several of the RECCs dispatch fire and EMS agencies only. There are few full time police departments located in the communities they serve. In many cases the State Police are the primary law enforcement agency for the various communities. In most of these instances, 9-1-1 calls requiring a police response are transferred to the State Police. As PSAPs themselves, the State Police receive ANI/ALI with the transferred calls.

   The RECC may also transfer calls to a municipal full time police department for dispatch, but there is no ANI/ALI transfer.

2. Stand-alone Agencies
   Many of these agencies have the capability to dispatch all of the response agencies in their community, but for a variety of reasons they do not. In many instances police and fire agencies wish to interview callers directly and ask questions specific to their type of agency. Although use of a single call taker for all types of 9-1-1 calls has been proven effective (given the appropriate training), past practices or politics tend to keep the system of transfers in place.

   In order to eliminate the delays created by these transfers, PSAP staff should be cross trained to ask pertinent questions for all types of emergencies. In Connecticut two additional concerns were identified with these transfers. First, secondary dispatch agencies are not getting ANI/ALI data when the call is transferred. Second, callers are being asked to repeat the nature and the location of the emergency several times creating delays and creating frustration and anxiety.

3. Police to RECC
   In communities where the 9-1-1 calls are routed to the State Police or other law enforcement PSAP initially, the call information is collected by the original PSAP and forwarded when fire and/or EMS response is required. The information is generally transferred via telephone (speed dial) or via radio.

4. EMD Transfers
   If a 9-1-1 call requires EMD instructions, it may be transferred to a CMED or to another PSAP that has trained and certified EMD personnel. ANI/ALI is transferred with the call. The PSAP may also contract with a State-certified private EMD provider, but when the call is transferred there is no ANI/ALI data transferred.

   Given the stakes involved to the emergency responders and the citizens served, national 9-1-1 organizations such as the National Emergency Number Association (NENA) have been clear that, where possible, the transfer of 9-1-1 calls should be minimized.

3.3.4 Ancillary Duties

The final component of the workload for PSAP staff is the ancillary responsibilities assigned. In small PSAPs, it is not cost effective or logical to have call takers/dispatchers sitting idle for the majority of their shifts, especially when taking into account that the majority of PSAPs statewide receive less than a single 9-1-1 call per hour on average. Therefore, a wide range of additional duties are commonly assigned. Often, these additional duties fall outside the realm of emergency communications. Ninety-five percent of the state's PSAPs assign their 9-1-1 telecommunicators duties outside of "normal" emergency communications (call taking and dispatching) functions. The number and significance of the additional assigned tasks is dependent on the PSAP, call volume and the time of day. In many instances, after normal business hours, the PSAP personnel are the only ones remaining in the building and interface with citizens looking for a safe haven or in need of assistance. As a 24/7 operation, the PSAP is also often assigned the responsibility for taking after-hours calls for other municipal departments whether or not the calls are related to public safety.

Often, when actual emergency communications responsibilities comprise the smallest portion of job responsibilities, the employees' focus is primarily on non emergency communications related tasks rather than the other way around. Given the critical nature of emergency communications, creating an environment that allows the employees' focus to be on receiving and processing 9-1-1 calls first is strongly recommended.

Re-assignment of these ancillary duties is a crucial issue in many consolidation efforts. In order to consolidate municipalities must either re-assign these duties to existing employees, hire additional staff to handle them, or alter the type and level of service it offers its citizens after hours.

Figure 2 below lists some of the ancillary duties assigned to telecommunicators and the percentage of PSAPs that use telecommunicators to handle that duty.

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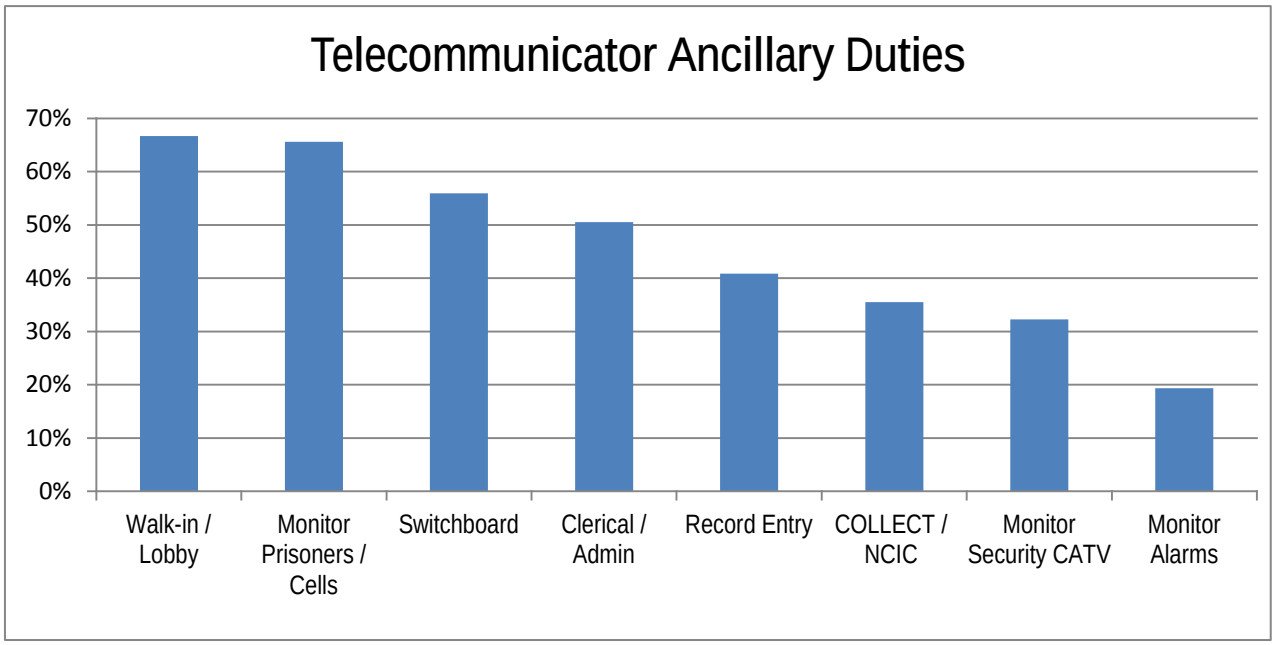

Figure 2 – Ancillary Duties

3.4 Technology

3.4.1 Computer Aided Dispatch (CAD)

Ninety-three PSAPs reported that they are using a CAD system. Eighteen different CAD vendors were noted as well as two CAD systems developed in-house by the PSAPs. The following table summarizes the systems in use statewide. A detailed list of PSAPs and the CAD system used is located in Appendix D.

Table 4 – CAD System Summary

Vendor	% Installed	Vendor	% Installed
Nexgen	29%	Developed In-House	2%
Hunt	18%	QED	1%
TriTech/IMC	10%	Logistic Systems	1%
New World	8%	Vernon	1%
VisionAIR	7%	Red Alert	1%
SunGard	6%	Larimore	1%
Mobile Tec	3%	KTI International	1%
Tiburon	3%	Spillman	1%
DCS	2%	Comp Info Sys	1%
Global	2%		

Almost seventy-five percent of the PSAPs reported that they are using a CAD system that was installed more than five years ago. Of these systems, almost half were installed more than ten years ago. Eighty-four percent of all PSAPs reported that their CAD software has been updated in the last two years.

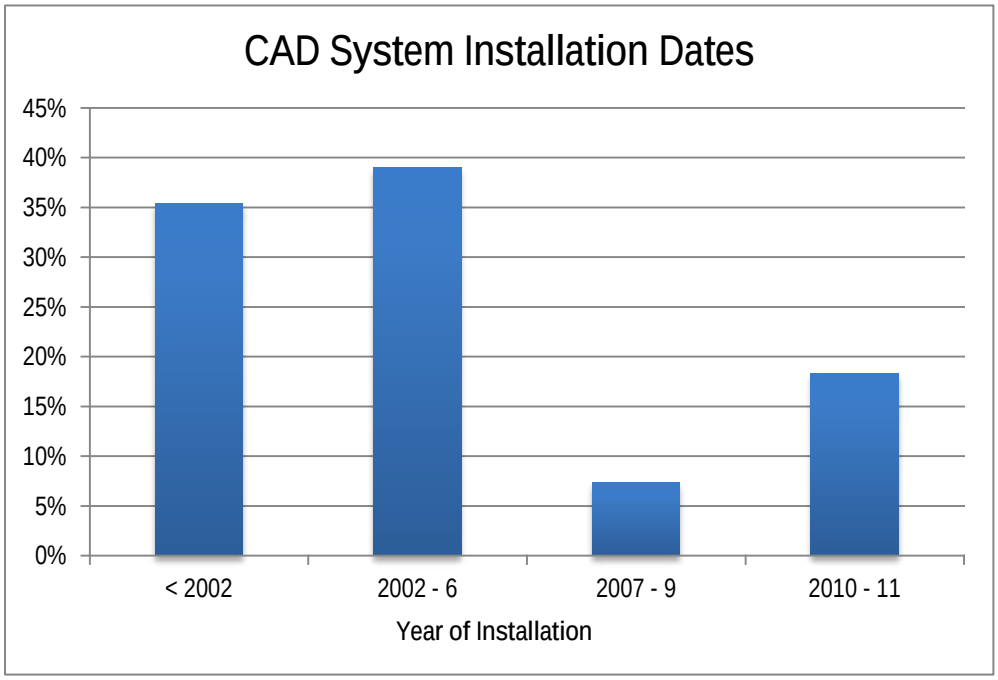

Figure 3 – CAD System Installation Dates

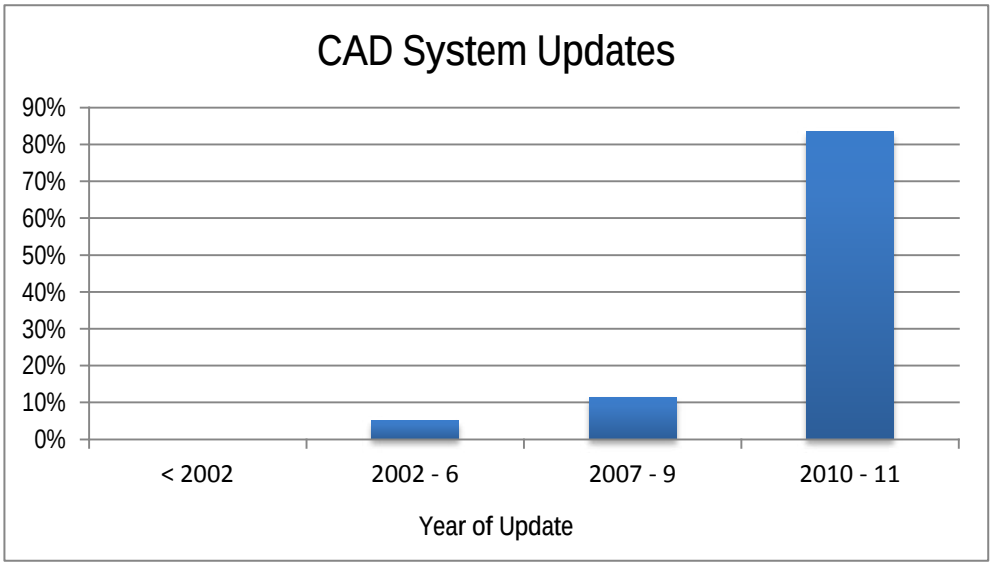

Figure 4 – CAD System Updates

The sharing of data to CAD from other PSAP applications and systems and the sharing of data collected by CAD with other PSAP applications require a software interface with CAD to facilitate the transfer of information. Allowing the CAD to accept, process and share information is an important feature which assists the agency's call takers and dispatchers in gathering information and passing it along to the field responders. Over eighty percent of the PSAPs with CAD use the software to assist with the recommendation of units.

CAD systems can share information with a variety of programs. All PSAPs reporting an installed CAD system had at least one interface to another application. The most prevalent interfaces are with E9-1-1, Connecticut On-Line Law Enforcement Communications Teleprocessing (COLLECT) system and the National Crime Information Center (NCIC), mobile data systems, mapping, EMD, record management systems, and telecommunications devices for the deaf/text telephone (TDD/TTY).

While the collected data indicated that PSAP agencies understand the usefulness of CAD software and use many of the features associated with CAD, only about half have a redundant CAD server in place to ensure no operational interruptions if the primary server fails.

CAD systems generally have a life span of seven to 10 years which means the majority of the PSAPs are already in need of CAD replacements or will need a replacement in the near future. Further, older CAD systems may not be able to take advantage of new capabilities offered by a NG9-1-1 CPE. Consolidating with other agencies and/or municipalities provides an opportunity for the procurement of CAD systems that will seamlessly integrate with the NG9-1-1 CPE that will be procured by the State and ensure that each PSAP is well positioned to handle new forms of data.

3.4.2 Radio Platforms and Consoles

Radio is a significant component to maximizing interoperability and achieving the most operationally and fiscally effective consolidations. The more commonality that exists in the radio platform used (UHF, VHF, 800 MHz), the higher the degree of interoperability and cost effectiveness that can be achieved. This section provides an overview of radio usage statewide. Appendix E provides a per-PSAP listing of radio consoles and platforms used.

Over two-thirds of Connecticut PSAP radio consoles are manufactured by Motorola. Three quarters of the installed console systems have been in place for more than five years. In general, the PSAPs have expended a good deal of effort in keeping the systems updated with almost half of the PSAPs reporting a radio system upgrade within the last two years. However, on the other end of the spectrum, slightly more than twenty percent or 1 in 5 PSAPs have not upgraded their radio systems in over ten years.

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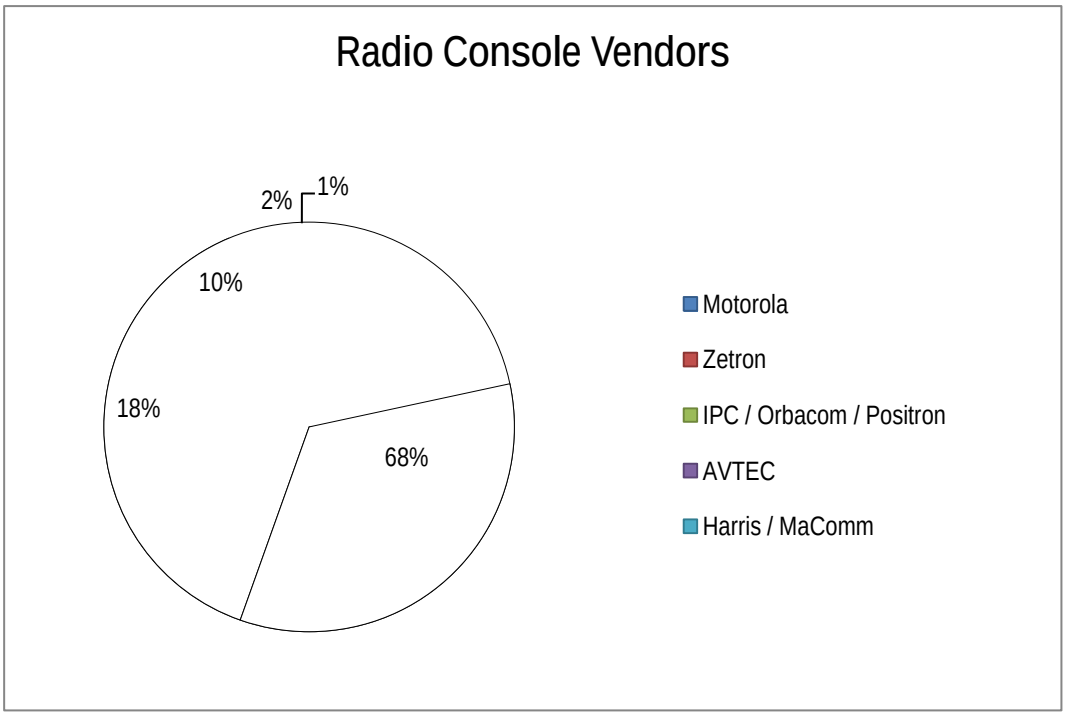

Figure 5 – Radio Console System Vendors

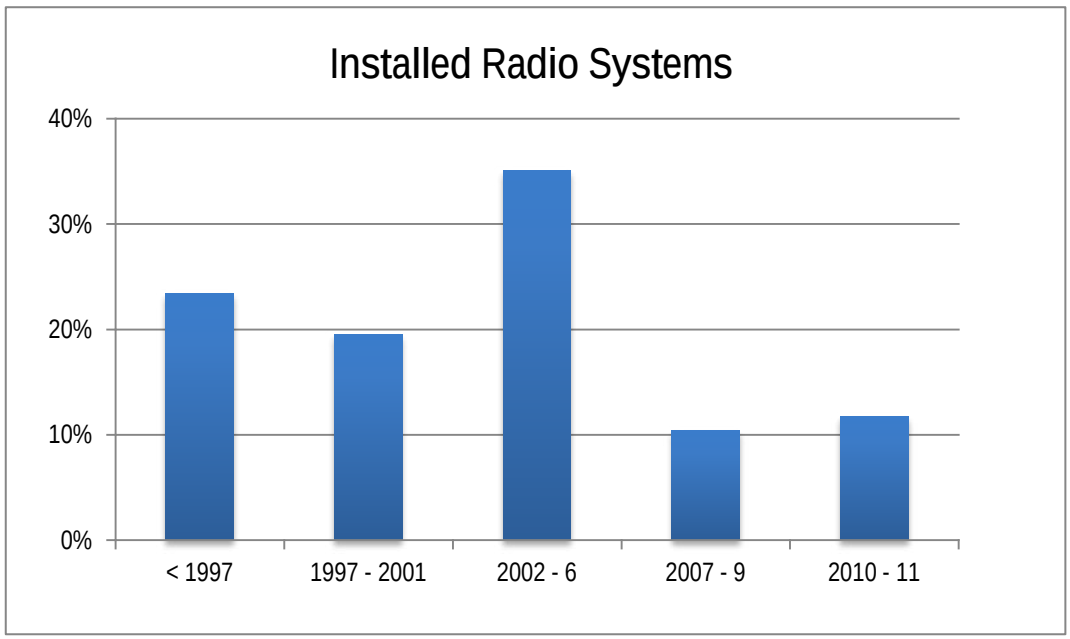

Figure 6 – Installed Radio Systems

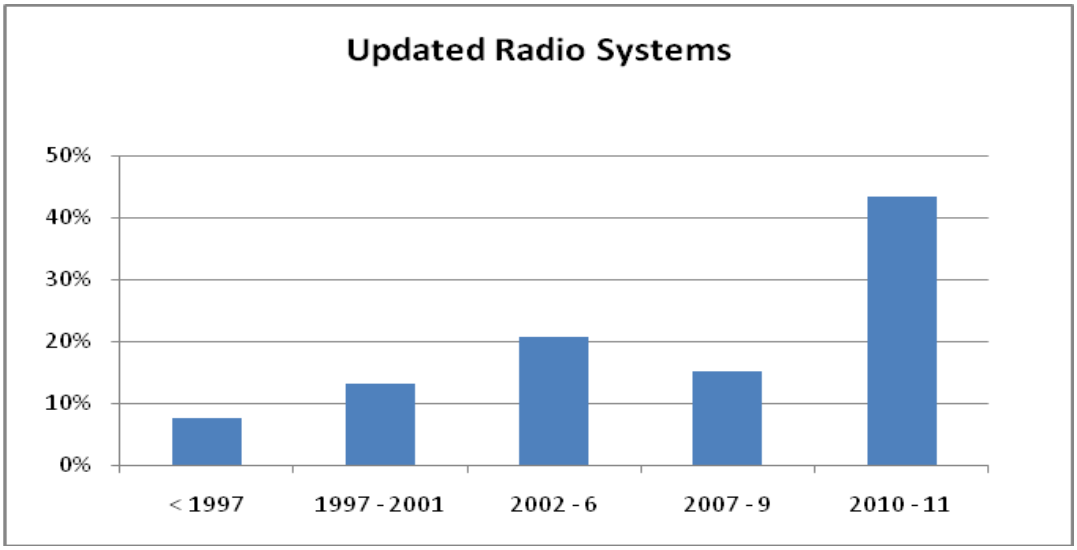

Figure 7 – Updated Radio Systems

If manufactured after 1997, radio system equipment in the 150 – 512 MHz range has been required by the FCC to be capable of operating in a frequency range one half the bandwidth of previous allocations. The process of switching over to the reduced bandwidth is called "narrowbanding." Equipment purchased after 1997 and placed into service should be narrowband capable but may require updating or a programming change to comply with the FCC narrowbanding mandates. Eleven PSAPs reported radio systems installed prior to 1997 with no indication that an upgrade was performed.

As illustrated in the chart below, the radio frequency band chosen for use is PSAP specific, depending on function and what the best interests of the PSAPs/municipalities were at the time. Interoperability with neighboring agencies is usually considered, but not on a regional level. Consequently, Connecticut PSAPs employ diverse radio frequency bands for the same use. For example, the fire services in two adjacent towns are often on different bands, perhaps UHF and VHF. This difference results in neighboring jurisdictions that cannot easily communicate with each other when response coordination is needed.

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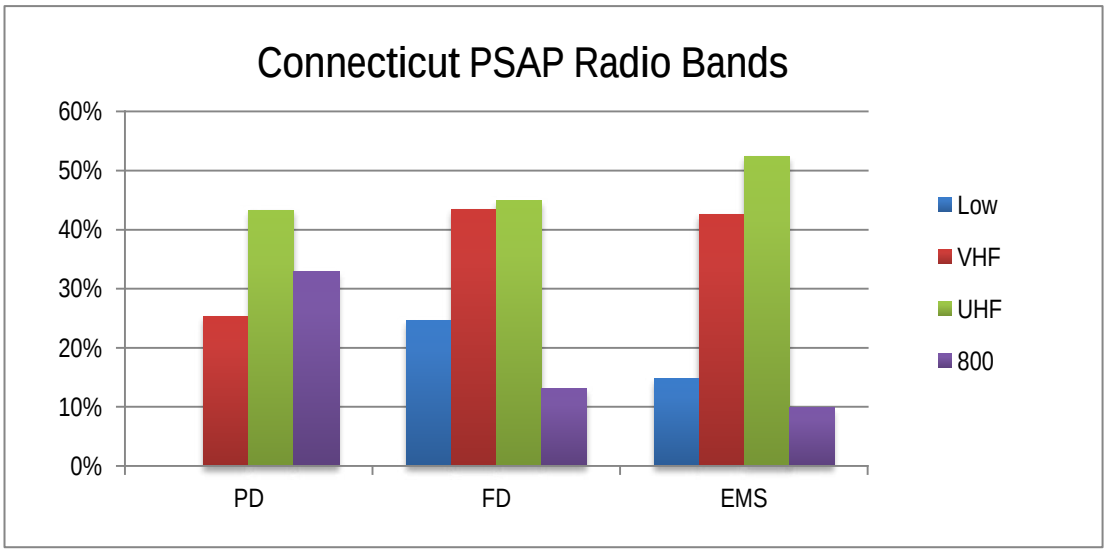

Figure 8 – Frequency Bands

In a consolidated PSAP environment, often user agencies can be combined into fewer dispatch channels. This equates to fewer dispatch positions that need to be staffed on a 24/7 basis and improves inter-departmental communications. Fewer dispatch positions translates to decreased personnel and technology costs, and lower facility space needs. Of course, the combining of dispatch channels or talkgroups is more complex than merely moving multiple departments to a single primary channel and is an issue that should be fully explored in a feasibility study specific to the agencies involved.

Although common radio platforms and shared channels or talkgroups among consolidation partners help achieve maximum efficiency, disparate platforms is not a roadblock to consolidating. Several options could be chosen:

- Use of the State 700 MHz overlay.
- All participants move to the system that can be best expanded to meet the needs of the system users.
- Consolidate and continue utilizing different platforms (although a common console system would be needed). Although cost savings associated with personnel and equipment would not be maximized, the other benefits of consolidation often are still substantial enough to merit moving forward.

3.4.3 Telephony

OSET provides the 9-1-1 network and CPE to all the PSAPs in Connecticut through their 9-1-1 service provider, AT&T.

3.4.3.1 Customer Premise Equipment (CPE)

All 9-1-1 answering equipment installed at the PSAPs is provided and maintained by AT&T. Each PSAP has the necessary CPE and mapping software to plot the location of the wireline and wireless 9-1-1 calls. The call handling

software is Palladium IPS 8.6.3 Patch Revision 2.1 4/26/2006. The mapping software is maintained by the OSET staff. Each PSAP has the following E9-1-1 workstation equipment:

- SNE9-1-1 Teletronics switch.
- HP Proliant ML370 stand alone server.
- HP XW4100 client.
- ESE ES-911/GPS/NTP master clock
- Powerware UPS.
- CATx extender.
- Two NEC LCD monitors per position.
- OKI Microline 320 printer.

Concerns were expressed by several PSAPs about their inability to expand the number of 9-1-1 answering positions within their operation due to the age of the equipment. The existing CPE was installed in 1999-2000 and it was last upgraded in 2003-4. The CPE currently installed has passed its end-of-life point so new positions can no longer be ordered. Replacement parts are increasingly difficult to find and product support will be ending in the near future. An inability to obtain additional answering positions is a significant issue in terms of maintaining the staffing levels needed to answer 9-1-1 calls effectively. OSET has recognized the need for a system replacement and is currently working to procure new equipment. The new system is expected to be installed in 2013.

3.4.3.2 Network

The network routes 9-1-1 calls through the telephone company to the appropriate PSAP. AT&T uses 291 dedicated ISDN lines to route these calls to PSAPs statewide. AT&T maintains the master street address guide (MSAG), which is used to route the 9-1-1 calls to the correct PSAP, and the ALI database, which provides the location and telephone number of the caller to the 9-1-1 call taker. In the event of a major catastrophe or the loss of a PSAP, the system is designed to direct overflows or re-route calls to designated PSAPs. Each PSAP has designated three PSAPs as their back-up to ensure redundancy.

3.4.3.3 Next Generation 9-1-1 Preparedness

OSET recognizes the need to prepare for NG9-1-1 and incorporate this need into the procurement of new CPE. NG9-1-1 will eventually enable callers to transmit a variety of data types to PSAPs, including text, photos, streaming video and telematics information via IP-based networks. While the technology to accomplish this has yet to be determined, it is certain that a mechanism will be needed to get these data types to PSAPs, and, in some cases, to field personnel. The system being procured by OSET will be NG9-1-1 capable to ensure that the system will be ready to handle these new types of data in the future. As the new NG9-1-1 capable system is procured and installed cooperation between OSET and PSAPs/municipalities statewide will be critical.

In part, the State is encouraging local government to consider consolidating emergency communications in an effort to reduce the cost of supporting existing PSAPs with network expansion/improvements, IP-enabled 9-1-1 telephone systems, integrated mapping and logging recorders. These improvements will be required to meet the current and future need to reach emergency services from any device, anytime and anywhere. Many current 9-1-1 telephony systems are not able to accept and process IP-enabled communications in a reliable manner, nor are there standards for locating callers unless they are calling from a wireline or wireless phone. Current CAD systems are

unable to accept and process data beyond the location, name, number and service provider. Logging recorder systems will need to be able to store, search and retrieve data in conjunction with the typical captured voice feeds from radio and phones.

Whether PSAPs choose to consolidate or not, they need to be aware that as NG9-1-1 solutions become a reality, there will be additional requirements and/or legislation requiring PSAPs to be able to receive and process these calls.

The operational impact of NG9-1-1 will require changes to internal protocols and skill sets, and will require more intense oversight and coordination among applications and interconnected systems. Increased staffing may be needed to manage these new information sources. Also, an initial increase in employee turn-over may be seen as some current employees may not be able or willing to handle these new job responsibilities. These issues may create financial hardships and operational challenges particularly in smaller PSAPs where the personnel pool is much smaller.

3.5 Connecticut State Police

During this study, OSET advised L.R. Kimball that the Connecticut State Police is in the process of conducting its own consolidation study. As a result only two State Police facilities, Troop G – Bridgeport and Troop L – Litchfield, were visited in order to provide an overview of their PSAP operations. The following is a high level view of the State Police PSAPs.

The Connecticut State Police operate eight primary and four secondary PSAPs throughout the state. In 2010 the eight primary PSAPs received a total of 659,094 9-1-1 calls. The secondary PSAPs received a total of 36,353 transferred 9-1-1 calls. In Connecticut, all 9-1-1 calls are routed to the state's 106 primary PSAPs. Secondary PSAPs do not receive 9-1-1 calls directly from the caller. Primary PSAPs will send calls to the State Police secondary PSAPs in areas where the State Police have primary jurisdiction. These secondary PSAPs are equipped with CPE and 9-1-1 trunks, which allow them to receive the voice and ANI/ALI data. The ANI/ALI data provide the PSAP with the caller's phone number, location and the type of call (wireline, wireless, VoIP). This information is attached to each 9-1-1 call. The equipment allows secondary PSAPs to rebid wireless 9-1-1 calls if the caller is still mobile at the time of the call.

In towns that do not have an organized police department, including 81 towns statewide, State Police provide patrols. Each troop is responsible for several towns. Any town that wants troopers assigned to work exclusively for the town may do so under the resident trooper program and must execute a contract with the State Police and pay 70 percent of the troopers' compensation, vehicle maintenance and other expenses.

3.5.1 Troop G – Bridgeport

Located adjacent to Interstate 95 in Bridgeport, Troop G is the busiest PSAP in the state. This PSAP received 258,029 9-1-1 calls in 2010. This section of Interstate 95 is a major motor vehicle conduit for private and commercial vehicles to and from the five New England states, New York City and beyond. Troop G has four workstations, all of which are equipped with E9-1-1 call answering equipment. The center is staffed by one trooper and two dispatchers. Radio communications with State Police patrol is the primary responsibility of one of these positions. The other positions answer the 9-1-1 calls and assists with radio traffic when necessary.

3.5.2 Troop L - Litchfield

Located in northwestern Connecticut, the area covered by Troop L is rural and it sees significant seasonal growth in the summer months. Like many rural areas in Connecticut, the State Police are responsible for providing law enforcement coverage, including patrol services, for much of the area. Actually located in Litchfield, Troop L patrols an area that encompasses 14 towns.

Calls from cell towers along Route 8 are routed to the Litchfield Barracks. In 2010 Troup L received 8,139 9-1-1 calls. In some instances a constable may also be dispatched to respond to a reported fire or ambulance call. All other 9-1-1 calls in the Troop L area are received by Litchfield County Dispatch (LCD). If the call requires a State Police response, LCD transfers the call to Troop L so an officer can be dispatched. Troop L directly dispatches only State Police personnel.

Seven of the 14 towns in Troop L utilize the resident trooper program. There are a total of ten resident troopers in these towns. Some of these resident trooper communities have local constables who assist the troopers with the local public safety efforts.

The Troop L PSAP has four physical workstations, three of which have 9-1-1 call taking equipment. The PSAP has six authorized civilian full time dispatcher positions but at the time of the visit there were only five dispatchers on staff. Each shift has a dispatcher and a trooper assigned to dispatch.

Connecticut State Police are currently planning a merger of emergency communications for Troops A, B, and L into Troop L facilities in 2012.

Each PSAP has the following equipment:

- E911 server – HP ProLiant ML 370.
- Radio - State Police use Motorola CENTRACOM dispatch consoles. They have a statewide 800 MHz trunked radio system. Radio interoperability is achieved via “HotLine.”
- CAD – Next Gen – statewide – interfaced with RMS and mobile data terminals.
- Automatic Vehicle Location (AVL) – Motorola.

3.5.3 Call Processing – State Police

In areas where the State Police are the primary law enforcement agency, it is often necessary to transfer calls from one PSAP to another when fire and EMS are needed. As discussed more fully in other sections of this report, every effort should be made to reduce the number of transfers because of the inherent delay caused by each transfer. While the State Police consolidation efforts are out of the scope of this document, it is apparent that the State Police are part of the entire web of public safety services statewide. Their own consolidation effort illustrates that the State Police is also interested in achieving the most effective and cost efficient emergency communications system possible. Substantial benefits may be achieved by joining the efforts of OSET and the State Police in investigating PSAP consolidation.

3.6 Summary

Analysis of current conditions has led to the following general conclusions:

- Consolidation of a large portion of Connecticut PSAPs is operationally, technologically, and politically feasible. In discussions with agency staff and decision makers, L.R. Kimball consistently heard that consolidation should only be considered if service levels provided by a consolidated PSAP are equal to or better than what is currently provided.
- Current levels of service delivery in the PSAPs in Connecticut vary greatly from PSAP to PSAP with services such as EMD reportedly being provided inconsistently or not at all. L.R. Kimball did not conduct in-depth operational analysis. However, multiple reports of inconsistent delivery of EMD made to L.R. Kimball indicate a potential delivery issue.
- Some PSAPs have a strong and effective level of service, but in many areas the level of service is fragmented requiring the transfer of 9-1-1 calls from PSAP to PSAP. In approximately 40 percent of the PSAPs, 9-1-1 calls were being transferred in order to dispatch the appropriate emergency response agency.
- At least half of the PSAPs have a 9-1-1 call volume low enough (an average of less than one call per hour) to suggest equipping the PSAPs with 9-1-1 equipment, CAD, radio consoles, logging recorders, and personnel is not cost effective.
- The majority of PSAPs assign ancillary duties to their staff that include duties such as jail cell monitoring, walk-in windows, issuing permits and various types of licenses and acting as a departmental or municipal switchboard. Given that the low 9-1-1 call volume handled by the majority of the PSAPs does not allow PSAP staff to devote their attention fully to emergency communications, it is logical that other duties are assigned. However, when emergency communications duties represent a small fraction of the job responsibilities, employees' primary focus is not on the handling of 9-1-1 calls and the associated dispatch functions.
- Regionalization would bring many service level improvements statewide.
- The State Police are an integral part of the emergency communications system statewide. Joint planning between the State Police, OSET, and local PSAPs would be beneficial for all involved.

Future technology needs make consolidation efforts more favorable. With regionalization comes the procurement of new systems. These systems will need to support a consolidated center, while enhancing capabilities in several important areas such as the forthcoming NG9-1-1.

NG9-1-1 provides great promise to the public in terms of enhanced capabilities to communicate voice, data, pictures and video, but it will also provide significant challenges to PSAPs to support the system financially, operationally and technically. A consolidated PSAP will be better positioned than an individual center to support such a system. For this reason, if no other, Connecticut should develop public policies fostering consolidation as part of the path to NG9-1-1.

PSAPs in Connecticut are using 18 different CAD systems. Seventy-five percent have had the systems over five years. Any consolidation effort where diverse CAD systems are being used will require a great deal of cooperation and compromise. Access to archived data is a significant challenge.

The Connecticut PSAPs employ diverse radio bands for their local agencies. In some cases neighboring jurisdictions on different bands have difficulty communicating with each other. Interoperability channels are available but their use can be sporadic. Depending on the size of the regional center, a trunked radio system to serve all of the agencies would provide seamless public safety radio coverage throughout the service area and greatly enhanced interoperability for users of the system during multi-jurisdiction, multi-agency events.

Political feasibility of consolidation across the state varies greatly. There are currently seven RECCs, nine multi-town and eighty-three municipal PSAPs. Thirty-one of the municipal PSAPs, five of the multi-town agencies and two of the RECCs are interested in consolidation. Most of multi-agency PSAPs are looking to increase in size. Many of the municipal agencies indicated they would consider consolidating if they were the host agency. When asked, thirty-five of the municipal and one of the multi-town PSAPs indicated that they have no interest in consolidating. These numbers are primarily indicative of PSAP staff opinions only. It is important to note that municipal decision makers may view the prospect of consolidation very differently than the PSAP staff.

Clearly, there is a desire to achieve the financial and operational efficiencies available through a larger service area, but at the same time retain or even strengthen the element of local control and decision making. Developing a regional model that properly strikes this balance will be crucial to success of the consolidation effort.

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4. STATEWIDE PSAP CONFIGURATION

4.1 Statewide PSAP Consolidation Overview

L.R. Kimball was tasked with offering Connecticut a statewide PSAP configuration that would provide the most effective level of emergency communications and produce cost efficiencies for state and municipal governments. Typically, at the core of any recommendation, 9-1-1 call volume represents the baseline of how regions are formed so as to balance call volume throughout the state and provide realistic failover capabilities from one center to another. However, numerous pre-existing variables within Connecticut must be strongly considered and taken into account before a statewide PSAP configuration recommendation is proposed. These variables include existing current regional communications centers, interest in consolidation and existing Department of Emergency Management and Homeland Security (DEMHS) regional offices.

The following consolidation scenarios take into account important variables that must be considered. Initially, an optimum model that assumes a blank slate gives state officials an ideal view of how emergency communications can ideally be consolidated. The optimum model balances emergency call volume and maintains the integrity of existing centers as its primary criteria. A second option, an analysis of the DEMHS regional offices is also offered and considered in relation to the optimum model. Finally, a regionalization recommendation is presented that endeavors to target those towns that are interested in consolidation and identify those PSAPs that, realistically, do not have emergency call volume to justify their continued operation in an isolated, non-consolidated mode.

4.2 Optimum Statewide PSAP Configuration

In determining the optimum or "perfect world" number of PSAPs statewide, L.R. Kimball must begin with a "clean slate." This clean slate approach focuses on the 9-1-1 call volume within the state and attempts to balance 9-1-1 calls among the newly created PSAPs. It maintains the integrity of existing regional centers to ensure that those who currently work together continue to work together. In L.R. Kimball's opinion, an optimum PSAP configuration of three regionally based PSAPs and one statewide PSAP operated by the Connecticut State Police would provide the most equitable and efficient use of resources statewide. This recommendation would create three distinct regions in Connecticut; East, Northwest, Southwest. The State Police would continue to take wireless 9-1-1 calls statewide in areas where they have primary jurisdiction. The State Police would also need to either establish their own back-up PSAP or partner with one or more of the regional PSAPs to provide necessary redundancy for its primary PSAP.

Three regional PSAPs would create an efficient model that would be a dramatic departure from Connecticut's current 9-1-1 system configuration. A major advantage of this configuration would be improved regional awareness, and, as a result, coordinated response and interoperability during major incidents. The equitable distribution of calls in this regional design would offer redundancy alternatives in the event of a major disruption of 9-1-1 services in any one of the call centers. Calls could be rerouted temporarily to one or more of the other regional centers because they are similarly sized and staffed PSAPs. This three region PSAP model does not include Connecticut State Police 9-1-1 calls as it assumes those calls are re-routed in a failover scenario within the State Police network of PSAPs. Additional benefits include a more cost effective use of the statewide 9-1-1 system and the trained emergency telecommunicators who utilize it. This regional approach would eliminate emergency telecommunicators performing non-emergency duties and would also reduce the overall number of call takers required to handle the state's call volume. The number of call taking workstations would be significantly reduced, resulting in lower equipment and

network costs. For the municipal agencies, personnel and support system equipment costs such as radio and CAD would be shared in a regional configuration. Cost savings may not occur immediately and the amount of savings would depend on operational decisions. These decisions include:

- Agencies maintaining the current level of non-emergency services. In 95 percent of the PSAPs visited, L.R. Kimball found that many of the duties performed by the PSAP staff were outside what would be considered emergency call taking and dispatching. If all emergency telecommunicators are in the proposed regional centers, the affected agencies must decide if they will continue to provide the communities and the departments with the same level of non-emergency service.

- Regional dispatch vs. local dispatch - In the current model many of the agencies receive the 9-1-1 calls and dispatch the appropriate response agencies. If all the 9-1-1 calls are answered by one of the regional PSAPs, the individual departments may want to continue to dispatch for their own agency. If the separation of call taking and dispatch is allowed, local agencies will have to continue to staff their dispatch centers 24/7. These agencies will see no cost savings and most will see cost increases.

- When implemented in other areas of the country, models that separate 9-1-1 call taking from dispatching has proven to fragment the emergency communications system by increasing the number of 9-1-1 call transfers. The transfers increase response times. Given the likely increase in response times, OSET has indicated that it would not support or fund this option.

The following map is a graphic depiction of the proposed optimum model.

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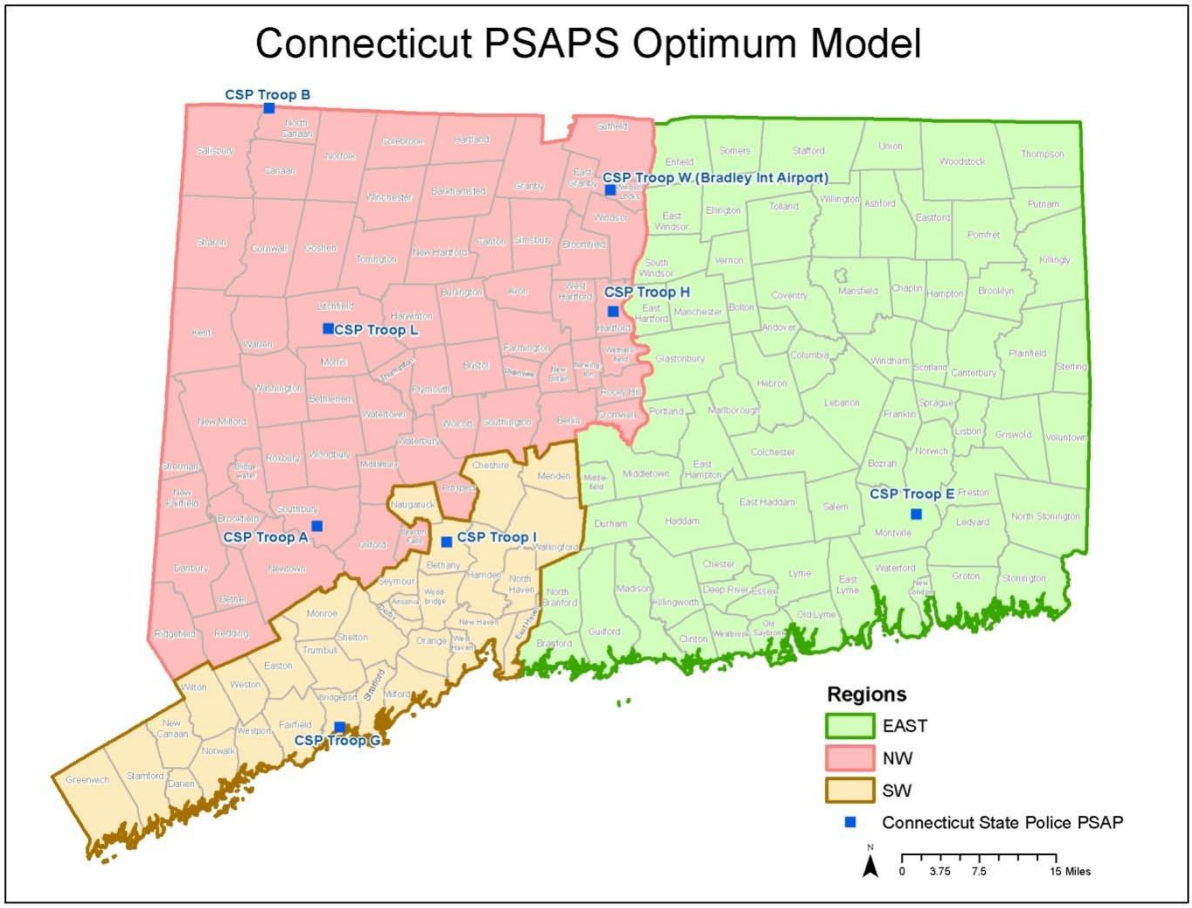

Figure 9 – Optimum Model

In Connecticut, a 9-1-1 call is routed through the telephone company network and is selectively routed to the most appropriate PSAP. Currently 291 integrated digital subscriber network (ISDN) lines are used transport these calls from the selective router to the PSAPs. Connecticut's current 9-1-1 configuration has 302 workstations in 106 PSAPs, which are all provided by the state through a professional services contract with AT&T. The 9-1-1 answering equipment allows the display of enhanced 9-1-1 (E9-1-1) data, such as automatic number identification (ANI) and automatic location identification (ALI). In the four-PSAP configuration, a total of 71 ISDN lines and 61 9-1-1 call taking workstations would be needed. This number is based on the number of physical workstations needed to process the average hourly 9-1-1 call volume plus two supervisor positions. Additional workstations needed to accommodate peak call volume periods, training, backup positions, and other needs will need to be added to this number once a final configuration is determined. The following table provides a summary.

Table 5 – 9-1-1 Position and ISDN Line Summary

Regional	East Region	Northwest Region	Southwest Region	CT State Police	Totals
# of PSAPs	29	40	29	12	110
Current # of 9-1-1 Workstations	77	109	85	31	302
ISDN Lines	72	97	83	39	291
Regional PSAP 9-1-1 Workstations (Projected)	12	15	17	17	61
Regional PSAP – ISDN Lines (Projected)	11	13	15	15	54

Based on the 2010 call volume data that was available for this report, the four-PSAP configuration would result in a more equitable distribution of the call volume.

The following figure identifies call volume for 2010 based on a four regional PSAP configuration.

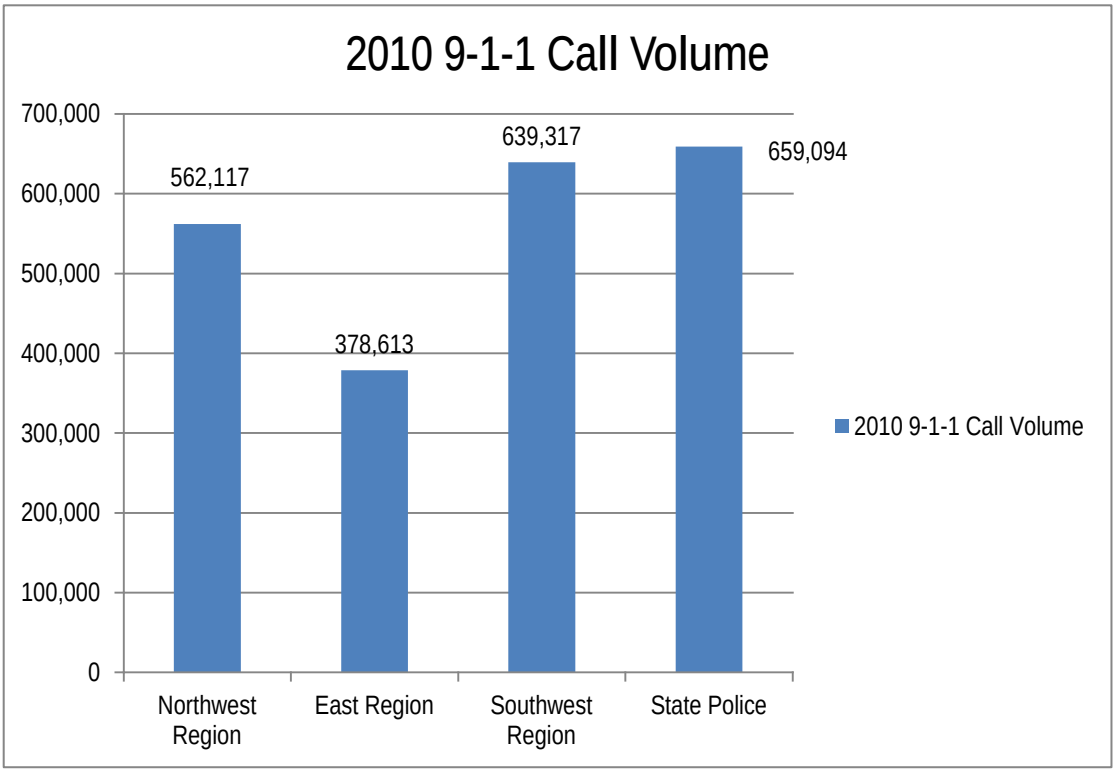

Figure 10 – 2010 9-1-1 Call Volume

4.2.1 Call Taker Staffing Estimate

To properly estimate PSAP staffing several data components are needed including the number of 9-1-1, non-emergency 10-digit and administrative calls and the number of physical dispatch workstations that will be staffed on a 24/7 basis. Staffing estimates for dispatch workstations are not possible since the actual radio channel/talk group configuration (number of dispatch positions to be staffed on a 24/7 basis) would be needed and would likely not be the same as the current radio configuration. Therefore, the following staffing estimates will be for call takers only. L.R. Kimball assumed that call taker and dispatch functions would be split based on the size and workload managed by each PSAP. L.R. Kimball strongly recommends that part of any statewide consolidation plan should be maintaining call taker and dispatch functions in the same facility.

Since administrative calls represent a large portion of the workload in any regional communications center, these call counts have been estimated at a ratio of 3:1 (three administrative calls for every 9-1-1 call). The actual number of administrative calls could be higher or lower depending on the specific PSAP configuration and user agreements established at the time of consolidation. However, the following estimates should provide OSET with a basis for comparing the call taker staffing and 9-1-1 answering equipment needs currently with that of the optimum configuration. Given the estimated workload of each of these regional centers, the use of separate call takers and dispatchers is assumed and recommended.

Table 6 – Total Call Volume, Call Answering Workstations and Staffing Summary

	East Region	Northwest Region	Southwest Region	CT State Police	Totals
9-1-1 Call Volume	378,613	562,117	639,317	659,094	2,239,141
Administrative Call Volume	1,135,839	1,686,351	1,917,951	1,977,282	6,717,423
Total Call Volume	1,514,452	2,248,468	2,557,268	2,636,376	8,956,564
Minimum Number of Physical Call Taking Workstations*	12	15	17	17	61
Number of Call Takers Needed	55	71	82	82	290

*This number represents the number of physical call answering workstations needed to handle the estimated call volume plus two supervisors' positions. Additional positions for peak call volume periods, training and expansion would need to be added once a configuration was determined.

4.2.2 Positives/Negatives of the Optimum Model

The positives of this configuration would include:

- Equitable distribution of calls.
- Regionally based call distribution.
- Regional awareness and response to large incidents.
- Regional interoperability among emergency response agencies.
- Equipment and network cost savings.

- Shared support system equipment and employee costs.
- The number of administrative calls (those not related to emergency communications) are generally reduced. This reduction helps ensure that 9-1-1 calls are answered as quickly as possible. Further, it helps ensure that staffing and technology is "right-sized" for emergency communications only.
- PSAP system redundancy and capability to reroute calls to centers with the capacity to handle the additional calls.
- In some agencies, free sworn personnel from dispatch duties to perform task more appropriate for their training and area of expertise.
- High level of emergency service communications.
- Career path for telecommunicator.

Negatives for this configuration:

- Loss of local control.
- Ancillary duties currently performed by individual PSAPs will need to be assessed. Some duties may be re-assigned within each municipality, eliminated, or additional staff may need to be hired to perform these duties. The disposition of each specific duty may impact any cost savings realized at the municipal level.
- The elimination of services such as a 24/7 walk-in window may be perceived as a reduction in service level even if current PSAP lobbies can provide connectivity to a new regional PSAP.
- Change in level of non-emergency services or the costs to maintain them.
- High capital cost of building new facilities.

Further, in the new configuration, the three regional PSAPs will still need to transfer 9-1-1 calls to the State Police in areas where the State Police provide the primary law enforcement response. In order to eliminate the critical delays that these transfers cause the State Police should be encouraged to allow the three regional RECCs to dispatch State Police personnel directly in these areas.

Achieving an optimum model for statewide emergency communications is a challenging undertaking. However, the benefits to be realized financially, technologically and from a pure interoperability standpoint would be groundbreaking. The level of service to Connecticut's visitors and citizens would be more consistent throughout the state and would not be hampered by delays in 9-1-1 call transfers. The safety of first responders could be greatly enhanced with the utilization of new technologies such as on-scene timer alerts within CAD and automatic vehicle location (AVL). Charting a course to realize the vision of an optimum model can be viewed from two different perspectives – a "top-down" implementation methodology or a "bottom-up," grass roots effort. A top-down approach assumes the existence of a statewide entity that has the necessary funding and appropriate authority to implement the needed infrastructure and mandate compliance, usually through adopted legislation. This type of top-down implementation of a common emergency communications infrastructure is more typically found at a county level where 9-1-1 calls are legislatively mandated to be routed to the county emergency communications center and, subsequently, emergency resources dispatched. At present, this path to an optimum model is not a likely scenario for Connecticut given the lack of county governance and a legislative mandate to institute such wide sweeping change.

Connecticut has experienced bottom-up consolidation within the state as regional emergency communications centers were created at a grass roots level decades ago. More recently, the City of Torrington merged with Litchfield

County Dispatch to become its 22nd member community. This clearly demonstrates that consolidation of services is a desirable option for many towns to pursue and can be achieved through consensus and proper governance. After surveying the PSAPs throughout Connecticut and conducting follow-up interviews, L.R. Kimball strongly advocates that Connecticut continue down this path and has developed recommendations to better facilitate continued regionalization. Whether regionalization eventually results in an optimum model statewide is not the only benchmark of success. The recent merger of Torrington and continued regionalization statewide is the true measure of success. It is a trend that can be more actively promoted by the State and, consequently, benefit emergency responders and the citizens they serve.

4.3 Department of Emergency Management and Homeland Security (DEMHS) Regional Offices

While L.R. Kimball's proposed optimum model represents the best possible scenario in terms of operational and cost efficiencies, other models that are more palatable politically could be implemented quite successfully although with fewer cost efficiencies.

The optimum model presented in Section 4.2 assumes a clean slate and attempts to maximize operational efficiencies such as reducing call transfers and keeping dispatch functions in the same organization as call taking with cost effective strategies for both the State and local entities. However, it certainly is not the only model that would do so. Connecticut has an existing statewide regional template in its DEMHS regions. Much benefit can be gained by capitalizing on the synergies that exist among PSAPs within the DEMHS regions which is an extremely important factor in any successful consolidation. PSAPs within a DEMHS region are already familiar with their counterparts and share emergency management and response plans. They routinely conduct meetings to improve those plans. They may have had recent, "real world" application of those plans that makes their bonds even stronger. Further, from a federal government perspective, these regions are already aligned and initiatives to improve emergency communications and data sharing within and across regions may make them eligible for federal funding. A DEMHS alignment warrants strong consideration. However, there are some drawbacks that must be noted.

In a DEMHS model, two factors are of immediate concern: the existing regional PSAPs and the balance of call volume among newly created centers. The DEMHS regional offices do not align well with existing regional dispatch regions. It is understood that new regions are being created in a statewide consolidation initiative; however, realignment that severs existing regional groupings may be more problematic than maintaining those groupings. Those regions that are accustomed to being dispatched together are more likely to accept regionalization and the transition has a better chance of success if towns that are now partnered stay partnered moving forward. PSAP officials may also raise the concern that DEMHS regions are important in managing crises that impact a region, but have no bearing on daily emergency response operations within that region. The following list outlines the affected regional dispatch centers and the municipalities that would be moved to a new group based on a DEMHS model:

- Tolland County Mutual Aid ECC – Somers, Stafford, Elington, Tolland, Bolton and Andover
- Colchester ECC – Hebron, Marlborough, East Hampton and East Haddam
- Valley Shore ECC – Lyme and Old Lyme

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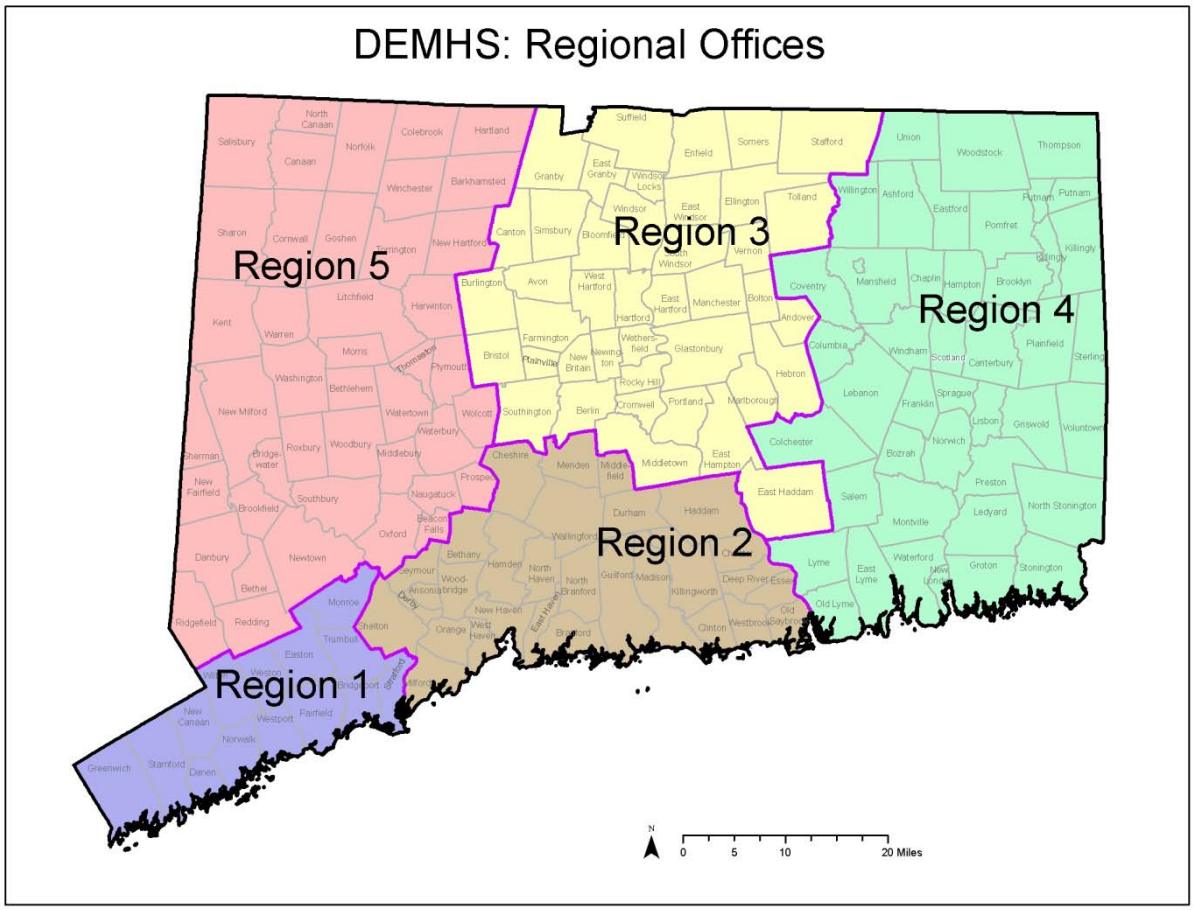

Figure 11 – DEMHS Regions

Another impact with aligning emergency communications operations along DEMHS boundaries is the effect it would have on balancing call volume among the newly created regional centers. In planning consolidation of emergency communications, the primary consideration must be given to failover capabilities. When concentrating call volume and dispatch control from dozens of PSAPs into one PSAP, the impact of operational failure is magnified exponentially. Planning for the operational takeover of incoming call volume and dispatches from one center to another is crucial. When building or creating new regional centers, they must be appropriately sized, staffed and equipped to handle such operational failovers. Failover capabilities are designed and routinely tested to ensure that, when one center is offline, another picks up its workload within minutes. The four region model proposed in Section 4.2 creates daily call volume that, if necessary, provides a failover balance that is manageable, as depicted in the figure in that section.

Creating regional emergency communications centers based on the DEMHS regions would create annual emergency call volumes as depicted in the following chart. As indicated earlier, because certain towns must be severed from their existing regional grouping, their call volumes had to be estimated due to the fact that those statistics are included in the call volume for the regional centers.

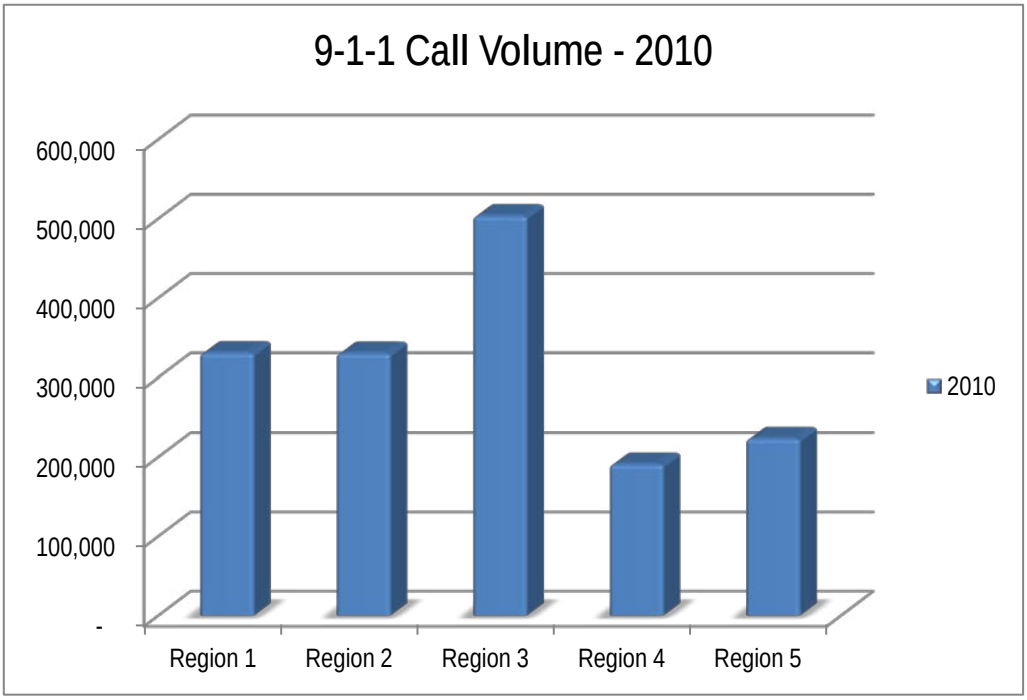

Figure 12 – DEMHS 9-1-1 Call Volume Distribution

Using 2010 emergency call volumes, the following pie charts compare the statewide daily call volume percentages, exclusive of the State Police, in a three region configuration as compared to a five region model. When analyzing the charts, consider that smaller regions must be configured to adequately handle the call volume of their larger counterparts. In the event of an operational failover, regional communication centers must be sized, properly equipped and have sufficient available staff to respond to such events. In the DEMHS model, creating two centers that only handle 12 percent and 14 percent of the state call volume creates disproportionately small centers in relation to the other centers in the model. It is not recommended, in any failover scenario, that calls and dispatch responsibility for one center be split across two other centers in a backup capacity. Therefore, in the DEMHS model, should the largest of the five centers experience a catastrophic failure, one of the two next larger PSAPs would have to pick up that volume. One must consider, in this instance, if the state of Connecticut would benefit by creating more when less would suffice unless progress consolidating PSAPs would be greater, due to political factors, under the DEMHS model.

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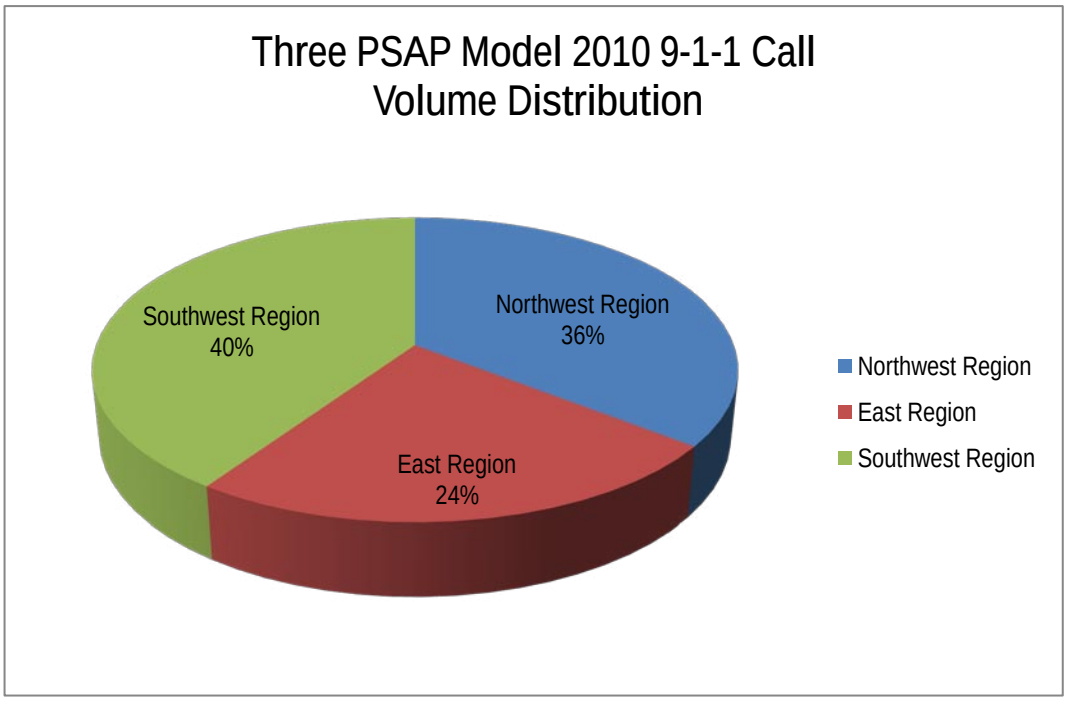

Figure 13 – Three PSAP Model 2010 9-1-1 Call Distribution

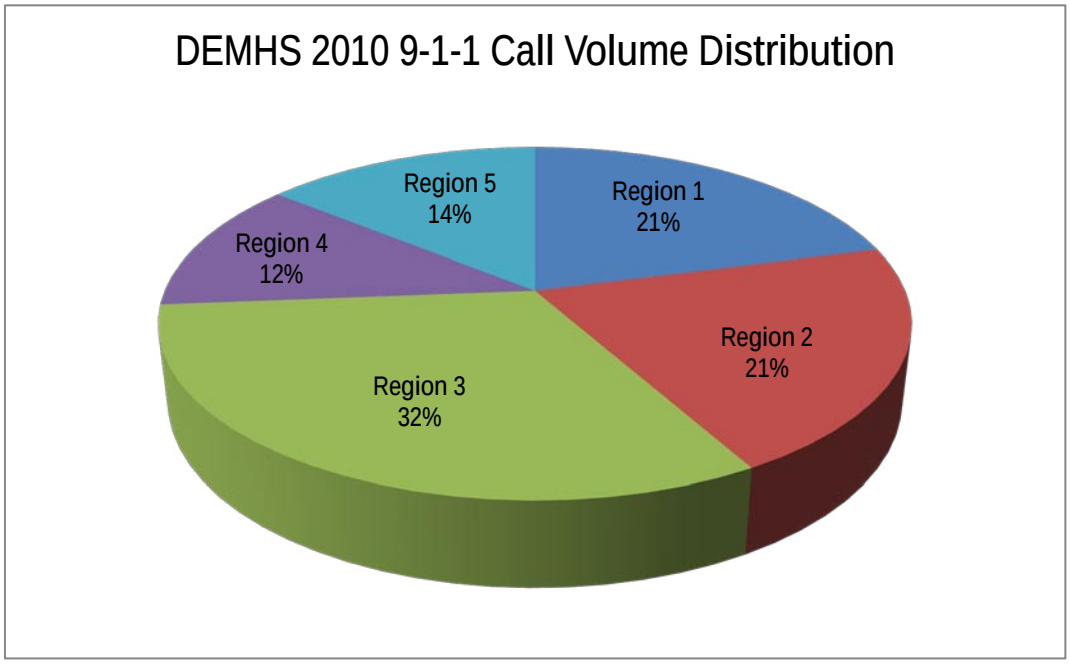

Figure 14 – DEMHS Model 2010 9-1-1 Call Distribution

4.3.1 Call Taker Staffing Estimates

The following table provides estimates for the number of call taker workstations and staffing for this model.

Table 7 – Total Call Volume, Answering Positions and Staffing Summary

	Region 1	Region 2	Region 3	Region 4	Region 5	CT State Police	Totals
9-1-1 Call Volume	330,939	330,429	503,883	191,174	223,672	659,094	2,239,191
Administrative Call Volume	992,817	991,287	1,511,649	573,522	671,016	1,977,282	4,740,291
Total Call Volume	1,323,756	1,321,716	2,015,532	764,696	894,688	2,636,376	8,956,764
Minimum Number of Call Taking Workstations*	11	11	14	8	9	17	53
Number of Call Takers Needed**	50	50	66	33	39	82	320

*This number represents the number of physical answering workstations needed to handle the estimated call volume plus two supervisors' positions. Additional positions for high volume periods, training and expansion would need to be added once a configuration was determined.

**Number of call takers is calculated based on 24/7 coverage of call taker positions only.

4.3.2 PSAP Technology

4.3.2.1 Network and CPE requirements

In either of the models discussed, all PSAP locations would require an automatic call distribution (ACD) solution. The following systems should be incorporated into each workstation: mapping, uninterrupted power supply (UPS) and synchronized timing system or master clock.

The ISDN lines configuration for the 4-PSAP model should provide the same level of redundancy that exists in the current 9-1-1 system. Each PSAP should have sufficient lines to take care of call over-flow from one of the other PSAPs. In addition, if one of the PSAPs needs to close temporarily because of a critical event, the other PSAPs would need to be able to take the re-routed calls. The unequal call volume distribution in the DEMHS model will require special attention to redundancy planning to ensure continuity of operations.

The MSAG database and the ALI database would need to be updated in order to route the calls to the correct PSAP. AT&T and OSET would have to work together to assign the various communities to the appropriate PSAP. At the end of the AT&T contract, OSET, through the procurement process, would have the ability to identify other call delivery options.

4.3.2.2 Radio

L.R. Kimball recommends that the PSAPs handle both 9-1-1 call taking and dispatching of emergency personnel. Allowing existing agencies to continue to dispatch their personnel would fragment the system and result in critical delays in emergency response since virtually all 9-1-1 calls, except those dispatched by CSP, would need to be transferred at least once.

In order to provide call taking and dispatching in either model there would be a need for an area wide trunked radio system. A trunked radio system would provide the regions with optimum use of radio bandwidth. With a trunked radio system, L.R. Kimball recommends the fire departments consider migrating to a common fire dispatch channel(s), with an assigned and dedicated fire telecommunicator. At the same time, the goal should be to have the fire departments utilize separate talk groups during response and ensuing on-scene operations. These additional talk groups would then be monitored by a dedicated fire tactical telecommunicator. The monitoring of the operations or fire ground channel(s) or talk groups is important, especially for larger incidents such as structure fires, multi-unit assignments, multi-alarm events or multi-agency incidents. Radio to radio tactical (non-trunked) channels would also need to be available for use as needed.

Currently, the existing law enforcement agencies operate on a number of separate dispatch channels. Maintaining individual dispatch positions for agencies that have low call volumes is not cost effective and is never recommended. If a region pursues a trunked radio system and regionalization moves forward, in-depth radio channel traffic studies should be conducted to determine the most effective channel or talkgroup assignments. Consolidation of small law enforcement agencies into a single talkgroup can provide a higher level of interoperability and be more cost effective for the PSAP. Call volume, however, should not be the only determining factor in the establishment of dispatch positions. The combining of agencies must make sense from geographical, operational, and political perspectives as well. Also, new technology initiatives, such as providing 700 MHz radio coverage, could be undertaken within a region or statewide with costs significantly reduced if borne by numerous agencies.

The development of a regional radio system would have the greatest impact on regional PSAP costs. Radio coverage studies, radio infrastructure assessments, procuring or updating radio consoles, reprogramming or replacing mobile and portable radios are all expensive. All of these costs would be shared by the communities within the regions, but would negate any personnel cost savings during the first few years following consolidation.

The State Police is the only agency that would not be affected by either model because they already have a statewide radio system.

4.3.3 CAD

In either PSAP configuration there needs to be a regional CAD system. CAD is a critical system that assists call takers and dispatch personnel in processing, prioritizing, dispatching and controlling calls for service for the respective agencies. For the consolidated communications center, the selected CAD system must be capable of accommodating multiple disciplines, agencies, types of service, and provide interfaces to other jurisdictions, local sub-systems (e.g., mapping, mobile data, E9-1-1, fire station alerting, paging,) and state and federal databases (COLLECT and NCIC). All of the agencies need to have access in order to identify the status of on-duty personnel and equipment. The PSAP needs to be able to assign personnel to emergency calls and request safety checks.

An important part of dispatch software is the record management system (RMS) interface. The RMS is used to document the events surrounding each emergency call and other calls for service. It will be used for court or required reporting regulations for police, fire and EMS agencies, yearly statistics, etc. Each type of agency needs to have the RMS for the services they provide. RMS requirements are different for police, fire and EMS. The regional CAD system must provide interfaces for each type of RMS. Local agencies that wish to retain their RMS must have their RMS vendor develop the interface to the published application program interface (API) for the regional CAD and the local agency must absorb the cost of this development effort.

Another important interface for CAD is mobile data terminals. MDTs provide mobile emergency personnel with the location and type of incident while the call taker is still on the phone with the caller. Updates can be made while the responders are en route to the scene.

4.3.4 Facility

L.R. Kimball recommends an examination of all available options to house a consolidated operation, should consolidation be pursued. These other options include new construction or finding an alternate existing facility of sufficient size to renovate and fit the needs for a consolidated center. For new construction, a site of at least three to five acres should be identified and assessed for suitability prior to acquisition. Consideration of options should also be given throughout the project to find an appropriately equipped and secure backup/alternate center solution.

4.3.4.1 Site Evaluation

An evaluation should be completed for all candidate sites to score or rate them and identify the best possible sites for a consolidated communications center. Utilizing a criteria matrix would provide the ability to review potential sites for both positive and negative factors and to sum up the findings in a reviewable fashion. A matrix[2] from NENA could be used and/or expanded. The document contains the following major criteria:

- Site accessibility.
- Adequate site space.
- Attractive neighbor profile.
- Cost differentials.
- Electrical power and utilities.
- Facility development (existing building).
- Site integrity.
- Quality of life (amenities).
- Security issues.
- Telecommunications availability/access.

4.3.4.2 Threat Vulnerability and Assessment

The regions should complete an in-depth facility hazard assessment of all proposed sites, new or existing, for a consolidated communications center facility. This study would help identify potential hazards and/or threats that could impact the facility. Dependent on the number and/or type of threats identified, additional review of these and

[2] *Public Safety Answering Point Site Selection Criteria Operations Information Document (OID)*, NENA, July, 2007, http://www.nena.org/sites/default/files/PSAPSiteSelectionCriteriaFINAL071707.pdf

other criteria will be necessary during the civil/engineering portion of the design and construction of a new or renovated site.

At a minimum, the following types of threats/hazards should be reviewed:

- Natural Threats
  - Weather
  - Seismic/Geological
  - Service interruptions
- Civil Threats
  - Terrorism
  - Vandalism
  - Cyber-security
  - General environmental
- Accident Hazards
  - Internal
  - External (vicinity)
- Personal Safety

Additional specific critical information that needs to be reviewed during this hazard assessment process includes the following general areas:

- Hurricanes
- Lightning/Storms
- Tornados
- Loss of power or telecommunications
- Earthquake
- Fire
- Railroad proximity
- Unauthorized entry/security
- Terrorism
- Airport flight paths
- Flooding
- Site adjacencies
- Accidents (HazMat)

4.3.4.3 Facility Costs

The largest single one-time capital cost in the consolidation process is usually associated with the construction or renovation of an appropriate facility. Often consolidation efforts require a new facility as it can be difficult to locate an existing structure that is suitable to house a critical facility such as a PSAP. While it may be possible to locate a facility of adequate size, typically the costs to renovate the floor space to current public safety industry standards for a hardened facility with adequate cable infrastructure become as costly as new construction. Costs associated with

both renovation and new construction options include site selection, evaluation and acquisition, and facility design, programming and construction.

Site acquisition costs are difficult to project, as they are based on land values for a specific place and time. If stakeholders identify municipal-owned land that may be viable for locating a consolidated PSAP and if a site evaluation shows the site to be a good location, then site acquisition costs could be minimal. The opposite is true as well and the cost of site acquisition could be expensive.

Projecting accurate costs for a new facility requires a much higher level of detail and planning than is within the scope of this project and final cost is dependent upon numerous variables identified in the planning and programming process. However, broad budgetary numbers can be used to illustrate the range of these costs and used as a planning starting point.

For purposes of this illustration, L.R. Kimball combined industry best practices, average hardened facility construction costs per square foot, and some basic assumptions about the programming of the facility. Combining these criteria with estimated 20-year growth projections and 24 workstations, which would not be an unreasonable size for a larger regional PSAP, an overall estimate for building size and cost can be calculated. Cost per square foot will be driven by the local construction market and may be higher or lower than the range in the following table.

The table below details facility size and cost options. These estimates include the general base building and minimal site development. The estimates do not include site acquisition and improvement costs, if needed, or any building contents or PSAP related technology. As with any planning estimate, costs would need to be adjusted once a project-specific complete and in-depth space programming study is completed and other decisions regarding amenities, service area, staffing, and number of work positions are made.

The Position Area column of the table reflects the facility square footage inclusive of office, conference, kitchen and other space in addition to the actual workstation square footage.

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Table 8 – Single PSAP Facility Cost Estimates

$325 Cost per Square Foot			
Number of Positions	Position Area (sq. ft.)	Building Area (sq. ft.)	Total Cost
24	600	14,400	$4,680,000
24	700	16,800	$5,460,000
24	800	19,200	$6,240,000
24	900	21,600	$7,020,000
24	1,000	24,000	$7,800,000
$375 Cost per Square Foot			
Number of Positions	Position Area (sq. ft.)	Building Area (sq. ft.)	Total Cost
24	600	14,400	$5,400,000
24	700	16,800	$6,300,000
24	800	19,200	$7,200,000
24	900	21,600	$8,100,000
24	1,000	24,000	$9,000,000
$425 Cost per Square Foot			
Number of Positions	Position Area (sq. ft.)	Building Area (sq. ft.)	Total Cost
24	600	14,400	$6,120,000
24	700	16,800	$7,140,000
24	800	19,200	$8,160,000
24	900	21,600	$9,180,000
24	1,000	24,000	$10,200,000

L.R. Kimball notes the following regarding the table above:

- The figures indicated above are for illustrative purposes only.
- Estimates for required system technology and/or site acquisition, design and preparation are not included.
- Conceptual pricing and cost of materials will vary based on decisions made during the design phases and market conditions at time of bid.
- Square footage per position includes operational workspace and all adjacencies. Adjacencies are defined as pathways, walls, doorways, administrative offices, conference rooms, training rooms and work or support areas outside the operations floor. Actual square footage per workstation, without adjacencies, is generally between 90 and 120 square feet.
- The potential for growth due to adding additional municipalities and/or agencies in the future has not been factored into these estimates.

The programming and design of the facility may or may not be part of an overall architectural contract. If procurement requirements allow, programming and design should be a separate process from construction. Few architectural firms have a level of expertise in PSAP programming and design, and also have the local presence, as would be required during the construction phase. Separating these components give the stakeholders more control over the programming process toward developing a design that meets industry standards and the needs of the user agencies and participating municipalities.

4.4 Regionalization

4.4.1 Identifying Regionalization Candidates

Analysis of survey and interview data revealed a number of PSAPs and towns have taken proactive steps to consolidate services with a neighboring town. Some have even had studies conducted to further the initiative, yet, often, no further action has taken place. The reasons for this inaction are varied and may be political, financial or, simply, failure to plan and manage the effort. Further, the 9-1-1-call volume data provided by OSET shows a striking correlation between interest in consolidation among PSAP officials and low call volume. In other words, PSAPs who handle a low-volume of 9-1-1 calls show a higher level of interest in consolidation than do their higher call volume counterparts. This may be their own realization that the costly expenditures to operate a 24/7 emergency communications center are not justified when considering the actual number of emergency calls received. In light of the foregoing, L.R. Kimball analyzed the 9-1-1 call volume and interest in consolidation among the PSAPs and formulated some actionable recommendations for the state of Connecticut. Where consolidation interest was lacking among PSAPs, the 9-1-1 call volume was still analyzed to determine whether from a real-world, emergency communications best practices standpoint, that PSAP had sufficient 9-1-1 call volume to justify its continued operation.

Identifying PSAPs that have an expressed an interest in consolidation is the natural first step forward. However, the State must consider what actions it will take for those who have no interest, but do not have the call volume to justify their continued financial support by the State. Again, it must be stressed, that L.R. Kimball spoke primarily to representatives of the PSAPs, police and fire personnel regarding agency interest in consolidation. Some of these officials also reported that there were differences of opinion regarding consolidation between their views and the views of the municipal decision makers.

4.4.2 9-1-1 Call Volume

In analyzing 9-1-1 call volume provided by OSET, L.R. Kimball established a threshold to separate PSAPs within the state. For the purposes of this analysis, L.R. Kimball used a threshold of 8,000 9-1-1 calls per year (see Table 9). Many PSAPs throughout the country and some within Connecticut may consider 8,000 9-1-1 calls per year extremely low and, based on knowledge and experience, L.R. Kimball cannot refute that assertion. Yet 50 of Connecticut's 106 PSAPs receive less than 8,000 9-1-1 calls per year. Using the 8,000 call threshold serves as a near mid-point to divide the PSAPs and translates into approximately 24 9-1-1 calls per day. Further, many of the PSAPs that handle less than 8,000 emergency 9-1-1 calls per year typically only have one telecommunicator assigned per shift, despite the fact that they may have two full-service console positions. It is understood that many of the 50 PSAPs that handle less than 8,000 9-1-1 calls per year also receive calls for service (both emergency and non emergency) via traditional 10-digit lines. However, for the most part, 9-1-1 call volume captured by the State is a very good indicator of how busy a particular PSAP is and whether the cost of that operation is justified.

Table 9 – PSAPs with Annual 9-1-1 Call Volumes of 8,000 or Less

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Easton Police Department	1,683	140	5	0.19
Thomaston Police Department	1,973	164	5	0.23
Middlebury Police Department	2,058	172	6	0.24
Putnam Police/Fire Communications Center	2,483	207	7	0.29
Redding Emergency Communications Center	2,866	239	8	0.33
Old Saybrook Police Department	3,078	257	9	0.36
Canton Police Department	3,095	258	9	0.36
Weston Communications	3,194	266	9	0.37
Seymour Police Department	3,639	303	10	0.42
East Lyme Public Safety	3,658	305	10	0.42
Winsted Police Department	3,692	308	10	0.43
New Fairfield Emergency Communications Center	3,853	321	11	0.45
Clinton Police Department	3,878	323	11	0.45
Suffield Police Department	3,945	329	11	0.46
Woodbridge Police Department	4,130	344	11	0.48
Windsor Locks Police Department	4,241	353	12	0.49
Plymouth Police Department	4,323	360	12	0.5
North Branford Police Department	4,543	379	13	0.53
Madison Police Department	4,645	387	13	0.54
Brookfield Police Department	4,723	394	13	0.55
Granby Police Department	4,939	412	14	0.57
East Windsor Police Department	4,944	412	14	0.57
Cromwell Police Department	5,155	430	14	0.6
Derby Police Department	5,482	457	15	0.63
Wolcott Police Department	5,628	469	16	0.65
Southbury Public Safety	5,692	474	16	0.66
Avon Police Department	5,721	477	16	0.66
Bethel Police Department	5,734	478	16	0.66
Monroe Police Department	5,788	482	16	0.67
New Canaan Police Department	5,889	491	16	0.68
Stonington Police Department	6,191	516	17	0.72
Darien Police Department	6,193	516	17	0.72
Orange Police Department	6,342	529	18	0.73
Simsbury Police Department	6,352	529	18	0.74

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume	Avg. Daily 9-1-1 Call Volume	Avg. Hourly 9-1-1 Call Volume
Plainville Police Department	6,494	541	18	0.75
Guilford Emergency Communications	6,572	548	18	0.76
Rocky Hill Police Department	6,765	564	19	0.78
Wilton Police Department	6,796	566	19	0.79
Montville Dispatch	6,805	567	19	0.79
Ridgefield Police Department	6,817	568	19	0.79
Ansonia Police Department	6,884	574	19	0.8
Berlin Police Department	7,028	586	20	0.81
South Windsor Police Department	7,066	589	20	0.82
Newtown Police Department	7,068	589	20	0.82
Ledyard Emergency Communications Center	7,153	596	20	0.83
Watertown Police Department	7,189	599	20	0.83
South Central Regional Emergency Communications	7,573	631	21	0.88
Glastonbury Police Department	7,623	635	21	0.88
North Haven Emergency Telecommunications	7,711	643	21	0.89
University of Connecticut Police Department	7,751	646	22	0.9
Total 9-1-1 Call Volume	263,045			

4.4.3 Recurring Costs for Stand-alone PSAPs

As all 9-1-1 telephony equipment is provided by the State, it is not an item that a PSAP must account for in its annual budget. Yet the other costs associated with operating a 24/7 emergency communications center can be daunting and one that town citizens may not realize when the costs are embedded in the police or fire department budget. A two position PSAP may staff two individuals for day and evening shifts and one on the midnight shift. Doing so requires a minimum of nine full-time personnel that can cost a town $360,000 per year assuming a $40,000 annual salary range (exclusive of benefits). Those personnel may be engaged in other duties; however, their primary purpose is to receive calls for emergency services and dispatch responders to such incidents. In order to dispatch the emergency responders, the town needs an expensive radio network that requires tower sites within the community and a dedicated radio switch that serves as the core of the system. The initial startup expenditure for a stand-alone public safety radio system costs millions of dollars. However, most of the PSAPs already have a radio infrastructure in place and are simply paying high annual maintenance payments. Annual maintenance does not cover the cost of a system upgrade that can run as much as $1 million.

In examining the costs for radio equipment alone there is a considerable amount of savings that could be realized between towns on a shared radio network. With independent radio systems, each town must erect its own tower sites. In a regional radio system the number of towers is reduced because one tower can often cover multiple towns

that formerly used individual towers. At present, the cost to erect one new tower on an undeveloped site can exceed $250,000, excluding any recurring lease cost for the land. As described earlier, each town must have its own dedicated radio switch to operate its system. All of this equipment must be duplicated across neighboring towns despite the fact that they could share a common switch if they utilized a regional radio system. Another radio infrastructure cost that must be considered is the radio console itself that the dispatcher uses to contact emergency responders. Because each town has two or more dedicated positions they must have a console at each, which typically ranges from $25,000 to $50,000. Three neighboring towns with two console positions can often be merged and resources dispatched from two consoles alone. This is an immediate reduction of not only console positions but the personnel needed to man those positions.

Each PSAP that utilizes CAD must contract with a vendor to provide a CAD solution for their town. Implementing a CAD server with the base software and associated client licenses can cost a community from $150,000 to $300,000 to implement with a yearly maintenance fee of $20,000-$40,000. As was the case with the radio system described above for three neighboring towns, each town bears these costs individually when, in reality, one server with two client licenses may sufficiently serve all three towns. This duplication of costs throughout Connecticut is common place and, as demonstrated with successful regionalization initiatives, unnecessary.

4.4.4 Consolidation Cost Analysis

Providing accurate costs to consolidate is a complex task when the number of consolidation participants and the associated personnel, facility, and technology costs are known. However, it is much more challenging or nearly impossible when one or more of these variables are unknown. L.R. Kimball has conducted numerous studies and procurements to facilitate PSAP consolidations throughout the country. Each of these initiatives has their own distinctive operational characteristics and technological intricacies and result in findings unique to that specific consolidation effort. Yet, based on this experience, it is possible to provide “rule-of-thumb” cost estimates as guidance. The following example provides cost estimate rules-of-thumb, where possible, and illustrates the initial cost analysis that is needed when considering consolidation.

A cost analysis is comprised of several basic components, including personnel and benefits, technology, and facility. The cost estimates for the components are then compared with existing costs to determine the financial feasibility of a potential consolidation. The underlying calculations and supporting information are not included here as this is only an example of potential results. The purpose of this example is to illustrate the cost analysis process. The actual cost results are illustrative only. Whether a consolidation effort will be more cost effective and any level of savings is based on the unique set of variables found in each consolidation effort.

4.4.4.1 Consolidation Cost Analysis Example

This example reflects actual results from three municipalities considering consolidation. The results have been summarized to illustrate the cost analysis process rather than detailed costs from this consolidation effort. The results are specific to the municipalities involved in this initiative and do not reflect the results that may be encountered by any other municipalities.

Cost estimates for the various components are dependent upon the total call volume and the number of dispatch positions that must be staffed. A total of nine dispatch positions are required for a consolidated PSAP for these municipalities. The following table provides baseline call volume statistics for this example.

Table 10 – Cost Analysis Example – Baseline Call Volume Statistics

PSAP	9-1-1 Call Volume	10-digit & Admin Calls*	Totals
Municipality 1	6,148	18,444	24,592
Municipality 2	42,220	126,660	168,880
Municipality 3	45,168	135,504	180,672
Totals	93,536	280,608	374,144

*Estimated at a ratio of 3:1 (Three 10-digit for every one 9-1-1 call)

4.4.4.2 Staffing

Staffing for the example consolidated PSAP is based on the following:

- Separate call taker and dispatcher functions and positions.
- Separate fire and EMS dispatch positions.
- Shift supervisors that are not assigned to work a console position.
- Each existing police dispatch position is replicated in the consolidated PSAP (No consolidation of radio channels by user agencies)

Using these parameters, staffing estimates are as follows:

Table 11 – Staffing Estimate Example

Position Title	Number of Positions
PSAP Director/Manager	1
IT Support Specialist	1
Shift Supervisors	6
Telecommunicators	71
Administrative Support	1
Quality Assurance / Training Manager	1
Total Staff Needed	81

4.4.4.3 Budget Estimates

An estimated operating budget for the new PSAP is comprised of personnel and recurring costs. The following table provides the budget estimate for the new PSAP and compares it to the combined existing PSAP budgets.

Table 12 – Budget Comparison Example

PSAP	Personnel Cost	Recurring Costs	Totals

3 Municipality Combined Budgets	$5,864,678	$1,005,842	$6,870,520
Consolidated PSAP	$5,910,644	$1,141,517	$7,052,161
Difference	$45,966	$135,675	$181,641

In this case, personnel and recurring costs increase in the consolidated environment under conditions at the time of the study. In this particular study, one of the primary reasons for this result was the high number of dispatch positions required and shift supervisors who did not function as telecommunicators. However, in general, reasons for similar results could include understaffing in the existing PSAPs or PSAP costs that cannot be determined because they are part of a larger departmental budget, such as a police department, which would skew the results. In the actual study, the municipalities were considering a complete radio system replacement which would allow the municipalities to reduce the number of dispatch positions and thereby lower personnel costs. The municipalities needed to make decisions regarding the radio procurement first so that a consolidation cost analysis could be conducted including the new dispatch configuration.

4.4.4.4 Technology Estimates

As with other components of consolidation, technology cost estimates will vary for different reasons, including whether existing equipment can be re-used and variables associated with each individual system. For example, analog radio equipment will be less expensive than digital equipment. The following table provides an example of a technology cost estimate. In this example, one of the CAD systems would be expanded and re-used in the consolidated PSAP.

Table 13 – Technology Cost Estimate Example

Technology	Budget Estimates	Total Estimated Cost Range
CAD	$155,000 migration cost	$155,000
9-1-1 Answering Positions	$60,000 per position	$1,260,000
Radio Consoles	$50,000 per position	$1,260,000
Ergonomic Dispatch Furniture Consoles	$18,000 per position	$378,000
Intensive Use Chairs	$1,200 per chair	$25,200
Digital Logging Recorder	≈ $90,000	$90,000
Master Clock Solution	≈ $20,000	$20,000
	TOTAL	$3,273,200

4.4.4.5 Facility

For the purposes of providing cost estimates, salary and benefits for personnel will be excluded. While radio, CAD and telephony systems may be relatively consistent throughout the country or within a region of the country, the salaries and benefit packages of telecommunicator personnel vary greatly within a state and, sometimes, even from one town to the next. To a certain degree, facility costs fall into this same category as constructing a new emergency

communications facility is highly dependent on the square footage costs in different regions of the country or within a given state. Section 4.3.4.3 and Table 8 provides information to be considered when constructing a new emergency communications facility.

A new facility specifically designed to serve as an emergency communications center may not be feasible in many areas of the state, therefore, an upgrade to an existing facility must be considered. Upgrades can also vary greatly depending on the age of the facility and the size of the new center. Having sufficient space and working with a facility that is relatively new makes refurbishing a new facility much easier. L.R. Kimball just completed an assessment for such an upgrade in which a 25 year old police station was completely refurbished to add a new consolidated center. Because there was sufficient garage space near the current dispatch room, that space was re-designed and an addition added to host a seven position emergency communications center. The architectural design completed for this client estimated that the facility upgrade would cost $480,000.

4.4.4.6 Cost Analysis Summary

The variables found in each separate consolidation effort will dictate the results of a cost analysis. When interpreting results it is important to recognize that because a consolidated PSAP may initially appear to be more costly, it is not an apples-to-apples comparison. The following tangible and intangible factors should be considered:

- As separate PSAPs, each will need to replace critical PSAP systems as they reach the end of their life cycle.
- As a single consolidated PSAP, the technology procured is likely to have a higher level of functionality that would be procured for a smaller sized PSAP. For example, a CAD system that would commonly be installed in a smaller PSAP does not provide the same level of functionality and reporting as a CAD system that would be needed in a larger, consolidated PSAP. Certainly, a small PSAP could procure a higher end CAD system and have the same functionality, but it is generally cost prohibitive.
- More on-duty staff during peak periods which prevents a single on-duty telecommunicator from being overwhelmed during busy periods. This will lessen the potential for errors and improve call handling and dispatch times.
- Standardized training.
- Career ladder for employees which increase employee retention and lowers training costs.
- A more regional approach to emergency communications allows for maximum efficiency in use of field personnel and resources.

Once all tangible and intangible factors are evaluated one of three results is likely:

1. The cost analysis shows substantial long-term cost savings.
2. The estimated costs of a consolidated PSAP are approximately the same as individual PSAP costs combined. In this case, the municipalities would receive an upgraded PSAP for the same cost as remaining separate.
3. The cost analysis demonstrates that a consolidation would not be cost effective for the municipalities involved.

4.4.5 COLLECT/NCIC/Nlets Considerations

PSAPs that dispatch law enforcement agencies access the COLLECT system to access data repositories that are mission critical for law enforcement. COLLECT serves as the portal by which a telecommunicator accesses a myriad of state, federal and interstate systems, such as the Connecticut Department of Motor Vehicles, the FBI's NCIC and the International Justice and Public Safety Network, known as Nlets.

Due to the fact that COLLECT is connected to NCIC with access to the FBI's data repositories, COLLECT must adhere to the FBI's Criminal Justice Information Services (CJIS) Division Security Policy, version 5.0. Subsequently, those PSAPs that access COLLECT must also adhere to CJIS Security Policies as they pertain to appropriate screening of personnel hired, accessing the system, security of components that connect to the system and appropriate sanctions for those who misuse the system. In the past, as most PSAPs that dispatched law enforcement personnel were under the direct control of a police agency, this direct oversight was more closely coordinated. Now, with the advent of county 9-1-1 dispatch centers and municipalities forming regionalized emergency communication centers, the FBI has had to accommodate "noncriminal" justice agencies (i.e., 9-1-1 or regional dispatch centers) accessing the system on behalf of the law enforcement agencies they serve.

In order to comply with the CJIS Security Policy, a regional communications center that dispatches for multiple law enforcement agencies must have in place a master control agreement (MCA) with one of those criminal justice agencies or a board that is comprised of a majority that are criminal justice agencies. A representative example of such a regional dispatch center MCA in use by the State of Kansas is included in Appendix A. CJIS Security Policy requires that an MCA between agencies must address three primary areas:

- Priorities – measures instituted by the regional communications center to ensure that the criminal justice community is provided priority service.
- Personnel Standards – measures necessary to ensure that whoever selects, supervises and terminates personnel in the regional dispatch center adheres to management safeguards to maintain the integrity of the CJIS network.
- Security Policies – established measures governing the operation of computers, circuits, network equipment and telecommunication terminals used to access the network.

One additional consideration that must be settled as it relates to COLLECT/NCIC and the regionalization of dispatch is how Originating Agency Identifiers (ORIs) are structured in a consolidated environment. The ORI is a nine character identifier (e.g., CT0000001) that uniquely identifies that agency from all others in the nation and serves as its terminal address by which another agency can direct a message via the COLLECT/NCIC/Nlets interconnected network. Due to fact that dispatch centers historically served as the 24/7 hub for the police agencies they served, the primary ORI for a given police agency would commonly be on a computer terminal within the dispatch center. When a wanted person or stolen vehicle was entered by a telecommunicator into COLLECT and subsequently, NCIC, the ORI identified the police agency that authorized entry of the data to all other law enforcement agencies nationwide.

In a regional communications setting, two scenarios for the assignment of the primary ORI for each police agency are possible. First, the primary ORI is assigned to a computer terminal at the regional communication facility. This enables the regional center to input all entries into the system for that police agency and serve as the 24/7 hit confirmation location when a wanted person is captured in another jurisdiction. Despite the fact that the police

agency's primary ORI is at the regional center and all input is done at that location, the police agency would still maintain a derivative ORI at its agency so it would receive the same hit confirmation messages and all other messages directed to its primary ORI. For instance, CT0000001 may be the police agency's primary ORI residing on a computer terminal at the regional dispatch center, but CT0000011 is the derivative ORI which resides on a computer located at police headquarters. All messages that are directed and received at the primary ORI are also directed to the derivative ORI to ensure the police agency receives hit confirmation messages, BOLOs and national messages broadcast on the network.

The second ORI scenario reverses the assignment of the primary and derivative ORIs. The primary ORI is assigned to the law enforcement agency and the derivative is assigned to the PSAP. In this scenario, a 24/7 presence at the law enforcement agency is required. Ideally, the entry of warrants and hit confirmation should be done within each law enforcement agency rather than the PSAP to avoid a variety of issues associated with maintaining warrant hard copies and unequal usage of PSAP personnel to conduct these tasks (larger agencies will require more personnel hours to manage entries and warrants) and how that would impact cost distribution between the participating agencies.

As regionalization of emergency communications has progressed throughout the United States, issues such as those previously described have already been worked through and solutions implemented to the satisfaction of state and federal agencies that manage CJIS systems.

4.4.6 Other Key Reasons for Consolidation or Regionalization

Although much of this section discusses call volume and cost efficiencies, the most important reason to regionalize emergency communications in Connecticut is for the safety of the emergency responders and the communities that they serve. Many of Connecticut's small PSAPs are staffed with one person taking calls and dispatching emergency responders. This staffing level is adequate most of the time. In fact many of these certified telecommunicators spend up to 80 percent of their time doing administrative work for their department. If any of these communities are faced with a major incident or multiple minor emergencies, the one telecommunicator will be quickly over-whelmed. A delayed response is inevitable as the person attempts to prioritize and manage too many incoming calls and manage the needs of field personnel. A well run, adequately staffed regional center is better able to prioritize, coordinate and handle major disasters.

Consolidation of emergency communications is being pursued across the nation for very good reason – it makes absolute sense on multiple levels. Connecticut is fortunate in that many of the municipal decision makers and public safety officials who oversee the towns and PSAPs understand this fact. In fact, of the 50 PSAPs below 8,000 9-1-1 calls per year, 28 or 56 percent of the PSAP management staff interviewed expressed an interest in consolidation. So where does the State go from here in moving toward an optimum model?

L.R. Kimball recommends that the State look to those who are eager to consolidate, who have commissioned studies on regional consolidation, who have close working relationships with their neighboring communities and who have existing mutual aid agreements. L.R. Kimball has identified three such regions that would be optimally suited for regionalization initiatives. Before those regions and other recommendations are emphasized, it would be helpful to show the current configuration of Connecticut's PSAPs to add context. The following figure is a slightly modified version of the Connecticut PSAP map posted on the on the DESPP website. The only change made to the

geographic regions of existing PSAPs was the merging of the City of Torrington under the Litchfield County Dispatch, which recently took place. All other changes, such as removing labels and roadways, were done to make viewing of the proposed regions easier to comprehend.

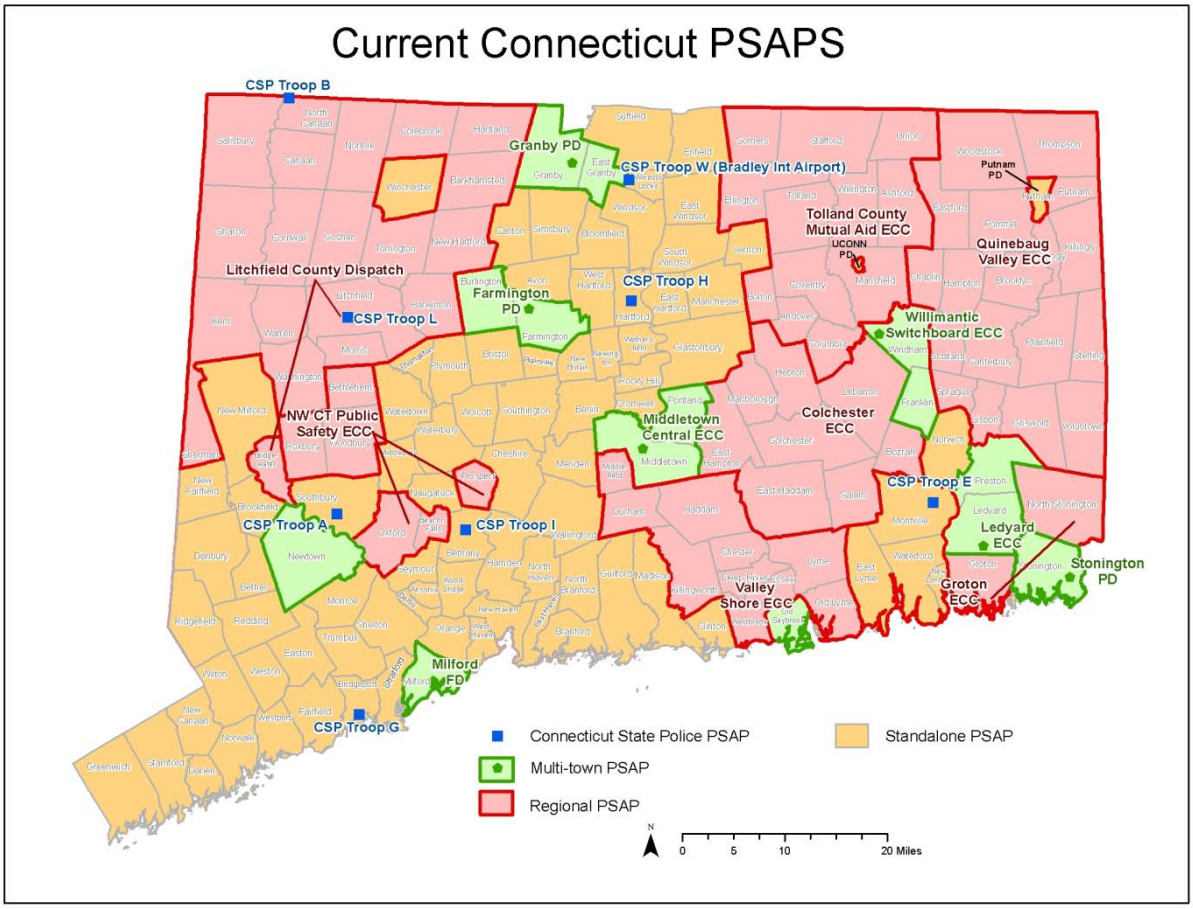

Figure 15 – Current Connecticut PSAPs

4.4.7 Group Definitions

L.R. Kimball has grouped all stand-alone and multi-town PSAPs within the state utilizing a targeted implementation methodology. This approach identifies those PSAPs within the state that should be targeted for implementation as if it were to occur in a staged or phased implementation. After all, regionalization within Connecticut is already underway and there are PSAPs taking proactive steps toward consolidation as this report is being written. L.R. Kimball believes that identifying PSAPs by groups will allow the State to build on previous successes and approach continued regionalization incrementally. Although the PSAP groupings listed below may be listed sequentially, this would not preclude the State from shifting PSAPs among groups if circumstances change over time.

- Group 1 – PSAPs that have recently commissioned studies focused on consolidating emergency communications, have conducted joint meetings, or formed committees to discuss regionalization. Quite simply, these are the PSAPs who have already taken proactive steps to consolidate, but still operate independently.
- Group 2 – PSAPs that have not taken recent proactive measures but have a 9-1-1 call volume that does not justify continued financial support from the State as a stand-alone PSAP. Those PSAPs that receive fewer than 8,000 9-1-1 calls per year were identified in this group.
- Group 3 – All other stand-alone and multi-town PSAPs that are not included in Groups 1 or 2, but still operate independently.

4.4.8 Group 1 Regionalization Candidates

As noted earlier, L.R. Kimball approached grouping of PSAPs as if it were a staged implementation, the first group being those PSAPs that have already identified neighboring PSAPs to partner with and who have proactively discussed or researched the feasibility of merging operations. L.R. Kimball believes that selecting PSAPs that are already engaged in the regionalization discussion affords greater potential for success and, subsequently, promoting further regionalization throughout Connecticut. The following paragraphs provide a few examples of PSAPs in Group 1 and information L.R. Kimball gathered about those PSAPs while conducting this study.

Surveys received and follow-up interviews conducted in the towns of Monroe, Trumbull and Easton revealed that they had a State-funded study conducted of a potential merger. However, consolidation has not yet been realized for reasons unknown to L.R. Kimball. Both Monroe and Easton were among the group of PSAPs that received less than 8,000 9-1-1 calls in 2010. Easton had the least 9-1-1 emergency calls of all Connecticut towns at 1,683. All the associated costs that were mentioned earlier are paid by Easton in order to operate a 24/7 emergency communications center 365 days per year to handle, on average, less than five 9-1-1 calls per day.

A second group who has taken proactive measures to study consolidation is located in the center of the state. L.R. Kimball believes that the towns of Newington, Wethersfield, Rocky Hill, Cromwell and Berlin could merge emergency communications functions; however, not all of the PSAP officials within those towns expressed an interest in such an initiative. In looking at the 9-1-1 call volume, three of the five towns receive less than 8,000 emergency calls per year with Cromwell, at 5,155 calls, the lowest and currently unsupportive of consolidation. Newington, the town that receives the most 9-1-1 calls of the group, 10,532 in 2010, has an exceptional, state-of-the-art emergency communications facility that is only five years old. They employ mobile computers in their patrol cars with data dispatch capability from their CAD system and an in-car interface to Connecticut's COLLECT system for vehicle registration and driver's license data. With consolidation, the budgetary dollars saved on stand-alone PSAP operations and personnel could often be spent on advanced technology for police, fire and EMS personnel and their emergency vehicles.

A third group was also identified in north central Connecticut, encompassing the towns of Avon, Canton and Simsbury. They have commissioned a study to assess consolidation in their area as all three operate PSAPs that handle under 8,000 calls per year. Simsbury has most recently invested significantly in upgrading its emergency communications operation and is, naturally, more reluctant to abandon that investment to merge into a regional center elsewhere. The Simsbury Police Department has 35 full-time officers and was recently accredited by the

Commission on Accreditation for Law Enforcement Agencies (CALEA). The PSAP dispatches those officers, but actually handles only 18 9-1-1 calls per day. Simsbury, like many other PSAPs throughout Connecticut, serves as a 24/7 service provider to their community and questions how non-emergency services will be provided to their citizens if 24/7 service should be eliminated. A complete list of Group 1 candidates is included in Table 14 and the PSAPs are depicted in blue in Figure 16.

Table 14 – Group 1 Regionalization Candidates

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume	Avg. Daily 9-1-1 Call Volume
Avon Police Department	5,721	477	16
Berlin Police Department	7,028	586	20
Bethel Police Department	5,734	478	16
Brookfield Police Department	4,723	394	13
Canton Police Department	3,095	258	9
Cheshire Police Department	8,195	683	23
Cromwell Police Department	5,155	430	14
Danbury Fire Department	31,905	2,659	89
East Haven Fire Department	11,983	999	33
East Lyme Public Safety	3,658	305	10
Easton Police Department	1,683	140	5
Hamden Central Communications	25,060	2,088	70
Ledyard Emergency Communications	7,153	596	20
Monroe Police Department	5,788	482	16
Montville Dispatch	6,805	567	19
New London Police Department	16,764	1,397	47
Newington Police Department	10,532	878	29
Newtown Police Department	7,068	589	20
North Branford Police Department	4,543	379	13
North Haven Emergency Telecommunications	7,711	643	21
Ridgefield Police Department	6,817	568	19
Rocky Hill Police Department	6,765	564	19
Simsbury Police Department	6,352	529	18
South Central Regional Emerg. Comm.	7,573	631	21
Trumbull Police Department	10,023	835	28
Waterford ECC	9,691	808	27
Wethersfield Police Department	9,657	805	27
Willimantic Switchboard Fire Chiefs' Assn	14,431	1,203	40

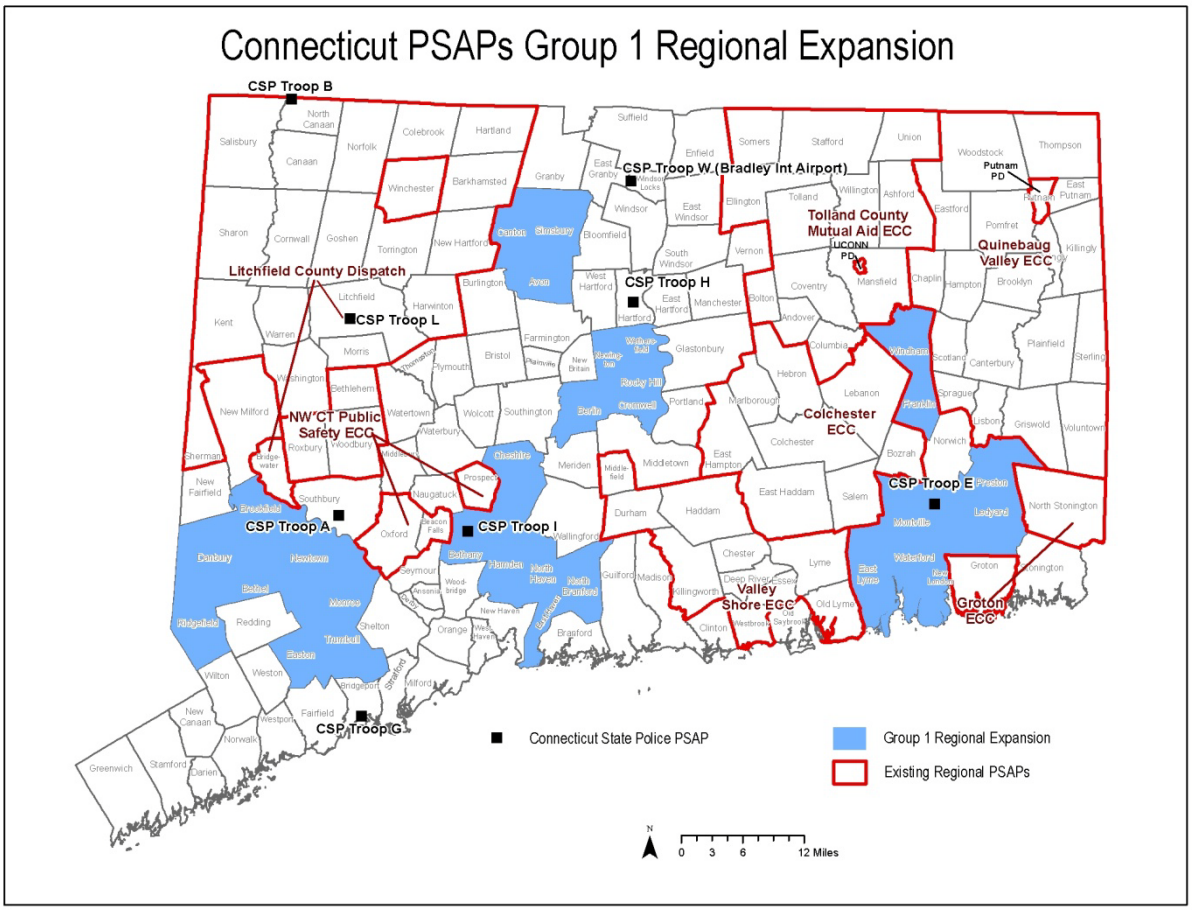

Figure 16 – Group 1 Regionalization Candidates

4.4.9 Group 2 Regionalization Candidates

The Group 1 regions identified previously are unique in that they have recently taken proactive steps to study consolidation or have conducted meetings with other PSAPs to discuss regionalization. Even though a study may have been commissioned or meetings conducted, that does not indicate that all PSAP officials within that group have an interest in consolidation. According to the information L.R. Kimball collected, Group 2 PSAPs differ from Group 1 in that they have not engaged in consolidation discussions, but probably should. These Group 2 PSAPs all handle less than 8,000 9-1-1 calls per year and must incur the expense of operating stand-alone radio systems, CAD platforms, and personnel costs to answer, on average, less than one 9-1-1 call per hour. PSAP officials who manage Group 2 PSAPs routinely cited that the level of personal service provided to their communities is important and did not want to lose this service level in a consolidation. Ironically, a great deal of the services they refer to are actually services performed by field personnel and have nothing to do with emergency communications. Each agency served by a consolidated PSAP still retains control over the type of calls its field personnel handle. The intimate personal knowledge the telecommunicators have regarding the community is somewhat diluted when a consolidation occurs.

However, it is important to remember that it is likely that the telecommunicators from small PSAPs will migrate to a larger regional center, thereby bringing their knowledge with them and will share their information with their new co-workers. This process is much the same as what occurs when a new telecommunicator is hired in a small PSAP and must be appropriately trained. The ability of the telecommunicators in a large PSAP to assimilate a great deal of community specific knowledge should not be underestimated. While community specific knowledge may not be as high as in a small PSAP, it is important to balance this intimate knowledge with the ability to keep up with the ever-changing technology such as NG9-1-1, the benefits to field personnel and communities achieved through regional management and the ever rising costs of supporting a PSAP.

The telecommunicators who staff smaller PSAPs are also routinely tasked with a myriad of administrative duties, such as:

- Answering all incoming calls received at the police or fire department
- Serving as a community information desk to answer citizen questions at any hour of the day
- Monitoring prisoners via closed circuit cameras
- A host of secretarial or clerical duties unrelated to emergency communications

Municipalities often must re-assign these duties in-house or hire additional clerical staff to perform them when emergency communications duties shift elsewhere. Each municipality will need to factor this in when determining the financial feasibility of any consolidation.

Towns within Connecticut must decide whether their local budgets can continue to maintain expensive emergency communications infrastructures to operate a stand-alone PSAP when much of the work done within the PSAP is unrelated to emergency communications. That is precisely why L.R. Kimball has selected these low 9-1-1 call volume PSAPs as Group 2 candidates. In reality, larger emergency communications centers dedicated to fulfill only that mission could easily absorb the workload of one or more of these PSAPs with no problem. It then becomes a question of how Group 2 PSAPs, and the towns they serve, determine what 24/7 administrative/community service duties they actually need to offer or better yet can afford to offer. Fortunately, there are many small Connecticut towns that have made the transition to regionalization and have adapted quite well. There is no better resource for Group 2 PSAPs to seek guidance from than their counterparts that have successfully employed solutions, changed business practices and overcome obstacles to consolidate emergency communications, yet still provide services deemed necessary.

What follows are case studies of a few PSAPs within Group 2. However, these PSAPs are not unlike their counterparts that share similar operational hurdles and could have easily been used as case studies as well. These smaller PSAPs proudly serve their citizens and the dedicated emergency responders they dispatch. Most of these small town PSAPs originated with basic radio capabilities to dispatch local police, fire or ambulance services after receiving a call from a citizen over a 7-digit telephone line. Faced with little operational or technological change in their first two or three decades of existence, the age of computers forced these PSAPs to dramatically upgrade their capabilities during the 1990s and 2000s. Keeping pace and incorporating advancements such as E9-1-1 with ANI/ALI capabilities, logging recorders, CAD, mobile computer interfaces, RMS, and EMD is both technologically and financially daunting. Even state police departments throughout the country struggle to keep pace with the ever-changing technological advancements.

The PSAP operated by the New Fairfield Police Department in western Connecticut serves the 13,881 citizens of New Fairfield within the 25 square miles the town encompasses. The New Fairfield Emergency Communications Center, which received 3,853 9-1-1 calls in 2010, is not interested in consolidation, yet only has one telecommunicator assigned per shift. The New Fairfield Police Department was once much larger but is now down to six full-time constables who work in tandem with the State Police in a resident trooper patrol configuration. As is the case with other towns, New Fairfield has considerable investments in its emergency communications infrastructure and recently completed a $1.2 million upgrade to its radio system. As noted earlier, these costly infrastructure upgrades borne by a single town can be better absorbed by multiple towns that pool their resources. This advice rings true when one considers that the $1.2 million expenditure made by the taxpayers of New Fairfield was needed to support a PSAP that fields less than eleven 9-1-1 emergency calls per day.

Another PSAP within Group 2 that expressed no interest in consolidation is the Derby Police Department PSAP. The City of Derby, with five square miles of land area, is the smallest municipality in Connecticut and has a population of 12,902 residents. The Derby Police Department PSAP handled 5,482 9-1-1 calls in 2010. However, the PSAP only dispatches its own police department. All fire and EMS calls received by the PSAP are transferred to the New Haven CMED for dispatch. The Derby PSAP utilizes police officers to staff its PSAP 24/7 with 26 of the 31 Derby police officers trained to do so. By utilizing police to serve as telecommunicators, Derby taxpayers pay, on average, $12.50 more per hour for PSAP staffing than neighboring Orange, which utilizes civilian telecommunicators. It has been demonstrated countless times throughout the country that a PSAP that handles 15 9-1-1 calls per day and three patrol units per shift can be absorbed into a larger regional communications environment with little operational impact to the larger PSAP. A full list of Group 2 PSAPs is included in Table 15 and is depicted in Figure 17 in gray.

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Table 15 – Regionalization Group 2 Candidates

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume	Avg. Daily 9-1-1 Call Volume
Ansonia Police Department	6,884	574	19
Clinton Police Department	3,878	323	11
Darien Police Department	6,193	516	17
Derby Police Department	5,482	457	15
East Windsor Police Department	4,944	412	14
Glastonbury Police Department	7,623	635	21
Granby Police Department	4,939	412	14
Guilford Emergency Communications	6,572	548	18
Madison Police Department	4,645	387	13
Middlebury Police Department	2,058	172	6
New Canaan Police Department	5,889	491	16
New Fairfield Emergency Communications	3,853	321	11
Old Saybrook Police Department	3,078	257	9
Orange Police Department	6,342	529	18
Plainville Police Department	6,494	541	18
Plymouth Police Department	4,323	360	12
Putnam Police/Fire Communications Center	2,483	207	7
Redding Emergency Communications Center	2,866	239	8
Seymour Police Department	3,639	303	10
South Windsor Police Department	7,066	589	20
Southbury Public Safety	5,692	474	16
Stonington Police Department	6,191	516	17
Suffield Police Department	3,945	329	11
Thomaston Police Department	1,973	164	5
University of Connecticut Police Department	7,751	646	22
Watertown Police Department	7,189	599	20
Weston Communications	3,194	266	9
Wilton Police Department	6,796	566	19
Windsor Locks Police Department	4,241	353	12
Winsted Police Department	3,692	308	10
Wolcott Police Department	5,628	469	16
Woodbridge Police Department	4,130	344	11

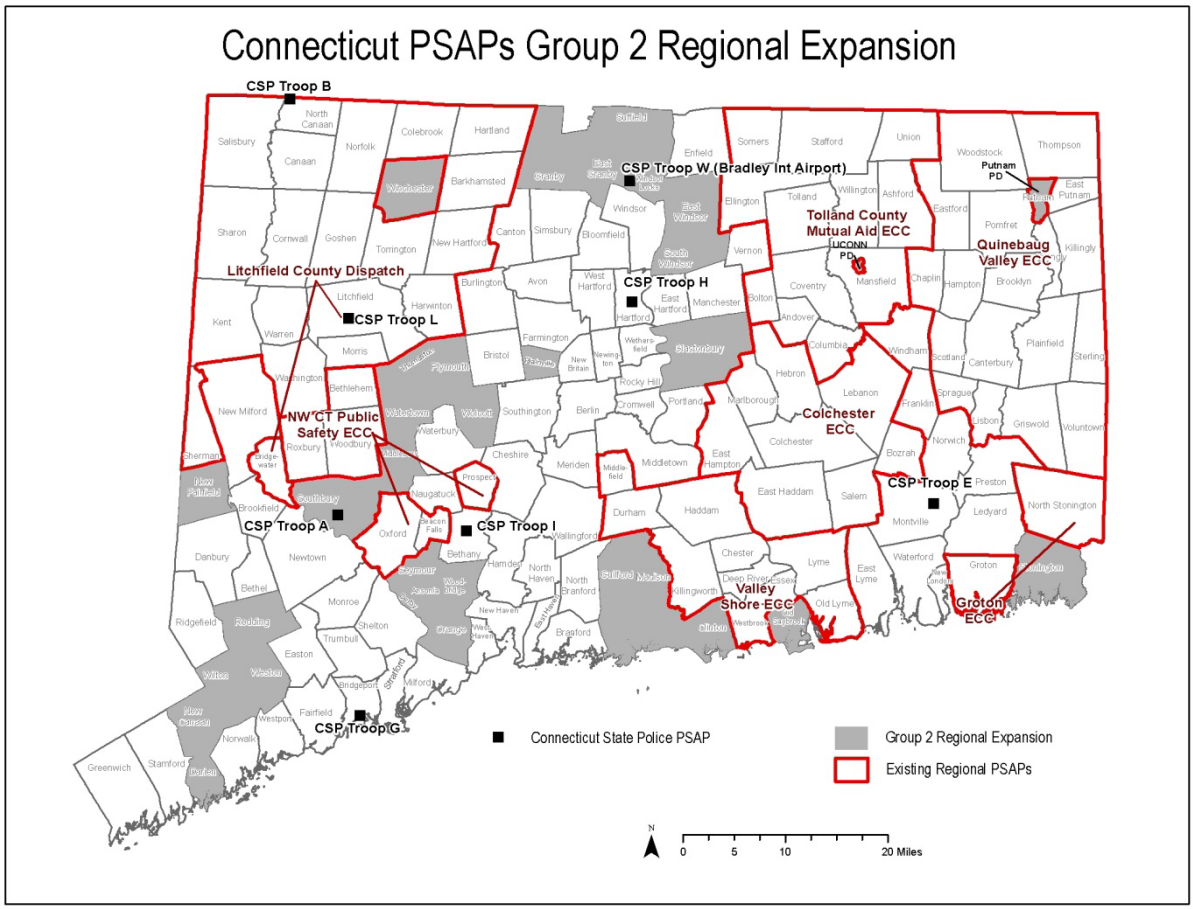

Figure 17 – Group 2 Regionalization Candidates

4.4.10 Group 3 Regionalization Candidates

As is evident in the foregoing sections, interest in consolidation varies greatly. Local concerns about 24/7 community access, ancillary duties performed by telecommunicators, as well as investments made by towns in their emergency communications infrastructure are just some of the reasons cited by PSAP officials as roadblocks to consolidation. In reviewing the OSET map of Connecticut PSAPs, it is evident that there are some towns that have resisted consolidation even though the entire region around them is consolidated. Despite reasons given by PSAP or town officials that resist consolidation, the fact is that Connecticut has an inordinately large number of PSAPs that handle an unusually low number of 9-1-1 calls when compared with PSAPs nationwide. It is often the case in these small 9-1-1 centers that they believe they provide a higher level of service to their community when, paradoxically, they do just the opposite. Transferring calls, outsourcing EMD services, and handling non-emergency calls when emergency calls may be waiting is far from the ideal emergency communications environment.

For example, the York County 9-1-1 Communications Center in south central Pennsylvania is responsible for receiving every 9-1-1 call within a 910 square mile geographic region. With over 434,000 citizens in 72 municipalities within their region, the Communications Center handles approximately 800 calls per day. York County 9-1-1 dispatches 21 police departments, 40 ambulance\paramedic units and 61 fire companies. They handle no walk in traffic, do not have telecommunicators performing clerical duties and, generally, do not take administrative calls that do not require a field response. Professional emergency service agencies should be solely dedicated to receiving calls for emergency services and being responsive to the emergency responders in the field who need their radio communications answered promptly. Those opponents to consolidation in Connecticut need only to look toward examples such as York County and other consolidated centers nationwide as proof that consolidation brings a higher level of emergency services responsiveness, not less.

L.R. Kimball identified 60 PSAPs in Groups 1 and 2 that are strong candidates for regionalization, however, 31 stand-alone or multi-town PSAPS still remain. The York County example was provided above to add perspective because the final group, Group 3, still operates stand-alone or multi-town PSAPs. Yet, not one of the Group 3 PSAPs handles half the annual 9-1-1 call volume or dispatch the number of emergency resources that York County 9-1-1 Communications Center does. This example does not imply that York County Emergency Communications is superior, rather, it demonstrates how efficiently and effectively an emergency communications center can operate when its sole function is to take emergency 9-1-1 calls, document the incidents and dispatch emergency responders. An analogy that is often employed by emergency communications professionals throughout the country brings perspective to the non public safety layman. Imagine the emergency room at your local hospital in which the doctors and nurses are tasked to answer all incoming calls to the hospital, greet visitors coming into the main desk, monitor all the equipment in the intensive care unit, input patient records and billing, take care of filing and perform all the internal and external paging for the hospital. This analogy may be drastic, but it illustrates the point that, when an emergency occurs, the undivided focus of the individual addressing the emergency is paramount. Citizens and emergency responders should expect nothing less from the emergency communications centers that serve them. The remaining PSAPs that comprise Group 3 are listed in Table 16 and are depicted as yellow in Figure 18.

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Table 16 – Regionalization Group 3 Candidates

PSAP	2010 9-1-1 Call Volume	Avg. Monthly 9-1-1 Call Volume	Avg. Daily 9-1-1 Call Volume
Bloomfield Police Department	12,246	1,021	34
Branford Police Department	9,790	816	27
Bridgeport Emergency Communications Center	118,472	9,873	329
Bristol Police Department	23,441	1,953	65
East Hartford Police Department	23,046	1,921	64
Enfield Public Safety Communications Center	12,704	1,059	35
Fairfield Emergency Communications	17,745	1,479	49
Farmington Police Department	12,281	1,023	34
Greenwich Police Department	23,474	1,956	65
Hartford Emergency Communications Center	139,842	11,654	388
Manchester Police Department	22,657	1,888	63
Meriden Fire and Emergency Services	24,215	2,018	67
Middletown Central Communications	23,113	1,926	64
Milford Fire Department	17,345	1,445	48
Naugatuck Police Department	8,840	737	25
New Britain ERC	43,408	3,617	121
New Haven Emergency Communications Center	117,815	9,818	327
New Milford Police Department	9,042	754	25
Norwalk Police Department	34,718	2,893	96
Norwich Police Department	21,825	1,819	61
Shelton Police Department	11,353	946	32
Southington Police Department	11,542	962	32
Stamford Emergency Communications Center	64,969	5,414	180
Stratford Emergency Communications Center	21,605	1,800	60
Vernon Police Department	10,233	853	28
Wallingford Police Department	12,779	1,065	35
Waterbury Police Department	66,215	5,518	184
West Hartford Police Department	21,028	1,752	58
West Haven E.R.S. 9-1-1 Center	29,032	2,419	81
Westport Police Department	10,390	866	29
Windsor Police Department	9,573	798	27

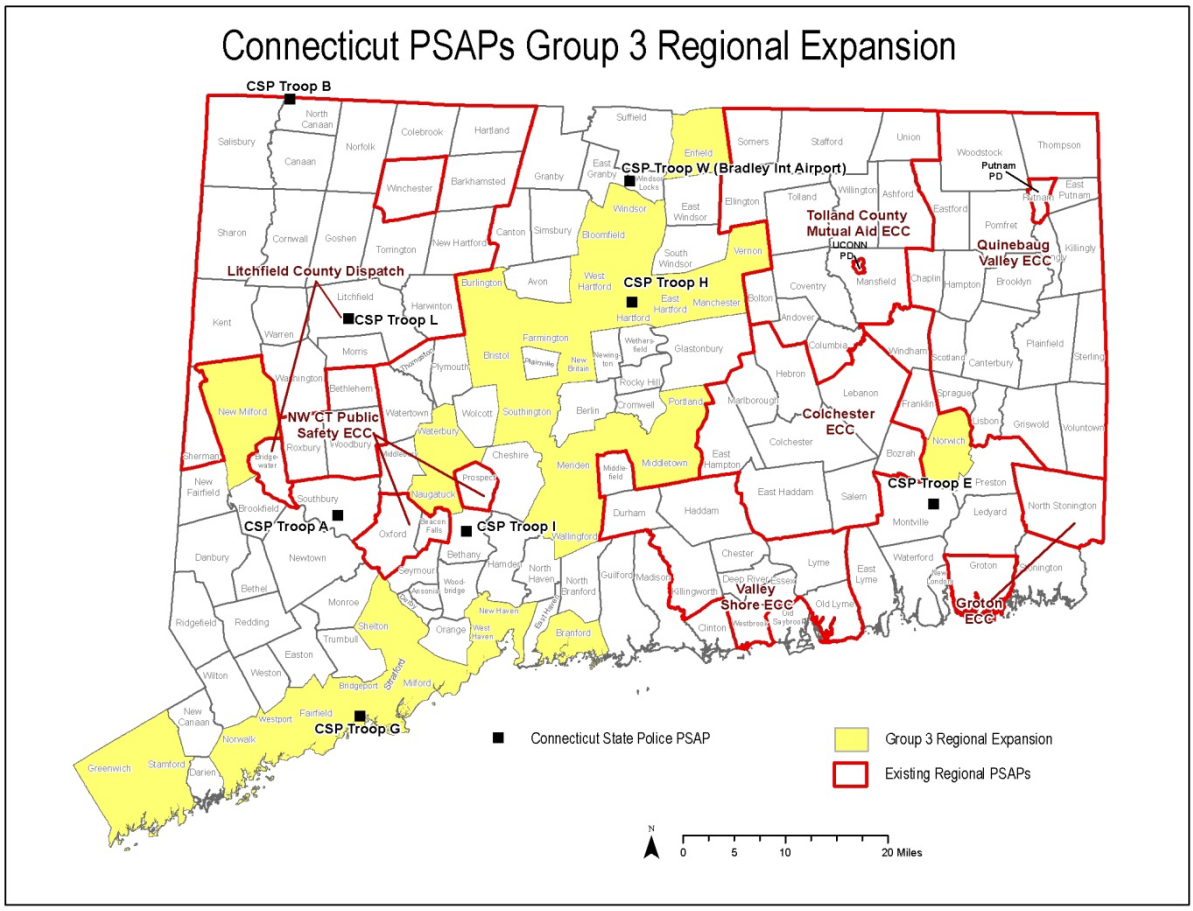

Figure 18 – Group 3 Regionalization Candidates

4.4.11 Statewide Grouping Summary Map

Figure 19 displays each of the groupings discussed in Section 4 along with the existing regional centers outlined in red.

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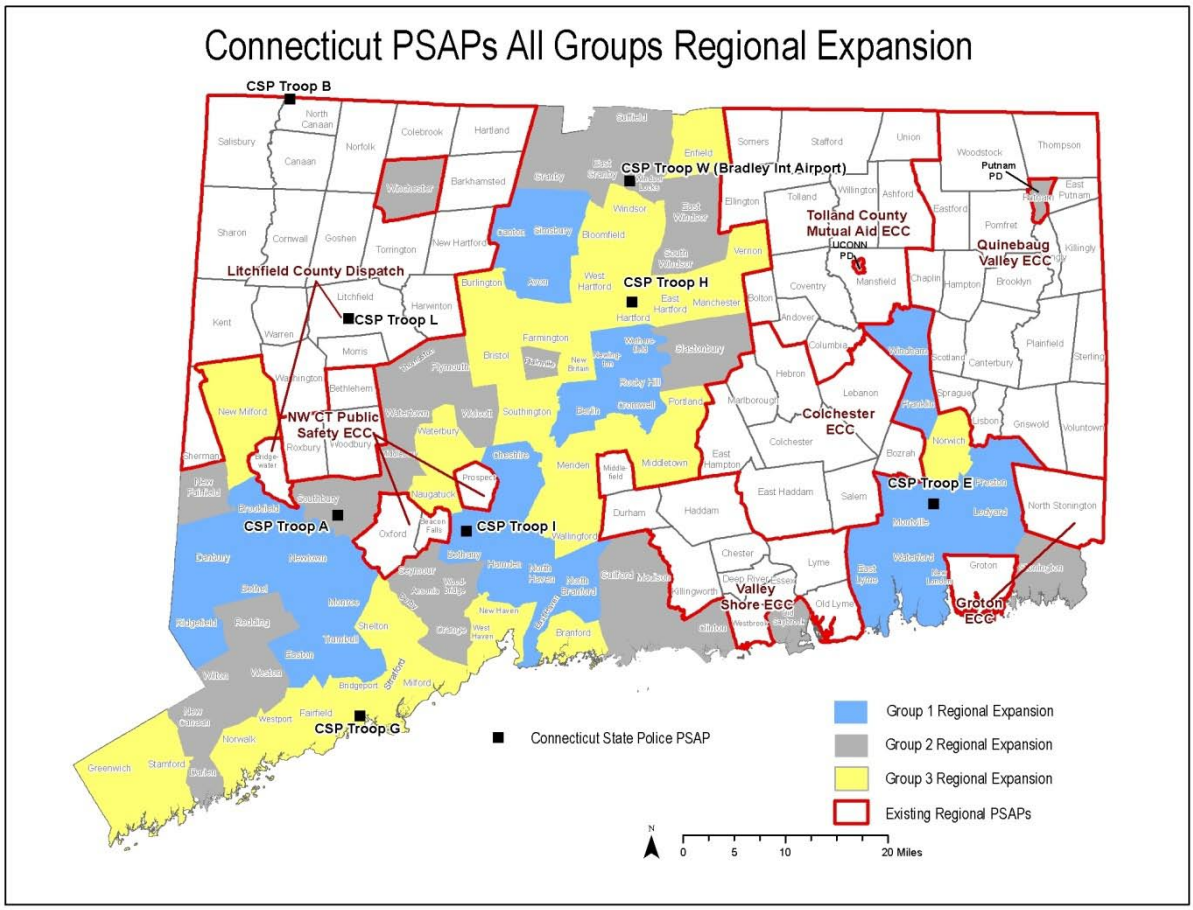

Figure 19 – Three PSAP Model 2010 9-1-1 Call Distribution

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5. FUNDING

The primary focus of the funding aspect of this study is to assess the manner in which the State currently provides funding to PSAPs for regionalization and to develop specific recommendations for how the State could provide further incentive and assistance to local governments that seek to consolidate/regionalize the delivery of 9-1-1 and dispatch services. All other funding provisions were also reviewed.

Over the past several years, Connecticut's 9-1-1 revenues have declined – due in part to a shift in consumer communications technology preferences from landline services to mobile services. There is a need to reexamine existing funding provisions to ensure that all funding provided to PSAPs is used to its best advantage – particularly with regard to regionalization and other statewide initiatives. Thus, in the interest of adequately funding its existing regionalized communication centers, supporting new regionalization initiatives and ensuring it can meet all its statewide obligations and initiatives within expected revenue levels, OSET asked L.R. Kimball to examine the current funding formulas and make recommendations to ensure fairness across the board and to appropriately incentivize the regionalization that is essential to the continued fiscal health of the statewide system.

The next sections set forth L.R. Kimball's methods, findings, analysis and actionable recommendations.

5.1 Methodology

L.R. Kimball approached the task by first reviewing OSET's current 9-1-1 funding methodology for regional dispatch centers and for municipalities transitioning to new regional dispatch centers. Subsequently, other aspects of OSET's funding program were examined. These activities included a review of the statutory funding provisions as well as OSET's regulations. Additionally, OSET staff provided information and PSAPs offered their input during the site visits. With the understanding thereby gained, L.R. Kimball analyzed Connecticut's funding provisions to effectively promote and support additional consolidation/regionalization of PSAPs.

L.R. Kimball's analysis also drew upon staff's industry knowledge of how other states incentivize and support regionalization initiatives. The purpose of this exercise was to see how Connecticut compared with other states and whether others have approaches that might be useful to Connecticut. Since the primary thrust of the study was regionalization, L.R. Kimball focused first on the New England states and then on states that have statutory consolidation or regionalization requirements, or incentive programs, or both. L.R. Kimball categorized the typical approaches, understanding there are variations in actual practice. L.R. Kimball eliminated categories that represented, in our estimation, either a step backward for Connecticut or a policy that would not be prudent to spend energy pursuing. From among the states, L.R. Kimball identified two examples of implemented concepts thought to be useful to Connecticut.

L.R. Kimball also considered state 9-1-1 fund distribution methods in general – apart from consolidation/ regionalization incentives. 9-1-1 is funded only at the local level in approximately one-third of the United States; L.R. Kimball eliminated these from consideration as irrelevant to Connecticut's situation. L.R. Kimball categorized the typical approaches to fund distribution, again understanding there are variations within them. L.R. Kimball examined states that use a formula approach similar to Connecticut's to see whether any had similar populations and

numbers of PSAPs: there were none. Again, L.R. Kimball selected example states whose approach to fund distribution formulas might be useful.

5.2 Findings

Connecticut's revenue for E9-1-1 is generated by a surcharge on all landline, CMRS, prepaid wireless, VoIP and multi line telephone services. The surcharge rate is currently capped at $.50 per line. The funds are used to pay for E9-1-1 system costs, including PSAP CPE and enhancements thereto (a separate budget line item that includes GIS data and ENS), network backbone, selective router and ALI database. OSET provides the call handling CPE and connectivity to the statewide E9-1-1 network and ALI databases for all PSAPs. The majority of PSAPs receive no annual subsidies. PSAPs that receive subsidies fall into three categories: municipalities with populations of 40,000 or greater, multi-town PSAPs and regional PSAPs. OSET also funds the State Police and provides a service credit to municipalities for CMED services. OSET's funding program comprises an array of subsidies and grants.

Three of the six New England[3] states have provisions for consolidation or regionalization: Maine, Massachusetts and Connecticut. Maine has a statutory mandate for consolidation, but does not provide any funding for it. Connecticut and Massachusetts actively promote and fund consolidation through a targeted grant program authorized by statute even though there is no explicit statutory mandate requiring consolidation.

Based on L.R. Kimball's assessment of state consolidation provisions, it was determined that they fall into four broad categories:

1. PSAP consolidation is encouraged as a matter of public policy, but no formal provisions have been made.
2. Consolidation is not mandated in statute although the statute establishes specific funding provisions to support it.
3. Consolidation is mandated in statute and no funding is provided.
4. Consolidation is mandated in statute with a specific limit to the number of PSAPs.[4]

Categories 1, 3 and 4 were eliminated from further analysis as being not germane to the exercise. Two states were identified within category 2 as having provisions that L.R. Kimball thought might be helpful to Connecticut: Massachusetts and North Carolina. Those are discussed in the analysis and recommendations subsection below.

As indicated earlier, states in which 9-1-1 is funded at the local level are not relevant to this study. Of the states in which the state distributes funding to local governments or PSAPs, fund distribution methods fall into three main categories, although there are variations within a category:

1. Funds are distributed based on local plans/budgets approved by the state.
2. Funds are distributed as grants.
3. Funds are distributed using a formula.

[3] The New England states (and the state of Delaware) are unique among the 50 states in their approach to providing 9-1-1 service; they all provide statewide 9-1-1 at the state level through a service contract in which the state is the customer of record.
[4] Historically, neither of the two states identified as being in this category has provided funding to support the mandate.

Categories 1 and 2 were eliminated from further consideration as representing approaches so different from Connecticut's that meaningful analysis would not be possible. L.R. Kimball focused, therefore, on Category 3 because it provided the most useful comparison for potentially improving Connecticut's approach. There were two good programmatic examples in the category L.R. Kimball determined were most relevant to this study: Massachusetts and North Carolina. These are discussed in the analysis and recommendations subsection below.

5.2.1 PSAP Subsidization Program

The PSAP subsidization program is authorized in §28-24 (a)(2)(B) of the Connecticut General Statutes and implemented by §28-24-3 of OSET's regulations.

At the time this report was compiled, there were seven regional PSAPs serving 81 member municipalities[5], nine multi-town PSAPs[6], and 21 municipalities receiving enhanced subsidies based on the 40,000 population threshold established by statute. Sixty towns operate stand-alone PSAPs and do not qualify for the population-based subsidy.

The entities eligible for subsidies receive them in equal quarterly payments. The formula used to calculate the subsidies is expressed as

t = ((p*n) *(c1 c2))*b

t is the subsidy payment

p is the aggregate population based on the most recent population figures from the Department of Public Health

n is the percent above the state median number of 9-1-1 calls received, the value of which cannot be less than 1

c1 is a variable based on the number of municipalities[7] a PSAP serves multiplied by .2

c2 is a variable based on the number of emergency services dispatched for each municipality a PSAP serves, i.e., .025 for one service, .5 for two and 1 for all three (police, fire and emergency medical services). The maximum emergency service count is 1. The regional PSAPs are all at the maximum count of 1. The funded cities may be at a fraction of 1 if their PSAPs do not dispatch for all three services (because they continue to operate a secondary PSAP. See below).

b is the funding base, currently $2.034

The funding model is the same for regional and multi-town PSAPs. At the time this report was compiled, 4 of the 21 funded municipalities (those with populations of 40,000 or more) had a sanction imposed upon them in the form of reduced funding because they continue to operate secondary PSAPs. Likewise, multi-town PSAPs that still utilize a secondary PSAP are also sanctioned. The sanction is a reduction of .25 in the full service value of 1.0 for each year

[5] The count includes 6 boroughs and 1 municipal subdivision
[6] Connecticut defines a "multi-town PSAP" as one that serves two municipalities.
[7] For the purpose of the formula, the term "municipalities" includes boroughs. Boroughs are incorporated municipal subdivisions.

they continue to operate secondary PSAPs until it reaches zero, which effectively results in a nominal funding level. The intent of the sanction is to encourage consolidation and thereby become eligible to receive full funding credit.

The regulations provide for accountability, including the following requirements:

- Regional and multi-town PSAPS must establish representative boards and formal, contractual service agreements
- Regional and multi-town PSAPs must have a chief administrative officer and a chief financial officer, the latter of which is required to give a $500,000 surety bond
- No later than January 31 of each year, subsidized entities must report to OSET their operating budgets for the upcoming fiscal year, their expenditures of state funds during the previous fiscal year, and other information necessary for the prudent operation of the statewide E9-1-1 system
- They must be audited in accordance with Sections 4-230 and 4-236 of the Connecticut General Statutes

5.2.2 Transition Grant Program

The transition grant program is authorized in §28-24 (a)(2)(C) of the Connecticut General Statutes and implemented by §28-24-5 of the Regulations of Connecticut State Agencies.

This program enables municipalities to apply for a grant to reimburse up to $250,000 of expenses related to transitioning existing services to an approved multi-jurisdiction PSAP. The grant covers non-recurring costs associated with relocating existing emergency telecommunications systems to a regional or multi-town PSAP and/or adding functionality to the regional/multi-town PSAP, and includes radio systems. The program also provides a small $15,000 grant for two municipalities to study, plan and design a multi-town or regional service model, and another $5,000 for each additional municipality that participates. OSET provides an application form and guidelines.

The program has awarded small amounts for municipalities to study consolidation, but there have been no full transition grant awards in recent years with the exception of a transition grant to the City of Torrington that was awarded while this report was being compiled.

Accountability is established by the provision that requires grant recipients to be audited in accordance with Sections 4-230 and 4-236 of the Connecticut General Statutes. Additionally, any municipality that receives a transition grant and relocates to a stand-alone PSAP or relocates again within two years to another regional or multi-town PSAP is required to return the funds to the State.

5.2.3 Regional Emergency Telecommunications Service Credit

Coordinated medical emergency direction is required in Connecticut. Entities that provide CMED services must be authorized to do so by the Connecticut Office of Emergency Medical Services in the Department of Health; some, but not all of them are PSAPs. The statute requires OSET to pay $0.30 per capita to the towns to help them pay for CMED services. OSET's implementing regulation is Section 28-24-7.

Prior to April 1st of each year, municipalities are required to notify OSET which CMED should receive its credit. OSET sends the service credit directly to the CMED.

5.2.4 State Police Subsidy

Funding for PSAPs operated by the Connecticut State Police is provided by section 28-24-13 of OSET's regulations. Each of the eight State Police dispatch centers receives $1.00 for each 9-1-1 call it received in the prior calendar year.

Accountability exists through the general requirement of section 28-24-3(i), which states that any entity receiving a subsidy or grant must be audited pursuant to sections 4-230 through 4-236 or the Connecticut General Statutes.

5.3 Analysis and Recommendations

L.R. Kimball's analysis drew upon its industry knowledge of other states. Few states incentivize consolidation, including some of those with statutory consolidation mandates.

5.3.1 PSAP Subsidization Program

In Connecticut, there are three components to the PSAP subsidization program: regional PSAPs, multi-town PSAPs, and PSAPs serving municipalities with populations greater than 40,000. The formula is the same for all of them and funding is reduced if they continue to operate a secondary PSAP.

5.3.1.1 Analysis of Funding in Support of Regional PSAPs

The formula in support of regional PSAPs has an inherent bias built in: even if the population served is roughly equal, regional PSAPs with more towns are funded at a significantly higher level than regional PSAPs with fewer towns. For example, regional PSAP A serves eight municipalities[8] with a population of 67,267 and is budgeted to receive $357,923.94 in FY 10-11. Regional PSAP B serves 21 municipalities[9] with a roughly equivalent population of 62,213 and is budgeted to receive $658,014.46 in FY 10-11. Although regional PSAP B serves about 5,000 people less than regional PSAP A, it receives $300,090.52 more than PSAP A. The c1 variable is the factor that causes this funding disparity.

The concern L.R. Kimball heard is whether the dramatic difference in funding is appropriate or fair for PSAPs that are otherwise equivalent in call volume and population served. There is a case to be made that a regional PSAP serving more towns has greater responsibility and increased operational complexity, although the impact is not as great as one might think. While the number of municipalities increases the number of dispatchable resources, it is not the number of towns and dispatchable resources that determine how busy a PSAP is; call volume and the number of resulting dispatches are what determine how busy a PSAP is. Still, it is good policy to provide regional PSAPs with additional funding. It is the dramatically disproportionate level of funding that becomes the focus.

The monetary value placed on the number of towns served seems disproportional to the workload, particularly when compared with a funded municipality that serves a population similar to what a regional PSAP serves. Consider the following table, which presents four funded cities, taking particular note of the call volume variable and level of funding.

[8] Eight municipalities and one partial municipality, which is reflected in the formula.
[9] The count includes two boroughs even though their populations must be counted as zero because their populations are included in the town total.

Table 17 – Comparison of Four Funded Cities

City	Population	9-1-1 Calls	9-1-1 Variable	Funding
Hartford	124,062	139,842	2.53	$702,268
New Haven	123,669	117,815	1.97	$545,093
Waterbury	107,037	66,215	1.00	$239,484
Greenwich	61,937	23,474	1.00	$138,577

Next, the following table extracts two of these cities and compares them with two similarly-sized regional PSAPs.

Table 18 – Comparison of Two Funded Cities with Two Regional PSAPs

City/Region	PSAP Type	Population	9-1-1 Calls	9-1-1 Variable	Funding
Waterbury	City	107,037	66,215	1.00	$239,484
Quinebaug	Regional	103,633	34,959	1.00	$981,014
Greenwich	City	61,937	23,474	1.00	$138,577
Litchfield	Regional	62,213	17,090	1.00	$658,014

L.R. Kimball completely agrees with the concept of providing monetary incentives for regional operations, provided those incentives are calculated and distributed equitably. A comparison with Massachusetts and North Carolina may be useful, because, while there are similarities, there are differences that enable those states to have greater control over the level of funding provided.

5.3.2 Analysis of Selected States' Consolidation/Regionalization Funding Provisions

5.3.2.1 Massachusetts

In addition to a basic support subsidy provided to all primary PSAPs, regional PSAPs, regional emergency communication centers and secondary PSAPs, Massachusetts provides additional funding to regional PSAPs, regional emergency communication centers through an incentive grant program. Massachusetts has categorized regional PSAPs based on the number of municipalities served into what are called "pools."[10] The incentive grant program allocates a statutorily mandated percentage of the prior fiscal year's surcharge revenues to each pool:

- Regional PSAPs serving two municipalities.

[10] This is the same concept used to grade students; it is called "bracketing." The bracket for grade A includes the range of scores from 100 to 96; the bracket for grade B+ includes the range of scores from 95 to 91, and so on. The concept is also applied in states that sort counties into "classes" of groups based on population range; a maximum 9-1-1 surcharge rate is established in statute for each class or population category.

- Regional PSAPs serving three to nine municipalities.
- Regional PSAPs serving ten or more municipalities.
- Regional emergency communication centers.[11]

The surcharge revenues allocated to each pool is distributed to the PSAPs in the pool based on their individual call volume and population. Call volume for each PSAP is calculated as a percentage of the state's total call volume. The population served by each PSAP is calculated as a percentage of the state's total population. These two percentages are added together and then averaged and on that basis incentive funding is awarded.

There is significant flexibility built into this funding model. The grant award is based on the prior year's actual revenues, so the amount the PSAPs receive adjusts annually even though the relative percentages remain the same. In addition, the Massachusetts 9-1-1 Department has the authority, with the approval of the 9-1-1 Commission, to adjust the percentage within certain statutory parameters.

For municipalities considering consolidation, Massachusetts funds feasibility studies to determine the costs and benefits of developing, starting up, or expanding a regional PSAP or a regional emergency communications center. The funding application for the study requires a formal notice from at least one additional municipality or governmental body stating that it is participating with the applicant in the study. The State 9-1-1 Department recommends that feasibility studies include specific topics. A copy of the completed study report must be submitted to the State 9-1-1 Department.

Award is conditioned upon the receipt of a formal, binding written agreement executed by some portion of the participating municipalities/governmental bodies. Any party that withdraws from a consolidation or regionalization agreement may be penalized: the State 9-1-1 Department may withhold funding for which the withdrawing entity would otherwise be eligible; it may also require the withdrawing entity to seek department approval before entering into any future regional agreements.

Massachusetts does not set any minimum or maximum funding level for feasibility studies or facility construction or improvement. Applicants prepare project budgets for each phase of the project along with the overall project cost. The department executes contracts with its grantees, and once all award conditions have been satisfied, the grantee can begin to incur costs and seek reimbursement.

5.3.2.2 North Carolina

Like Connecticut and Massachusetts, North Carolina's 9-1-1 statute does not mandate consolidation, but the statute does require the state 9-1-1 program to provide grant funding to support such initiatives.

[11] In Massachusetts, the difference between a regional PSAP and a regional emergency communications center is dispatching. To be a regional emergency communications center, the agency must provide enhanced 9-1-1 call taking, call transfer *and* dispatch services to its member municipalities/governmental bodies. To be a regional PSAP, the agency must provide enhanced 9-1-1 call taking and call transfer services to all its member municipalities/governmental bodies, but may or may not provide dispatching services to some of them. If a regional PSAP provides dispatching services to all its members, then it is defined as a regional emergency communications center.

North Carolina allocates a portion of its revenues to its grant program after it has met other statutory distribution obligations.[12] The purpose of the consolidation grant program is to incentivize consolidation by offering grant funding for costs allowable under the statute and for costs that are not allowable under the statute, such as construction costs and other costs unique to consolidation initiatives. The grants are targeted toward PSAPs in rural and other high-cost areas based on demonstrated need. The state has not established a maximum amount for these grants.

What L.R. Kimball considered potentially useful about their approach has to do with the level of commitment required of applicants. North Carolina requires applicants to meet two prerequisites before submitting an application:

- The local governments responsible for the PSAPs involved must provide executed interlocal agreements agreeing to consolidation
- A governance plan must be submitted with the application that addresses a number of very specific points

Although the state does not list this as a prerequisite, as a practical matter it is: local governments must have conducted a consolidation project feasibility study prior to moving forward with an actual consolidation. The state will fund the study.

Finally, one of the primary PSAPs participating in the consolidation or regionalization project is required to be the host applicant and to serve as the fiscal agent responsible for all grant requirements such as reports, fund control and accounting, and distribution and control of equipment purchased with the grant. Grantees are prohibited from supplanting general funds allocated for consolidation with grant funds.

5.3.3 Analysis of Selected States' Funding Distribution Provisions

Just as earlier described, L.R. Kimball's focus was on state distribution models that employ a formula for distributing funds. This provides the most useful comparison for potentially improving Connecticut's approach. Again, Massachusetts and North Carolina were selected as good programs for further analysis.

Few states factor call volume into their funding distribution formulas. The huge operational impact of wireless calls is becoming a problem for PSAPs, whose call volumes from wireless calls is disproportionately higher than the resident population. At least one state that distributes funds based on a formula is taking steps to determine the feasibility of adding call volume to their distribution formula, as Connecticut does, to compensate PSAPs that experience numerically disproportionate call volumes associated with seasonal nonresidential populations or major highways.

5.3.3.1 Massachusetts

In Massachusetts, all primary, regional, regional emergency communications centers and secondary PSAPs are eligible for basic support funding, which is provided through a grant program. A portion of the total surcharge revenues of the previous fiscal year are set aside for basic support. The funds are distributed using a formula that weighs both 9-1-1 call volume and population served. As previously noted, call volume for each PSAP is calculated as a percentage of the state's total call volume and the population served by each PSAP is calculated as a percentage of the state's total population. These two percentages are added together and then averaged; on that

[12] For example, cost recovery for CMRS providers and a mandatory base funding level for all PSAPs, which comes off the top of the revenues.

basis a PSAP's distribution is made. The state E9-1-1 commission has statutory authority to approve a different formula.

The state is required to inform PSAPs in advance of the level of funding that has been allocated to them. PSAPs must provide the state with a summary budget for authorized expenses. Basic support funding is provided as reimbursement of expenditures already incurred. Documentation has to be provided along with the required forms requesting reimbursement.

An additional amount is allocated for primary PSAPs that dispatch all three services; the amount is divided by the number of eligible PSAPs and they each receive an identical amount. This "equal share" component is a common feature of state distribution models.

Massachusetts is one of very few states that consider call volume in the funding formula, and in this regard validates Connecticut's approach.

5.3.3.2 North Carolina

In North Carolina, 50 percent of the funds allocated for distribution to PSAPs is divided equally among eligible PSAPs, with payment made monthly only to PSAPs that are in compliance with the state's requirements. The remaining 50 percent of funds allocated for distribution is distributed pro rata to eligible and compliant PSAPs based on population.

First, though, a guaranteed base level of funding for each PSAP is taken off the top. The base level is the amount the PSAP received in the fiscal year ending June 30, 2007.[13] The state 9-1-1 board is required by law to establish a formula to determine each PSAP's base amount and in doing so to ensure that the distribution is equitable and sustainable and covers anticipated eligible operating costs. The 9-1-1 board has the authority to annually change the funding formula for the base amount. The funding formula has to take into consideration the following:

- The population of the PSAP service area.
- PSAP reports and budgets, disbursement histories and historical costs.[14]
- PSAP operations and technologies, compliance with the 9-1-1 board's operating standards, and the level of service the PSAP delivers.[15]
- The tier designation of the county in which the PSAP is located.[16]
- Any inter-local government funding agreement between a primary PSAP and a secondary PSAP
- Any other information the board considers relevant

If the board should change the formula, it is required to provide several legislative committees with a report describing the differences between the previous formula and the new one, and projecting the distributions to each PSAP from the new formula.

[13] That was the year county surcharge authority ended and was replaced by a single statewide surcharge.
[14] PSAPs are required by law to provide the state 9-1-1 board with any budgetary or other financial information it requests.
[15] Whether the PSAP dispatches fire, emergency medical services, law enforcement, and provides EMD.
[16] Economically distressed counties are categorized by law into tiers depending on the level or degree of distress

In the first quarter of each fiscal year, the board must determine whether payments to PSAPs during the preceding fiscal year exceeded or were less than the eligible costs incurred by the PSAP during that year. If a PSAP received less than its eligible costs that fiscal year, the board has the authority to increase the PSAP's distribution in the following fiscal year above the base amount to meet the estimated eligible costs of the PSAP. The board is prohibited from distributing less than the base amount to each PSAP except as previously described. PSAPs may request the board to reconsider its distribution or eligible expenses.

The board has authority to suspend distributions until the PSAP comes back into compliance with the requirements of applicable statutes, rules, and the board's standards,

There are three aspects to how things are done in North Carolina that L.R. Kimball think might be beneficial for Connecticut to consider. First is the board's ability to change the formula annually based on documented financial information and need so that a PSAP is not over or under funded. The second is that a PSAP's eligibility for funding is tied to compliance with the law and the board's standards. The third is the board's ability to suspend PSAP fund distributions if the PSAP is not in compliance.

5.3.3.3 Recommendations for Funding in Support of Regional PSAPs

L.R. Kimball begins with one universal recommendation: Stop counting boroughs and municipal subdivisions as though they were municipalities in the funding formula. This exacerbates the disparity. Eliminating boroughs and municipal subdivision from the count of municipalities would have a significant impact only on Groton ECC, but not on any of the other regional communication centers.

After considering several options, including simply eliminating the c1 variable altogether, L.R. Kimball recommends grouping similarly situated agencies together in a bracket or pool. As noted in the footnote to that discussion, this technique is employed by professional testing companies throughout the United States and places individuals whose grades or scores are statistically similar into the same bracket. If the regulation were changed to give OSET the flexibility to determine the value or level of funding applied to each bracket within legislatively-set parameters, it would reduce the funding disparity that exists solely because of the number of towns served.

L.R. Kimball recommends phasing in this change over several annual budget cycles to give the agencies time to budget for the reduction in state funding.

If OSET were to adopt this recommendation, then the statute and regulation would need to be changed.

5.3.4 Analysis of Funding for Multi-town PSAPs

The funding formula for multi-town PSAPs provides a small incentive for two stand-alone PSAPs to consolidate. For the municipalities, it makes service delivery more efficient and may reduce their overall costs. For the state, it reduces the amount of equipment and circuits the state must support. If the towns in a multi-town PSAP operate a secondary PSAP, their funding is reduced annually until the level is nominal. The intent is to encourage the municipalities' PSAPs to dispatch for all the emergency services within the member municipalities.

5.3.4.1 Recommendation for Funding Multi-town PSAPs

L.R. Kimball recommends OSET meld its current multi-town PSAP provision into the recommended bracket model, rather than keeping it separate. This change, if implemented, would not substantively alter the outcome (reducing the number of PSAPs overall and encouraging full service PSAPs), but would streamline the funding program. The change can be made through regulation; it would not require a statutory change.

5.3.4.2 Analysis of Funding for Municipalities with Populations Greater Than 40,000

Funding for regional PSAPs is higher than that provided to funded municipalities with similar populations, even though the number of 9-1-1 calls – and commensurately the number of dispatches – is significantly higher for the funded municipality. The requirement to fund these types of municipalities is set in statute, but the formula is set by regulation. In the interest of incentivizing regionalization and regional operations, L.R. Kimball does not have a particular issue with this situation. Changing the funding model for regional PSAPs would lessen the disparity.

5.3.4.3 Funding Recommendation for Municipalities with Populations Greater Than 40,000

No specific recommendation for change regarding the funded municipalities is made. The overarching goal of this review of Connecticut's funding provisions is to identify ways to continue incentivizing existing regional PSAPs while freeing up funds for new regional PSAPs. There appears to be no need to change the law with regard to the funded municipalities.

5.3.4.4 Analysis of Transition Grant Funding for Regionalization

Connecticut's provisions for incentivizing consolidation are consistent with other states that support consolidation or regionalization initiatives.

As previously noted, this grant program has two parts; one for studies and one for the expenses incurred in an actual regionalization initiative. The state understands that its transition grants for consolidation studies may not fund the full cost of a study. That said, it is fair to keep the amount relatively small and require municipalities to match the grant with funds of their own. If no consolidation steps are taken beyond that, the State would not have invested a lot of its resources in an initiative that did not produce the intended result.

Grant awards are based on a municipality's actual expenses incurred in the transition to a regional PSAP – up to a maximum of $250,000. This provision seems appropriate. There had not been any of these grants in the past five years until the City of Torrington applied for and received a grant while this report was being compiled.

5.3.4.5 Recommendation for Transition Grant Funding for Regionalization

L.R. Kimball recommends the State consider providing supplemental funding in years two and three as a way to augment costs in those critical first three growth years. For instance, an additional $100,000 in year two and $50,000 in year three would not only help defray startup expenses, it would also serve to bridge the period until actual budgetary savings are realized by towns that recently regionalized. Revenue to fund these additional incentives can be obtained through alterations to the existing state funding model and through sanctions.

5.3.5 Analysis of Regional Emergency Telecommunications Service Credit

As previously reported, Connecticut statute requires coordinated medical emergency direction. This requirement is met through 13 CMEDs whose purpose is to serve as communication control points between EMS responders and hospital emergency departments within the CMED's region. The service is funded in part through the 9-1-1 fund at the statutorily mandated rate of $0.30 per capita of the municipalities a CMED serves. OSET provides this credit to municipalities regardless of whether a municipality's PSAP is a CMED or not.

5.3.5.1 Recommendation for Regional Emergency Telecommunications Service Credit

L.R. Kimball does not recommend changing this provision at this time. However, it appears (based on the review of OSET's implementing regulation) that the recipients are not held accountable for their use of this credit by being required to report their actual 9-1-1 related costs against the funding received. L.R. Kimball recommends that OSET require an accounting, and have the ability to adjust the level of funding to meet legitimate 9-1-1 related expenses.

The statute should be changed to provide that authority to OSET.

5.3.6 Analysis of State Police Subsidy

The Connecticut State Police are funded in a manner different from all other PSAPs in the state. The 9-1-1 service provider verifies the number of 9-1-1 calls the State Police received in the previous calendar year, and a subsidy is provided at $1.00 per call. The requirement to subsidize the State Police is not statutory, but OSET has set this level of funding in its regulations. This provision exists because the State Police field a significant portion of all wireless 9-1-1 calls, and those calls are not linked to a population served. This was seen as the fairest way to compensate them for their important service. To L.R. Kimball's knowledge, Connecticut is the only state that funds the State Police in this manner.

5.3.6.1 Recommendation for State Police Subsidy

Leaving the provision as it is for the time being is recommended, although as with all other provisions, it should be reexamined periodically. When and if such a re-examination should occur, L.R. Kimball recommends that OSET not tie itself to a specific dollar amount, but give itself flexibility to adjust that amount annually based on its overall revenue situation.

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6. SUMMARY

6.1 Current Environment

Analysis of current conditions has led to the following general conclusions:

- Consolidation is operationally, technologically, and politically feasible. Stakeholders made it known that consolidation should be considered only if it will improve services.
- Service delivery is not consistent from PSAP to PSAP, particularly regarding EMD, which is not always provided consistently and sometimes is not provided at all.
- Some PSAPs provide a strong and effective level of service, but in 40 PSAPs service levels are reduced by the transfer 9-1-1 calls necessary to dispatch the appropriate emergency response agency.
- About 50 percent of PSAPs have a 9-1-1 call volume so low that equipping them is not cost effective.
- Regionalization would improve service levels statewide.
- Since the State Police is such a significant part of the state's emergency communications system, joint planning between OSET, the local PSAPs and the State Police, would be beneficial.

NG9-1-1 promises to greatly enhance the 9-1-1 system's capability to communicate voice, data, pictures and video. On the other hand, it comes with significant financial, operational and technical challenges. A consolidated PSAP will be better positioned than an individual PSAP in a NG9-1-1 environment.

Connecticut's PSAPs use eighteen different CAD systems. Seventy-five percent of PSAPs have had those systems more than five years. Consolidation in an environment with diverse CAD systems requires tremendous cooperation and compromise to develop consensus among the parties. Additionally, access to archived data is an important consideration, and ensuring that access poses a significant challenge.

Connecticut's PSAPs use diverse radio bands to communicate with the agencies they serve with the result that neighboring jurisdictions on different bands have difficulty communicating with them and with each other. Interoperability channels are available, but their use can be sporadic. If the size of the regional center makes it feasible, a trunked radio system serving all the agencies would provide seamless public safety radio coverage throughout the service area and greatly enhance interoperability during multi-jurisdiction, multi-agency events.

Although L.R. Kimball made the observation that consolidation in Connecticut is generally feasible politically, that political feasibility varies greatly from one region to another. Thirty-one of the municipal PSAPs are interested in consolidation. Five of the multi-town agencies and two of the RECCs are interested in further consolidation. Most of the municipal PSAPs and one of the multi-town PSAPs have no interest in consolidating.

Municipal agencies interested in consolidation expressed importance of PSAP accountability and user participation in governance and operations. Developing an organizational model that achieves this will be essential to a successful consolidation effort.

6.2 Optimum and DEMHS Model Configuration Summary

L.R. Kimball recommends a PSAP configuration of three regional PSAPs and one statewide PSAP operated by the Connecticut State Police to provide the most equitable, efficient and highest quality service statewide. A single regional PSAP would serve each of three distinct regions: East, Northwest and Southwest. The State Police would continue to take wireless 9-1-1 calls for areas where they have primary jurisdiction.

A second recommended model based on the existing DEMHS regions could also provide a basis for PSAP consolidation statewide. Based on L.R. Kimball's experience, this model may be more acceptable to PSAPs, but would lose some cost and operational efficiencies.

L.R. Kimball suggests that if a top-down regionalization initiative is not attainable to form three or five regions, then Connecticut's best alternative is to continue consolidation of PSAPs within regions of the state. Three distinct groups of PSAPs were created as recommended candidates for consolidation beginning with Group 1. Group 1 candidates would have the highest likelihood of success based on proactive measures these PSAPs have already taken.

L.R. Kimball also recommends the implementation of supplemental grants to aid in the costs associated with the start-up of a consolidated center.

L.R. Kimball recommends the implementation of sanctions for those municipalities that do not consolidate. For example, PSAPs that continue to operate below the level that the state deems acceptable in terms of the cost of 9-1-1 equipment and networks versus the actual 9-1-1 call volume handled, would be expected to reimburse the state for these costs.

6.3 Funding

Connecticut, from L.R. Kimball's perspective, funds everything it should fund – there is nothing for which provision has not been made. Connecticut's provisions for incentivizing regionalization and for distributing funding generally are consistent with practices around the country. L.R. Kimball has already provided a number of recommendations in the previous section of this report, and L.R. Kimball repeats them below. There are a few that do not fit into any specific funding category, and L.R. Kimball presents them below as well.

It appears that the statute grants OSET the flexibility to determine or adjust the level of funding for some aspects of its program, but not for others. Ideally, OSET should have broad statutory authority to exercise all powers and conduct such activities as are necessary to carry out the purposes of the law. That should include the ability to adjust the levels at which it funds its various programs within set statutory parameters. This seems reasonable to us because the revenue base from which the funding is provided is not certain. Economic factors outside OSET's control can dramatically impact the amount of surcharge revenues coming in, and OSET needs to have the ability to make prudent adjustments based on revenues. OSET has the ability to more nimbly respond to exigent circumstances than a legislative body.

6.3.1 PSAP Subsidization Program

L.R. Kimball recommends eliminating the c1 variable and grouping similar agencies in a bracket or pool.

It will be important to phase in this change over several annual budget cycles to give the agencies time to budget for the reduction in state funding.

6.3.2 Multi-Town PSAP Funding

OSET should incorporate its current multi-town PSAP provision into the recommended bracket model.

6.3.3 Recommendation for Transition Grant Funding for Regionalization

L.R. Kimball recommends OSET provide supplemental grants in years two and three.

6.3.4 Regional Emergency Telecommunications Service Credit

L.R. Kimball recommends that OSET require an accounting from the CMEDs for how they use the $0.30 per capita funding.

6.3.5 Other Funding Recommendations

In addition to the recommendations made in the body of this report and repeated above, L.R. Kimball offers the following recommendation based on the discussion of practice within the two states identified as having an approach that could be useful to Connecticut. OSET has technical and operational standards, but does not tie funding to compliance with them with the exception of the sanction that is applied for the continued existence of a secondary PSAP. L.R. Kimball believes that state funding should not be freely given without some reciprocal obligation on the part of the PSAP recipient.

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APPENDIX A—STATE OF KANSAS MANAGEMENT CONTROL AGREEMENT

The State of Kansas Management Control Agreement may be found on the following pages.

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APPENDIX B—PROJECT PARTICIPATION

PSAP/CMED	Survey Completed	Interview	Site Visit Date
Ansonia Police Department	Yes	Yes	5/18/2011
Avon Police Department	Yes	Yes	5/18/2011
Berlin Police Department	Yes	Yes	7/7/2011
Bethel Police Department	Yes	Yes	6/28/2011
Bloomfield Police Department	Yes	Yes	4/25/2011
Branford Police Department	Yes	Yes	6/2/2011
Bridgeport Fire Department	Yes	Yes	6/9/2011
Bristol Police Department	Yes	Yes	4/27/2011
Brookfield Police Department	Yes	Yes	5/17/2011
Canton Police Department	Yes	Yes	5/18/2011
Cheshire Police Department	Yes	Yes	4/28/2011
Clinton Emergency Communications Center	Yes	Yes	4/27/2011
Colchester Emergency Communications Center	Yes	Yes	6/7/2011
Cromwell Police/Fire Department	Yes	Yes	4/28/2011
Connecticut State Police*	Yes	Yes	6/7/2011
Danbury Fire Department	Yes	Yes	5/17/2011
Darien Police Department	Yes	Yes	4/28/2011
Derby Police Department	Yes	Yes	6/7/2011
East Hartford Police Department	Yes	Yes	5/19/2011
East Haven Fire Department	Yes	Yes	6/7/2011
East Lyme Emergency Communications Center	Yes	Yes	4/26/2011
East Windsor Police Department	Yes	Yes	7/7/2011
Easton Police Department	Yes	Yes	6/9/2011
Enfield Police Department	Yes	Yes	7/7/2011
Fairfield Emergency Communications Center	Yes	Yes	4/26/2011
Farmington Police Department	Yes	Yes	4/26/2011
Glastonbury Police Department	Yes	Yes	4/26/2011
Granby Police Department	Yes	Yes	4/26/2011
Greenwich Police Department	Yes	Yes	6/9/2011

PSAP/CMED	Survey Completed	Interview	Site Visit Date
Groton Emergency Communications Center	Yes	Yes	4/27/2011
Guilford Emergency Communications Center	Yes	Yes	6/8/2011
Hamden Emergency Communications Center	Yes	Yes	5/18/2011
Hartford Police Department	Yes	Yes	5/19/2011
Ledyard Emergency Communications Center	Yes	Yes	6/8/2011
Litchfield County Dispatch	Yes	Yes	4/27/2011
Madison Police Department	Yes	Yes	4/28/2011
Manchester Police Department	Yes	Yes	6/8/2011
Meriden Police Department	Yes	Yes	5/19/2011
Middlebury Police Department	Yes	Yes	5/20/2011
Middletown Central Emergency Communications Center	Yes	Yes	4/28/2011
Milford Police Department**	Yes	Yes	6/22-23, 2011
Milford Fire Department**	Yes	Yes	6/22-23, 2011
Monroe Police Department	Yes	Yes	4/27/2011
Montville Emergency Communications Center	Yes	Yes	4/25/2011
Naugatuck Police Department	Yes	Yes	4/29/2011
New Britain ERC	Yes	Yes	5/17/2011
New Canaan	Yes	Yes	5/19/2011
New Fairfield Emergency Communications Center	Yes	Yes	6/6/2011
New Haven Emergency Communications Center	Yes	Yes	6/9/2011
New London Police Department	Yes	Yes	6/9/2011
New Milford Police Department	Yes	Yes	6/6/2011
Newington Police Department	Yes	Yes	5/18/2011
Newtown Police Department	Yes	Yes	4/26/2011
North Branford Police Department	Yes	Yes	6/8/2011
North Central CMED (Hartford)	Yes	Yes	6/9/2011
North Haven Police Department	Yes	Yes	4/28/2011
Norwalk Police Department	Yes	Yes	6/27/2011
Norwich Police Department	Yes	Yes	6/7/2011
NW CT Public Safety Emergency Communications Center	No	Yes	4/26/2011
Old Saybrook Police Department	Yes	Yes	7/5/2011

PSAP/CMED	Survey Completed	Interview	Site Visit Date
Orange Police Department	Yes	Yes	6/7/2011
Plainville Police Department	Yes	Yes	5/16/2011
Plymouth Police Department	Yes	Yes	4/26/2011
Putnam Police Department	Yes	Yes	6/7/2011
Quinebaug Valley Emergency Communications Center	Yes	Yes	6/8/2011
Redding Emergency Communications Center	Yes	Yes	4/27/2011
Ridgefield Police Department	Yes	Yes	4/28/2011
Rocky Hill Police Department	Yes	Yes	5/18/2011
Seymour Police Department	Yes	Yes	7/6/2011
Shelton Police Department	Yes	Yes	4/27/2011
Simsbury Police Department	Yes	Yes	6/7/2011
South Central Regional ECC/CMED	Yes	Yes	4/26/2011
South Windsor Police Department	Yes	Yes	4/26/2011
Southbury Police Department	Yes	Yes	4/25/2011
Southington Police Department	Yes	Yes	5/16/2011
Southwest CMED (Bridgeport)	Yes	Yes	6/6/2011
Stamford Emergency Communications Center	Yes	Yes	5/19/2011
Stonington Police Department	Yes	Yes	4/27/2011
Stratford Emergency Communications Center	No	Yes	7/6/2011
Suffield Police Department	Yes	Yes	6/2/2011
Thomaston Police Department	Yes	Yes	5/20/2011
Tolland County Mutual Aid	Yes	Yes	6/8/2011
Trumbull Police Department	Yes	Yes	6/8/2011
UConn Police Department	Yes	Yes	6/8/2011
Valley Shore Emergency Communications Center	Yes	Yes	5/19/2011
Vernon Police Department	Yes	Yes	4/25/2011
Wallingford Police/Fire Departments	Yes	Yes	5/17/2011
Waterbury Police Department	Yes	Yes	6/6/2011
Waterford Emergency Communications Center	Yes	Yes	4/26/2011
Watertown Police Department	Yes	Yes	5/17/2011
West Hartford Police Department	Yes	Yes	4/26/2011
West Haven ERS	Yes	Yes	6/7/2011

PSAP/CMED	Survey Completed	Interview	Site Visit Date
Weston Emergency Communications Center	Yes	Yes	4/28/2011
Westport Police Department	Yes	Yes	4/26/2011
Wethersfield Police Department	Yes	Yes	4/29/2011
Willimantic Switchboard ECC/Windham	Yes	Yes	6/27/2011
Wilton Police Department	Yes	Yes	4/28/2011
Winchester Police Department (Winsted)	Yes	Yes	4/25/2011
Windsor Locks Police Department	Yes	Yes	6/7/2011
Windsor Police Department	Yes	Yes	7/7/2011
Wolcott Police Department	Yes	Yes	6/8/2011
Woodbridge Police Department	Yes	Yes	6/9/2011
*Did not participate in the actual study but met with L.R. Kimball representatives **Surveyed and interviewed as part of their own consolidation study			

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APPENDIX C—INTEREST IN CONSOLIDATION

PSAP	2010 9-1-1 Call Volume	Consolidation Interest (Yes/No)
Ansonia Police Department	6,884	No
Avon Police Department	5,721	Yes
Berlin Police Department	7,028	Yes
Bethel Police Department	5,734	No
Bloomfield Police Department	12,246	No
Branford Police Department	9,790	No
Bridgeport Emergency Communications Center	118,472	Yes, but not immediately
Bristol Police Department	23,441	Yes
Brookfield Police Department	4,723	Yes
Canton Police Department	3,095	Yes
Cheshire Police Department	8,195	No
Clinton Police Department	3,878	No
Colchester Emergency Dispatch	18,617	No
Cromwell Police Department	5,155	No
Danbury Fire Department	31,905	Yes
Darien Police Department	6,193	No
Derby Police Department	5,482	No
East Hartford Police Department	23,046	No
East Haven Fire Department	11,983	Yes
East Lyme Public Safety	3,658	Yes
East Windsor Police Department	4,944	No
Easton Police Department	1,683	Yes
Enfield Public Safety Communications Center	12,704	No
Fairfield Emergency Communications	17,745	No
Farmington Police Department	12,281	Yes
Glastonbury Police Department	7,623	No
Granby Police Department	4,939	Yes
Greenwich Police Department	23,474	No
Groton Emergency Dispatch Center	18,952	Yes
Guilford Emergency Communications	6,572	No
Hamden Central Communications	25,060	Yes
Hartford Emergency Communications Center	139,842	No
Ledyard Emergency Communications Center	7,153	Yes
Litchfield County Dispatch	29,014	Yes

PSAP	2010 9-1-1 Call Volume	Consolidation Interest (Yes/No)
Madison Police Department	4,645	Yes
Manchester Police Department	22,657	Yes
Meriden Fire and Emergency Services	24,215	No
Middlebury Police Department	2,058	Yes
Middletown Central Communications	23,113	Yes
Milford Fire Department	17,345	No
Monroe Police Department	5,788	Yes
Montville Dispatch	6,805	Yes
Naugatuck Police Department	8,840	No
New Britain ERC	43,408	Yes
New Canaan Police Department	5,889	No
New Fairfield Emergency Communications Center	3,853	No
New Haven Emergency Communications Center	117,815	Yes
New London Police Department	16,764	No
New Milford Police Department	9,042	Yes
Newington Police Department	10,532	Yes
Newtown Police Department	7,068	Yes
North Branford Police Department	4,543	Yes
North Haven Emergency Telecommunications	7,711	Yes
Northwest CT Public Safety Comm. Center	17,040	Yes
Norwalk Police Department	34,718	No
Norwich Police Department	21,825	No
Old Saybrook Police Department	3,078	No
Orange Police Department	6,342	No
Plainville Police Department	6,494	No
Plymouth Police Department	4,323	Yes
Putnam Police/Fire Communications Ctr.	2,483	No
Quinebaug Valley Emergency Communications	34,959	Yes
Redding Emergency Communications Center	2,866	Yes
Ridgefield Police Department	6,817	No
Rocky Hill Police Department	6,765	No
Seymour Police Department	3,639	Yes
Shelton Police Department	11,353	No
Simsbury Police Department	6,352	No
South Central Regional Emergency Communications	7,573	Yes
South Windsor Police Department	7,066	Yes

PSAP	2010 9-1-1 Call Volume	Consolidation Interest (Yes/No)
Southbury Public Safety	5,692	Yes
Southington Police Department	11,542	No
Stamford Emergency Communications Center	64,969	Yes, at this point for sharing resources only.
Stonington Police Department	6,191	Yes
Stratford Emergency Communications Center	21,605	No
Suffield Police Department	3,945	No
Thomaston Police Department	1,973	Yes
Tolland County Mutual Aid Dispatch Center	34,376	Maybe
Trumbull Police Department	10,023	Yes
University of Connecticut Police Department	7,751	Yes
Valley Shore Emergency Communications, Inc.	31,065	Yes
Vernon Police Department	10,233	No
Wallingford Police Department	12,779	Yes
Waterbury Police Department	66,215	Yes
Waterford Emergency Communications Center	9,691	Yes
Watertown Police Department	7,189	Yes
West Hartford Police Department	21,028	No
West Haven ERS 9-1-1 Center	29,032	Yes
Weston Communications	3,194	Yes
Westport Police Department	10,390	Yes
Wethersfield Police Department	9,657	Maybe
Willimantic Switchboard Fire Chiefs' Association	14,431	Yes
Wilton Police Department	6,796	Yes
Windsor Locks Police Department	4,241	Yes
Windsor Police Department	9,573	No
Winsted Police Department	3,692	No
Wolcott Police Department	5,628	No
Woodbridge Police Department	4,130	No
Sub-total	1,575,917	

APPENDIX D—CAD SYSTEMS IN USE

PSAP	CAD Used	Manufacturer	Year Installed	Last Update
Ansonia Police Department	Yes	NexGen	1999	01/2011
Avon Police Department	Yes	Nexgen	2006	2011
Berlin Police Department	Yes	New World Systems	2010	01/2011
Bethel Police Department	Yes	Computer Information Systems	2008	On-going
Bloomfield Police Department	Yes	NEXGEN	2005	2011
Branford Police Department	Yes	NEXGEN	Unknown	Unknown
Bridgeport Emergency Communications Center	Yes	KTI International	2010	11/2010
Bristol Police Department	Yes	NEXGEN	2010	12/2010
Brookfield Police Department	Unknown	Unknown	Unknown	Unknown
Canton Police Department	Yes	NEXGEN	2006	2011
Cheshire Police Department	Yes	Larimore Associates	Feb-05	02/2005
Clinton Police Department	Yes	IMC/Tritech	Unknown	4/6/2011
Colchester Emergency Dispatch	Yes	File Maker - Hunt Computer Design	2003	2011
Cromwell Police Department	Yes	Hunt Corp	Unknown	Unknown
Danbury Fire Department	Yes	Sungard HTE-CAD/400	1999	2010
Darien Police Department	Yes	Visionair	2001	2011
Derby Police Department	Yes	Hunt Computer Design	Unknown	Unknown
East Hartford Police Department	Yes	New World Systems	2002	2011
East Haven Fire Department	Yes	Nex gen	Current	2011
East Lyme Public Safety	Yes	Tri-Tech Software (IMC)	2007	Unknown
East Windsor Police Department	Unknown	Unknown	Unknown	Unknown
Easton Police Department	Yes	Hunt Computer Design	1995	2010
Enfield Public Safety Communications Center	Yes	Unknown	1988	On-going
Fairfield Emergency Communications	Yes	NexGen	2001	2011
Farmington Police Department	Yes	LEAS by Nexgen	2002	3/25/11

PSAP	CAD Used	Manufacturer	Year Installed	Last Update
Glastonbury Police Department	Yes	Spillman Technologies	1998	2009
Granby Police Department	Unknown	Unknown	Unknown	Unknown
Greenwich Police Department	Yes	Sungard/HTC	1999	3/9/2009
Groton Emergency Dispatch Center	Yes	Mobile Tech	2011	2011
Guilford Emergency Communications	Yes	Alpine Software/ Red Alert	1999	05/2011
Hamden Central Communications	Unknown	Nexgen	2000	2011
Hartford Emergency Communications Center	Yes	Self Designed	Unknown	Unknown
Ledyard Emergency Communication Center	Yes	Tri Tech/IMC	Jul-09	04/2011
Litchfield County Dispatch	Yes	Dispatch Management Solutions, LLC	2004	2011
Madison Police Department	Yes	Nexgen	2004	Unknown
Manchester Police Department	Yes	Tiburon	2003	2010
Meriden Fire and Emergency Services	Yes	OSSI/ Sungard	2011	N/A
Middlebury Police Department	Yes	Hunt Computer Design	2011	03/2011
Middletown Central Communications	Yes	Global Software Corp	2011	2011
Milford Fire Department	Yes	DCS	1986	On-going
Milford Police Department	Yes	OSSI	2010	N/A
Monroe Police Department	Yes	NexGen Solution	2002	3/8/2011
Montville Dispatch	Yes	Information Management Corporation (IMC TriTech)	2004	2010
Naugatuck Police Department	Yes	Hunt Computer Designs CAD 3000	2009	2011
New Britain ERC	Yes	QED	1993	2005
New Canaan Police Department	Yes	NexGen	2003	2010
New Fairfield Emergency Communications Center	Yes	NexGen	2005	2009
New Haven Emergency Communications Center	Yes	Sungard	2004	7/01/10
New London Police Department	Yes	Sungard	2006	2010
New Milford Police Department	Yes	Information Management Corporation	1998	2011
Newington Police Department	Yes	Tiburon/IPC	2003	3/5/2010

PSAP	CAD Used	Manufacturer	Year Installed	Last Update
Newtown Police Department	Yes	New World Systems	2010	2011
North Branford Police Department	Yes	Nexgen	2006	2011
North Haven Emergency Telecommunications	Yes	NexGen	2000	03/2011
Northwest CT Public Safety Comm. Center	Yes	Global software Corp.	2001	Fall 2010
Norwalk Police Department	Yes	Nexgen	2005	2011
Norwich Police Department	Yes	IMC	2003	04/2011
Old Saybrook Police Department	Unknown	Unknown	Unknown	Unknown
Orange Police Department	Yes	Hunt Computer Systems	2010	2010
Plainville Police Department	Yes	Public Safety System Developed	2002	2011
Plymouth Police Department	Unknown	Hunt Computer Design	2006	2010
Putnam Police and Fire Communications Center	Yes	IMC	2004	2011
Quinebaug Valley Emergency Communications	Yes	New World Systems	2006	2010
Redding Emergency Communications Center	Yes	Hunt Computer Designs	2002	2009
Ridgefield Police Department	Yes	NextGen	2010	On-going
Rocky Hill Police Department	Yes	Mobil Tec	2005	December 2005
Seymour Police Department	Yes	Hunt Computer Designs	1993	~2007
Shelton Police Department	Yes	Nexgen LEAS	2001	3/24/2011
Simsbury Police Department	Yes	NEXGEN	2010	2011
South Central Regional Emergency Communications	Yes	Vernon Software Systems	2001	2003
South Windsor Police Department	Yes	Tiburon (Formerly IPC)	2003	2009
Southbury Public Safety	Yes	Hunt Computer Design	2003	2009
Southington Police Department	Yes	Mobile Tec.	2005	2011
Stamford Emergency Communications Center	Yes	VisionAir	1998	3/18/2011
Stonington Police Department	Yes	Tritech Software Systems - IMC	2010	3/29/2011
Stratford Emergency Communications Center	Yes	VisionAir	2008	2011

PSAP	CAD Used	Manufacturer	Year Installed	Last Update
Suffield Police Department	Yes	IMC - Tritech/IMS	1999	02/2011
Thomaston Police Department	Yes	Hunt Computer Design	1994	Unknown
Tolland County Mutual Aid Dispatch Center	Yes	New World Systems	2006	2010
Trumbull Police Department	Police Only	Nexgen	2005	04/2011
University of Connecticut Police Department	Yes	LEAS by Nexgen	N/A	01/2011
Valley Shore Emergency Communications	Yes	Logistic Systems	2000	2011

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APPENDIX E—RADIO CONSOLES/PLATFORMS IN USE

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Ansonia Police Department	Zetron	Intergrator RD 482	2007	N/A	VHF	VHF	UHF
Avon Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Berlin Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bethel Police Department	Zetron	4217B - Integrator	2006	N/A	UHF	VHF	N/A
Bloomfield Police Department	Motorola	CENTRACOM Gold Elite	N/A	N/A	UHF	UHF	UHF
Branford Police Department	Motorola	N/A	1995	N/A	UHF	UHF	UHF
Bridgeport ECC	Motorola	MCC 5500	2009	2011	VHF	UHF	N/A
Bristol Police Department	Motorola	CENTRACOM Gold Elite	2004	2004	800 Trunked	800 Trunked	800 Trunked
Brookfield Police Department	Motorola	CENTRACOM Gold Elite	2004	Unknown	VHF	VHF	VHF
Canton Police Department	Motorola	CENTRACOM Gold Elite	2002	N/A	800 Trunked	800 Trunked	800 Trunked
Cheshire Police Department	Motorola	CENTRACOM Gold Elite	2003	2003	UHF	VHF	N/A
Clinton Police Department	Motorola	MCC 5500	2001	2011	VHF	VHF	VHF
Colchester Emergency Dispatch	Zetron	4000 series	2009	2010	VHF	Low Band,UHF	Low Band,UHF
Cromwell Police Department	Police: Motorola Fire: Zetron	CENTRACOM Series #2	1986/(FD - 12 months)	2000/Partial	800	VHF	VHF
Connecticut State Police	Motorola	N/A	N/A	N/A	800 Trunked	N/A	N/A

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Danbury Fire Department	Motorola	CENTRACOM	1985	1985	N/A	VHF-Low, UHF	VHF-Low, UHF
Darien Police Department	Motorola	CENTRACOM II	1988	N/A	UHF	UHF	UHF
Derby Police Department	Zetron	N/A	N/A	N/A	VHF	N/A	N/A
East Hartford Police Department	Motorola	CENTRACOM Gold Elite	2004	2004	UHF	UHF	UHF
East Haven Fire Department	Zetron	Unknown	1990	N/A	N/A	N/A	N/A
East Lyme Public Safety	Motorola	MCC 5500	2007 FEB	N/A	VHF	VHF	VHF
East Windsor Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Easton Police Department	Motorola	Command Star Lite	May-01	N/A	VHF	Low Band	VHF
Enfield Public Safety Communications Center	Motorola	MCC 5500	2008	2010	UHF	UHF	N/A
Fairfield Emergency Communications	Motorola	MCC5500	2005	2011	UHF	UHF	UHF
Farmington Police Department	Motorola	CENTRACOM Gold Elite	2002	2002	800	VHF	AMR on VHF
Glastonbury Police Department	Motorola	CENTRACOM Gold Elite	2004	N/A	800	UHF	UHF
Granby Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Greenwich Police Department	N/A	N/A	N/A	N/A	800	N/A	N/A
Groton Emergency Dispatch Center	Orbacom	TD-150	2000	2008	UHF, 800	VHF, Low Band	VHF, Low Band, UHF
Guilford Emergency Communications	Zetron	4024	2001	2004	UHF	UHF/Low Band	UHF

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Hamden Central Communications	Motorola	CENTRACOM Gold Elite	1980	1999	N/A	N/A	N/A
Hartford ECC	Ma-Comm-Harris	C3 Maestro	N/A	2006	800 Trunked	800 Trunked	UHF
Ledyard ECC	Zetron	CENTRACOM 11	2002/1990	N/A	UHF	Low Band, UHF	UHF
Litchfield County Dispatch	Motorola	CENTRACOM Gold Elite	2000	2010	State Police	VHF	VHF
Madison Police Department	Orbacom	N/A	2000	2008	UHF	Low Band and UHF	UHF
Manchester Police Department	Motorola	CENTRACOM Elite	N/A	2009	UHF	UHF	N/A
Meriden Fire and Emergency Services	Avtech	Scout	2011	N/A	800	VHF/UHF	N/A
Middlebury Police Department	Zetron	4000 Series	1992	N/A	VHF	VHF	N/A
Middletown Central Communications	Zetron	Integrator RD	2010	2010	VHF - High Band	VHF - High Band	N/A
Milford Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Milford Fire Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monroe Police Department	Motorola	MC5500	2005	2010	UHF	UHF	UHF
Montville Dispatch	Zetron	N/A	N/A	N/A	VHF	VHF	VHF
Naugatuck Police Department	Motorola	CENTRACOM 2	1996	N/A	N/A	N/A	N/A
New Britain ERC	Motorola	N/A	1992	1994	800 Trunked	800 Trunked and Conventional	800 Trunked
New Canaan Police Department	Motorola	CENTRACOM Gold	1995	Never	VHF P25	VHF Analog	VHF Analog

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
New Fairfield ECC	Motorola	N/A	2011	2011	N/A	N/A	N/A
New Haven ECC	Motorola	Motorola MC5500	2005	2005	UHF	800	800
New London Police Department	Motorola	MCC5500	N/A	2000	UHF	UHF and Low Band	UHF
New Milford Police Department	Motorola	CENTRACOM	1976	N/A	VHF	VHF	VHF
Newington Police Department	Motorola	Unknown	2009	2010	UHF	UHF	N/A
Newtown Police Department	Motorola	CENTRACOM Elite	2002	2010	VHF	VHF	VHF
North Branford Police Department	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Haven Emergency Telecommunications	Zetron	Series 4000	2000	N/A	UHF	UHF	N/A
Northwest Public Safety Comm. Center	Motorola	MCC 5500	2005	Jul-05	N/A	VHF High & Low Band	VHF High & Low Band, UHF
Norwalk Police Department	Motorola	Elite Gold	2005	N/A	800	VHF	VHF
Norwich Police Department	Orbacom	TDM150	1996	2010	N/A	N/A	N/A
Old Saybrook Police Department	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Orange Police Department	Zetron	4100	2003	2009	UHF	UHF	UHF
Plainville Police Department	Motorola	Gold series	2003	2003	VHF	VHF	VHF
Plymouth Police Department	Motorola	CENTRACOM II Gold Elite	N/A	N/A	UHF	UHF	UHF
Putnam Police and Fire	Zetron	IntegratorRD (48-2)	2011	2011	VHF	VHF	VHF and

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Communications Ctr.							Low Band
Quinebaug Valley Emergency Communications	AVTEC	Scout	2011	N/A	UHF	Low Band, VHF, UHF, 800 MHz	Low Band, VHF, UHF, 800 MHz
Redding Emergency Comm. Center	Motorola	MCC5500	2009	2010	VHF	Low Band	Low Band
Ridgefield Police Department	Motorola	CENTRACOM Series II	1988	N/A	VHF	Low Band	UHF
Rocky Hill Police Department	Motorola	CENTRACOM Gold Elite	2000	2000	UHF	UHF	UHF
Seymour Police Department	Zetron	4010	2001	2001	N/A	N/A	N/A
Shelton Police Department	Motorola	CENTRACOM	1990	2006	800 MHz	Low Band	UHF
Simsbury Police Department	Zetron	4048	1999	N/A	UHF	UHF	UHF
South Central RECC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Windsor Police Department	Motorola	CommandStar	2001	Jul-05	UHF	UHF	UHF
Southbury Public Safety	Motorola	N/A	2008	N/A	VHF	VHF	VHF
Southington Police Department	Motorola	CENTRACOM Elite	2001	2001	VHF	VHF	VHF
Stamford ECC	Motorola	Synergy Power CenterLift	2008	N/A	800	800, VHF Paging	800, VHF Paging
Stonington Police Department	Motorola	CENTRACOM Gold Elite	2000	N/A	VHF	VHF	VHF
Stratford ECC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Suffield Police Department	Motorola	N/A	1990	Feb-11	UHF	VHF	UHF

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Thomaston Police Department	Motorola	CENTRACOM Series II	1990	N/A	VHF	VHF	VHF
Tolland County Mutual Aid Dispatch Center	Orbacom	N/A	2003	2009	N/A	UHF, VHF, Low Band	UHF, VHF, Low Band
Trumbull Police Department	Police: Motorola TRDC: Motorola	Police: CENTRACOM Gold TRDC: CENTRACOM	Police: Unknown TRDC: 1989	Police: Unknown TRDC: 2009	800	Low Band	VHF
University of Connecticut Police Department	Motorola	Centra Come Elite R09.13.02	2000	N/A	800	UHF and Low Band	UHF and Low Band
Valley Shore Emergency Communications, Inc.	IPC/Orbacom	T5	2006	2010	CSP 800 MHz	Low Band, UHF	Low Band, UHF
Vernon Police Department	Motorola	MCC 5500	2005	2007	UHF	N/A	N/A
Wallingford Police Department	Motorola	CENTRACOM Gold	2010	2010	800	VHF	VHF
Waterbury Police Department	Positron	N/A	1999	2010	800	800	Private Companies
Waterford ECC	IPC	N/A	2004	2010	800	800, Low Band	800
Watertown Police Department	Motorola	MCC 5500	2011	2011	UHF	VHF	VHF
West Hartford Police Department	Motorola	MCC5500	N/A	N/A	VHF	VHF	UHF
West Haven E.R.S. 911 Center	Orbacom	N/A	2005	2010	UHF	UHF	N/A
Weston Communications	Motorola	CENTRACOM Gold Elite	1990	2010	UHF	UHF and Low Band	UHF and Low Band
Westport Police Department	Motorola	Unknown	Unknown	Unknown	800 MHz	N/A	VHF

PSAP	Manufacturer	Model	Year Installed	Last Update	Police Radio Band	Fire Radio Band	EMS Radio Band
Wethersfield Police Department	Motorola	CENTRACOM Gold Elite Series	2003	2003	800	800, UHF	800, UHF
Willimantic Switchboard Fire Chiefs Assoc.	Zetron	4020/4010	2009	2010	800	UHF	UHF
Wilton Police Department	Motorola	Elite	2004	2011	UHF	UHF	UHF
Windsor Police Department	Positron	T5	2004	2008	800	UHF	UHF
Windsor Locks Police Department	Motorola	Gold Elite	2004	N/A	N/A	N/A	N/A
Winsted Police Department	Motorola	N/A	2003	Unknown	N/A	N/A	N/A
Wolcott Police Department	Motorola	MCC5500	2007	N/A	N/A	N/A	N/A
Woodbridge Police Department	Motorola	CENTRACOM Gold	1999	2003	N/A	N/A	N/A

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