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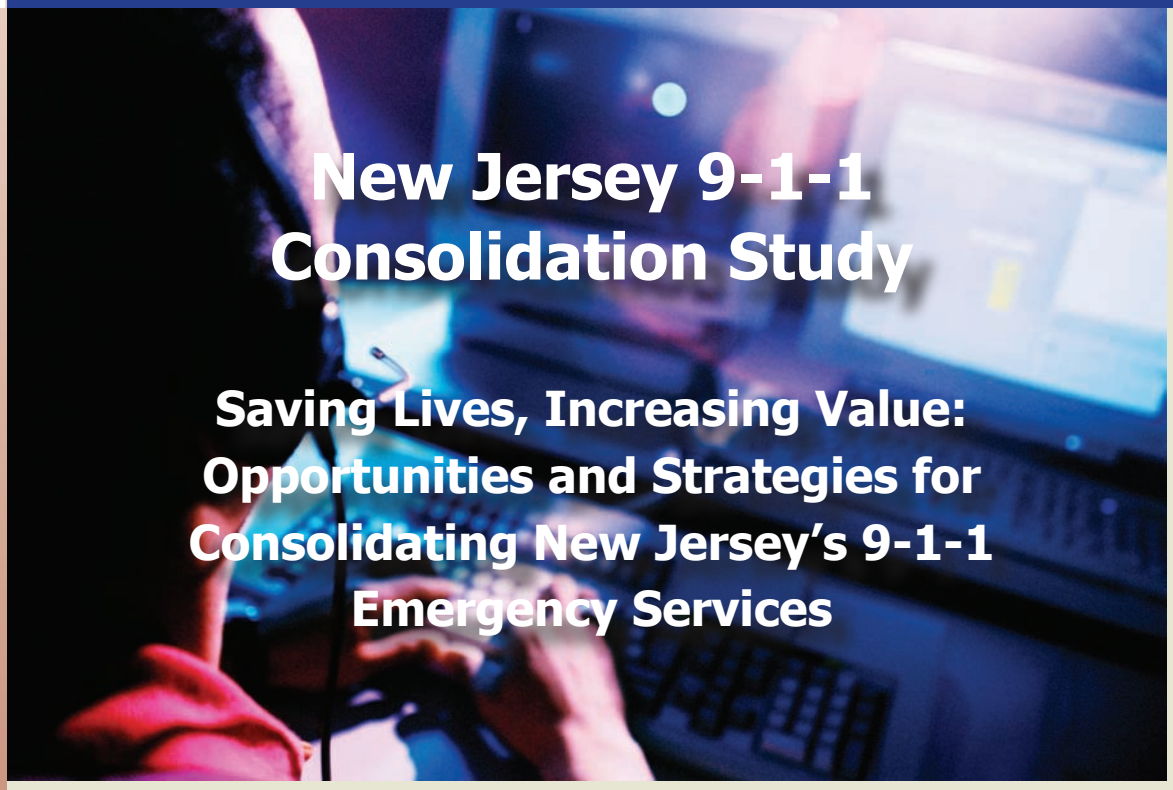

New Jersey 9-1-1 Consolidation Study

Saving Lives, Increasing Value: Opportunities and Strategies for Consolidating New Jersey's 9-1-1 Emergency Services

Report Prepared for the State of New Jersey
Office of Emergency Telecommunications Services
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EXECUTIVE SUMMARY

For years, New Jersey has encouraged municipalities to share services or even combine agencies as a way to save taxpayer dollars. Past 9-1-1 consolidation efforts advanced through local leadership and initiative. Mounting budget pressures at the state and local levels have triggered a renewed interest in promoting shared services, either through the use of financial incentives, or by using mandates or other policy tools to drive increased consolidation. Evidence suggests that greater numbers of local officials are considering consolidation. In addition, the state has increased the amount of funding available to study and/or implement shared services and the New Jersey state legislature is actively working on legislation to promote consolidation of municipalities.

During 2005-2006, the John J. Heldrich Center for Workforce Development completed a comprehensive analysis of New Jersey's E9-1-1 system and the experience of other states with consolidation of 9-1-1 operations. This report, *Saving Lives, Increasing Value*, is the fourth report to result from the Center's research. It examines the opportunities for consolidating local 9-1-1 emergency communication services and finds that a clear majority of all the 9-1-1 call centers operating in New Jersey are likely to be inefficient and are reasonable candidates for consolidation.

New Jersey has an extensive and decentralized network of public agencies and private medical centers that provide 9-1-1 emergency communication services. There are over 300 Public Safety Answering Points (PSAPs) and Public Safety Dispatch Points (PSDPs) operating throughout the state. New Jersey has a relatively large number of low-volume call centers and, compared with other states, a considerable number of stand-alone dispatch centers. In fact, two-thirds of the 9-1-1 call volume in New Jersey is handled by about 10% of its call centers.

New Jersey's E9-1-1 system is mostly funded and managed at the local level with the dominant operational role being played by municipalities, but with some counties increasingly playing a role in providing services to multiple municipalities. Depending on the area of the state, counties have historically had a weak role and, as such, municipalities tend to provide most 9-1-1 services. While local and county officials have made decisions about how to manage and fund local call center operations, the state has funded the basic infrastructure of the 9-1-1 network. The state has little to no authority to affect location decisions relating to 9-1-1 service and, until recently, has not provided funding to local agencies.

Local decisions have resulted in the proliferation of smaller call centers—there are at least 25 call centers in some counties and as few as 1 in others. After more than 15 years in operation, the state's 9-1-1 system reflects the reality of local budget decisions. While there are many state-of-the-art call centers, there is wide disparity in the level of local investment. Much of the local 9-1-1 equipment and facilities need to be upgraded. To address this, the state has expanded its role to provide funding to local operations.

Findings

The Heldrich Center research identifies state and local officials' perspectives on and experiences with consolidation, highlights key operational issues, and finds a strong connection between operational efficiency and a PSAP's workload. Specifically, the Center found:

- **Local officials in New Jersey and 9-1-1 officials from other states cite improved service and public safety as potential benefits of consolidation.**

Consolidated call centers are likely to have more qualified, trained staff on duty and to provide more training opportunities for staff. Larger operations

will likely benefit from efficiencies in the long term because local jurisdictions can share operating and capital costs. Combining local operations may also improve the capacity of local emergency services to share information and respond to incidents.

- **There are clear economies of scale in the cost of handling 9-1-1 calls.**

An analysis of the costs of handling 9-1-1 calls demonstrates the potential for achieving efficiencies from consolidating smaller communication centers. Costs per call (measured in different ways) drop dramatically as call volume increases. The relationship between operational efficiency and a PSAP's workload or call volume holds up even when different data sources and alternative measurement definitions are used. Beyond a certain range, however, opportunities for achieving efficiencies diminish or drop off completely.

- **There is potential for improved efficiency through consolidation of PSAPs and PSDPs that have a low workload or call volume.**

Centers that receive a relatively low number of incoming calls and that tend to have one person on duty at any time have substantially higher costs per call, compared with larger centers. Moreover, centers that only provide dispatch services tend to handle a low number of calls and have high costs per call, based on available data. Reducing the number of small answering and dispatch centers is therefore likely to increase operational efficiency. However, it is difficult to quantify the short-term cost savings due to consolidation.

- **Reducing the number of PSAPs and PSDPs has the potential to generate cost savings for state and local government.**

While it is difficult to quantify local cost savings resulting from 9-1-1 consolidation, local and out-of-state officials indicate that cost savings can be realized when 9-1-1 services are consolidated. Reducing the number of PSAPs and PSDPs would likely result in cost savings for the state because it would reduce the number of lines required to route 9-1-1 calls and the state would be able to avoid a portion of the projected costs of replacing or upgrading equipment for every local center.

- **State policy can influence the direction of 9-1-1 consolidation by creating a supportive environment.**

Officials in other states believe mandates have not worked well in forcing consolidation at the local level. If consolidation is a goal, the state can play a role by creating an environment that is favorable to local regionalization efforts. State and regional officials believe that financial incentives are likely to encourage consolidation, but they are not sufficient. Other strategies, such as technical assistance and improved data and metrics, are also necessary to support local decision makers.

Recommendations

The recommendations contained in this report emphasize a combination of strategies, including incentives, improved data and metrics, public education, and technical assistance. The most promising targets for consolidation are those local areas that have cooperated in the past and/or that are willing to consider consolidation. Based on its research, the Heldrich Center recommends the state take the following steps to promote further consolidation of the E9-1-1 system:

- **Commit to a policy favoring combined operations for call taking and dispatch.**

There is a belief among PSAP operators that forwarding calls for dispatch is inefficient and may actually increase time needed to handle emergency calls. It is also clear that, compared with other states. New Jersey has a large number of stand-alone secondary dispatch centers. Other states have encouraged consolidation of dispatch and answering functions, usually through financial incentives. For example, Connecticut provides enhanced operational funding to regional centers that provide services for a large population, experience a high call volume, and provide unified dispatch services for all emergency agencies (police, fire, and emergency medical services).

- **Establish a program of incentives to pay a portion or all of the costs associated with PSAP consolidation.**

Incentives provide a "carrot" that can reward and reinforce movement toward consolidation. The state should issue planning grants to local governments and implementation grants to cover the capital costs to establish a center or enlarge or enhance an existing PSAP. Additionally, grants should be made available to fund necessary equipment upgrades, including enhancements to support interoperability, for all PSAPs and to provide enhanced subsidies for municipalities that form a regional communication center.

- **Support ongoing education of call center staff in the form of training assistance grants.**

The level of professionalism, experience, and preparedness of telecommunicators varies throughout the E9-1-1 system because ongoing training and professional development opportunities are not supported by funding and are not widely available. Most call takers and dispatchers receive the mandated baseline training but are unable to attend additional training due to coverage requirements and budget constraints.

- **Develop a set of standards defining high-quality E9-1-1 emergency services, institute data submission requirements for all E9-1-1 grants, and explore opportunities to collect more detailed budget information.**

Making better data and metrics available will allow state and local decision makers to evaluate the potential success of a consolidated operation. Standards should address issues of staffing, equipment, facilities, governance, and accountability. Recipients of state E9-1-1 grants should be required to provide the state regular reports —including budget, staffing, and call volume data—as a condition of their grant. And to further support the collection of accurate and useable data, the Department of Community Affairs should consider requiring a greater level of detail in municipal budgets.

- **Institute a public education and technical assistance program to promote and support consolidation.**

Because consolidation of 9-1-1 services tends to advance through local leadership and initiative, the state needs to educate local officials—particularly those that are resistant to consolidation—on the benefits of consolidation. Third-party facilitation should also be made available to assist PSAPs with planning and implementation of consolidation. Office of Emergency Telecommunications Services (OETS) staff should be tasked with providing the support services and leading the efforts to develop the standards described above.

- **Limit eligibility for E9-1-1 grants to those communication centers that can demonstrate a minimum staffing level of two certified telecommunicators 24 hours per day, seven days per week.**

This recommendation reflects what is needed to ensure public safety, quality of service, and efficiency. When a PSAP has only one employee per shift, it is extremely difficult for the call taker to take breaks or to respond to major events or emergencies. This recommendation also reflects what is needed to support efficient PSAP operations. The cost analysis completed by the Heldrich Center found that the smallest PSAPs were likely to be inefficient, compared with all PSAPs. In addition, the two-person standard is consistent with the direction that national 9-1-1 organizations and other states appear to be taking. It is estimated that implementing this recommendation will eliminate a significant number of PSAPs from funding eligibility.

INTRODUCTION

Consolidation of local government services is a challenging and complex issue for state and local policymakers. For more than a decade, New Jersey has encouraged municipalities to share services or to even combine agencies as a way to save taxpayer dollars. Budget pressures at the state and local levels have triggered a renewed interest in promoting shared services, either through the use of financial incentives, or by using mandates or other policy tools to drive increased consolidation. Past and present consolidation efforts have focused on a wide range of local services—such as animal control, public works, public education, and police and fire services. This report focuses on one option for sharing local services: the consolidation of 9-1-1 emergency communication services.

Overview and Purpose of the 9-1-1 Consolidation Study

In 1999, the Center for Government Services at Rutgers, The State University of New Jersey completed a study of New Jersey's E9-1-1 system.[1] The study offered a snapshot of the extensive and decentralized network of communications centers that receive incoming calls requesting emergency assistance and that dispatch police, fire, and medical units. It recommended "a concerted effort" be put in place by all levels of government to achieve further regional cooperation, especially regionalization of dispatch services, arguing that such cooperation would likely result in improved service and lower costs.

In 2005, the New Jersey Office of Emergency Telecommunications Services and the New Jersey Office of Management and Budget (OMB) commissioned the John J. Heldrich Center for Workforce Development at Rutgers University to update the 1999 report and to describe the current history, delivery system, and organization of the state's emergency 9-1-1 system. Researchers were also asked to determine, through the analysis of program data, whether consolidating 9-1-1 services could reduce costs to the state and/or local governments without sacrificing responsiveness, as well as to identify model frameworks at the county or multiple local jurisdiction level that could facilitate additional consolidation.

This report is the fourth and final deliverable to be produced by the Heldrich Center for the consolidation study. The other reports detailed the organization of New Jersey's E9-1-1 system, summarized findings from other states, and outlined key issues and options for system consolidation.[2] Those reports are:

- *Reorganizing 9-1-1 Operations: A Report on Experiences with Consolidation in Other States* (October 2005),
- *Profile of the New Jersey E9-1-1 System* (October 2005), and
- *Site Visit Results and Implications for Consolidation* (April 2006).

For the purposes of this study, consolidation is defined as two or more 9-1-1 communications centers entering into an agreement to provide dispatching and call-taking services from a single location. This process typically reduces the number of agencies providing emergency communication services. Also, the terms "consolidation," "shared services," and "regionalization" are used interchangeably in this report.

The findings in this report are based on:

- Site visits to, and interviews with 20 local communications centers in New Jersey and interviews with local officials in nearly every New Jersey county (see Appendix A for a list of interview subjects);
- Interviews with 9-1-1 directors in six states and two regions outside New Jersey;

- A statewide survey of communications centers that handle incoming calls and that dispatch emergency services; and
- A review and analysis of data on the cost of handling 9-1-1 calls.

Organization of this Report

This report summarizes findings from previous reports and presents new information on the prospects for, and the efficiencies of, consolidation. The next sections briefly describe the current E9-1-1 system and provide findings on the potential in New Jersey to realize efficiencies and cost savings in a consolidated environment. The report then offers principal findings on the potential for consolidation and details the lessons learned during the course of this study. Finally, the report offers recommendations for promoting further 9-1-1 consolidation in New Jersey based on the lessons that emerged from the Heldrich Center's research in New Jersey and from the experiences of other states.

CURRENT LANDSCAPE OF THE E9-1-1 SYSTEM IN NEW JERSEY

New Jersey has an extensive and decentralized network of public agencies and private medical centers that provide 9-1-1 emergency communications. Compared with other states, New Jersey's E9-1-1 system is mostly funded and managed at the local level with the dominant operational role being played by municipalities, but with some counties increasingly playing a role in providing services to multiple municipalities. Depending on the area of the state, counties have historically had a weak role and, as such, municipalities tend to provide most 9-1-1 services.

Traditionally, New Jersey has funded the basic infrastructure of the 9-1-1 network, which has consisted mainly of providing the financing for equipment such as routers, databases, and trunk lines. Until recently, it has not played a strong role in setting policy and program standards or providing funding to local agencies.

Brief History and Description of the New Jersey E9-1-1 System

The framework for the original New Jersey E9-1-1 system was established through enabling legislation in 1989. That legislation defined a **Public Safety Answering Point** as "*...a facility, operated on a 24-hour basis, assigned the responsibility of receiving 9-1-1 calls and, as appropriate, directly dispatching emergency response services or transferring or relaying emergency 9-1-1 calls to other public safety agencies.*"[3] Under this definition, New Jersey has more than 300 PSAPs. New Jersey distinguishes between primary and secondary PSAPs: a primary PSAP is the first point of reception of a 9-1-1 call; a secondary PSAP, referred to as a **Public Safety Dispatch Point,** is a location that provides dispatch services for one or more public safety agencies.[4]

There are 203 primary PSAPs and 105 PSDPs in New Jersey. Each county has a least one PSAP within its geographic boundaries. The New Jersey State Police also operates four PSAPs to handle mostly wireless 9-1-1 calls. Additionally, four PSAPs are operated by Picatinny Arsenal, McGuire Air Force Base, Rutgers University, and Kean University. The analysis and findings presented in this report exclude those eight state police, university, and military PSAPs.

PSAPs offer two key public safety services: taking calls, including 9-1-1 calls, and dispatching or transferring calls for dispatch by a designated PSDP responder for one or more public safety agencies (police, fire, and emergency medical services). In addition, many PSAPs direct their personnel to provide additional services for their respective communities, including answering administrative phone lines. Currently, all New Jersey PSAPs are able to handle enhanced 9-1-1 (known as E-9-1-1), which automatically directs a call to the appropriate PSAP and identifies the caller's location and originating number. For the most part, existing equipment does not identify the caller's location for incoming wireless calls, although all PSAPs in New Jersey are capable of receiving Phase I wireless calls and 20 counties have successfully begun cut over to Phase II from some wireless carriers.[5] In this report, 9-1-1 and E9-1-1 are used interchangeably.

By statute and regulation, PSAPs are required to operate pursuant to the staffing, equipment, and operational standards established by OETS, based in the state's Office of Information Technology (OIT). Specifically, PSAPs are obligated to obtain E9-1-1 equipment from an OETS-approved vendor. Similarly, PSDPs are required to adhere to specific, although less comprehensive, equipment and staffing standards.

Table 1. PSAP Organizational Structure by Selected States

State	Structure	Typical Parent Organization	Notable Features
Connecticut	Town- and city-based PSAPs with eight regional centers that provide services to groups of towns	Mostly local police departments; regional centers operated by independent agencies	No county-level government
Maine	County and municipal PSAPs	Mostly local police departments or county sheriff's offices	Strong tradition of local control
Minnesota	County and municipal PSAPs with several multi-county PSAPs	Mostly local police departments or county sheriff's offices	Inter-state PSAP that covers counties in Minnesota and North Dakota
New Jersey	**County and large number of municipal PSAPs**	**Mostly local police departments or county sheriff's offices; small number of independent agencies**	**Strong tradition of local control**
Oregon	County and municipal PSAPs with a large number of centers that provide services to groups of cities	Mostly independent agencies or police departments	Strong tradition of local control
Washington	Mostly county PSAPs with some municipal PSAPs and several multi-county PSAPs	Mostly sheriff's offices, with a large number of independent agencies	Strong county government
Wisconsin	Mostly county PSAPs with some municipal PSAPs	Mostly county sheriff's offices or police departments	Locally managed system with a limited state role

Source: Heldrich Center, October 2005.

New Jersey's organizational structure at the local level is similar to many of the states that were examined as part of the Heldrich Center's study.[6] Either counties or municipalities provide the bulk of 9-1-1 services. Compared with other states, New Jersey has a large number of municipal PSAPs and stand-alone dispatch centers (PSDPs). (See Table 1.)

In New Jersey, the majority of PSAPs tend to be operated by law enforcement agencies, usually by a local police department, county police department, or sheriff's office. In limited situations, a PSAP may be operated by a county public service agency or a regional communications center.[7] Compared with other states, New Jersey has relatively few independent agencies that provide shared oversight of PSAP operations and that are administered by a group of jurisdictions rather than a single jurisdiction or emergency service (See Table 1).

Generally, all of the primary PSAPs within New Jersey fit into one of three categories, as described below.

Counties with a countywide PSAP. In these counties, all 9-1-1 calls are routed to a single facility and emergency responders (law enforcement, fire, and/or emergency medical services) are dispatched to respond to the emergency. Of the 21 counties in New Jersey, 9 use this type of arrangement: Burlington, Camden,

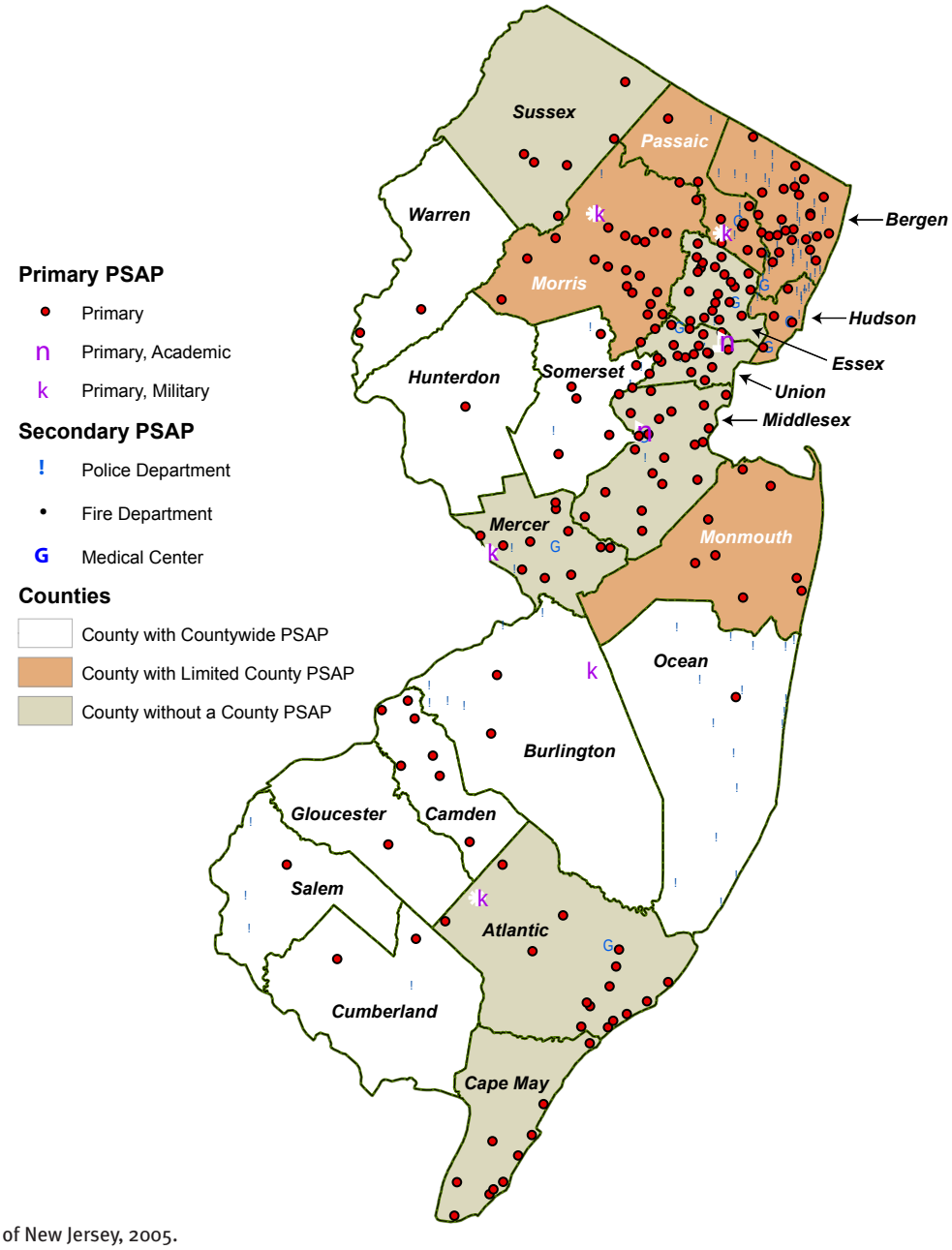
Cumberland, Gloucester, Hunterdon, Ocean, Salem, Somerset, and Warren. However, 6 of these counties—Burlington, Camden, Cumberland, Ocean, Somerset, and Warren—also have individual PSAPs that receive their own 9-1-1 calls.

Counties without a countywide PSAP. Seven counties have only local PSAPs: Atlantic, Cape May, Essex, Mercer, Middlesex, Sussex, and Union.

Counties with a limited county PSAP. These counties have a county PSAP but it is not very large and does not handle much of the call volume. Most of the major municipalities still have their own PSAPs. Counties in this category are Bergen, Hudson, Monmouth, Morris, and Passaic. (See Map 1.)

Each county in New Jersey has at least one PSAP. However, the actual number of PSAPs and PSDPs varies widely by county. Gloucester and Hunterdon

Map 1. New Jersey PSAPs and PSDPs by Type and Location



Source: State of New Jersey, 2005.

each have one PSAP that performs all call-taking and dispatch functions while Ocean and Salem each have a single primary PSAP, but forward calls to PSDPs for dispatch. Many counties, including Essex, Middlesex, Morris, and Union, have more than 20 PSAPs and Bergen has as many as 60.

At the state level, the New Jersey 9-1-1 Commission and OETS oversee New Jersey's E9-1-1 system, which was launched in 1989.[8] The authorizing legislation, the "Statewide 9-1-1 Enhanced Emergency Telephone System" Act (E9-1-1 Act), established OETS, and vested with it the responsibility for planning, designing, implementing, and coordinating the statewide emergency 9-1-1 network. The legislation required every New Jersey municipality to determine how it would provide 9-1-1 services. Those municipal plans were submitted to the designated county coordinator and became part of a county plan. County plans were submitted to OETS for review and OETS approved a statewide 9-1-1 emergency plan in January 1990.

The state of New Jersey funded the original 9-1-1 infrastructure, including the selective routers and dedicated 9-1-1 trunk lines for a cost of $94 million. Local jurisdictions were responsible for the costs associated with equipment purchases, staffing, facilities, and operations. In 1997, a line of credit for $4.7 million was established to fund upgrades to the E9-1-1 network. The upgrades enabled New Jersey to begin to implement Phase I wireless 9-1-1 services[9] and included purchasing a new tandem switch, upgrading database software and capacity, and expanding area coverage. The state completed implementation of wireline E9-1-1 in December 2004.[10]

In 1999, New Jersey's 9-1-1 law was amended, transferring OETS from the Department of Law and Public Safety to the Office of Information Technology (OIT). OIT is an agency in-but-not-of Treasury[11] and is responsible for establishing information technology policy for the Executive Branch of New Jersey state government. The amendment also established a permanent 9-1-1 Commission to oversee OETS in the planning and implementation of the statewide emergency E9-1-1 network. Also in 1999, Rockwell International, Inc., the manufacturer of the underlying call routing systems and the answering equipment located in many of the PSAPs, notified Verizon and OETS that it would terminate support of their switches in December 2002.[12] That decision effectively rendered much of New Jersey's 9-1-1 network obsolete. This necessitated a significant network upgrade, including replacing the switches and, for many PSAPs, their call-taking equipment as well.[13] Verizon replaced the four Rockwell switches with equipment from Nortel in 2004 at no cost to the state.

During the year-long project to replace the 9-1-1 network, those PSAPs with Rockwell call answering equipment either purchased new equipment or converted to the Verizon-provided equipment. Those PSAPs that accepted the Verizon equipment were required to either purchase that equipment or replace it by September 2005. According to OETS, all but three PSAPs had either replaced or purchased the Verizon equipment.

Funding

Until 2004, New Jersey had no stable source of funding to support the E9-1-1 network. In June 2004, the New Jersey Legislature authorized a new surcharge of $0.90 per phone line per month, a portion of which was to provide a stable source of revenue for replacing the current 9-1-1 infrastructure.[14] Proceeds from the surcharge are credited to the "9-1-1 System and Emergency Response Trust Fund Account."[15]

Most of the other states examined as part of this study have imposed a wire-line and wireless fee on telecommunications bills to support statewide and local 9-1-1 services. Many states have used proceeds from those fees to provide operational assistance to PSAPs through grants, reimbursements, or direct acquisition of equipment. Compared with other states, New Jersey initially did not play a strong role in providing equipment or distributing operational assistance to PSAPs (See Table 2).

Table 2. Funding Support by Selected States

State	State Surcharges	County Surcharges	Operational Assistance to PSAPs	State Support for Basic Equipment
Connecticut	✔		✔	✔
Maine	✔			✔
Minnesota	✔		✔	
New Jersey	✔		✔	
Oregon	✔		✔	✔
Washington	✔	✔	✔	
Wisconsin		✔		

Note: Wisconsin has a temporary state surcharge. The states shown in the last column provide full support for basic 9-1-1 call-taking equipment to PSAPs. Other states, like New Jersey, may provide partial support. Also, operational assistance is defined in different ways.

Source: Heldrich Center, October 2005.

With the introduction of a local grant program in 2005, however, New Jersey moved firmly in this direction. The new Enhanced 9-1-1 county grants, administered through OETS, were funded with proceeds of the 9-1-1 surcharge. According to OETS, the grants were designed to provide financial aid to New Jersey PSAPs to purchase, upgrade, maintain, and operate the technology necessary to provide a state-of-the-art emergency communications system while creating incentives for consolidation.

The grants are broken down into three categories: PSAP equipment, general assistance, and consolidation. Distribution of grant funds is made according to criteria developed by the 9-1-1 Commission, the Department of the Treasury, and OETS.

The PSAP equipment grants are intended to offer PSAPs financial aid for upgrading, replacing, or purchasing new equipment or services neccessary to efficiently process 9-1-1 calls.[16] In FY 2006, the equipment grants are being made available to implement the FCC wireless E9-1-1 requirements. Any state, county, regional, or municipal PSAP that directly answers wireless 9-1-1 calls is eligible to apply.

The general assistance grants aid PSAPs with ongoing costs related to maintaining, replacing, and purchasing equipment and services necessary to sustain the enhanced 9-1-1 system. The grants also help PSAPs to provide mandated in-service training to dispatchers and call takers and to implement security measures consistent with 9-1-1 sector best practices.[17] Eligibility for the general assistance grants is limited to larger and/or regional PSAPs. To qualify for general assistance grants, PSAPs are required to:

- Serve a population of 19,000 or more, or serve three or more municipalities, regardless of the total population served;
- Be configured with a minimum of two fully equipped call-taker positions as defined in N.J.A.C. 17:24-2.1; and
- Maintain a minimum staffing level consisting of two certified call takers/dispatchers dedicated to PSAP operations at all times.

The funds set aside for the general assistance grants are allocated among the state's 21 counties based on population.

PSAP consolidation grants are distributed from residual funds set aside for the general assistance grants. The state may, at its discretion, elect to

fund additional consolidation grants directly from the Enhanced 9-1-1 county grants account for initiatives that offer exceptional consolidation programs resulting in improved service and a cost savings to the public. There are no specific eligibility criteria for consolidation grants; availability of funds, however, is limited by the amount of residual funds remaining after the general assistance grants are awarded.

The state awarded approximately $13.4 million in grant funds in January 2006. These funds had been appropriated in the state's FY 2005 budget and were carried forward. The state expects to distribute a total of $14.9 million in equipment, general assistance, and consolidation grants from the FY 2006 budget. Grant applications were made available beginning in April 2006. Based on the preliminary results and recommendations of this study, OETS and the E9-1-1 Commission modified the criteria for general assistance grants. In addition to the requirement that a PSAP serve a population of 19,000 or more or serve at least three municipalities, PSAPs must also be able to certify that they maintain a minimum staffing level of two certified call takers/dispatchers dedicated to PSAP operations at all times. Available funds will continue to be allocated to the 21 counties based on population.

Since the program's inception, the state has awarded nine consolidation grants totaling just under $1.7 million.[18] This represents a small fraction (6%) of the total amount of grants awarded or expected to be awarded from funds allocated in fiscal years 2005 and 2006. Table 3 lists the recipient, amount, and purpose for each of those grants.

The New Jersey Department of Community Affairs (DCA) is also supporting efforts to consolidate local emergency services. Through its SHARE (Sharing Available Resources Efficiently) program, DCA is offering financial assistance to counties, groups of local governmental units, and/or public service nonprofit organizations to study, develop, and implement new shared or regional services. DCA has provided just over $700,000 in funds to local communities since November 2004. Appendix B lists municipalities that received funding from DCA.

Table 3. 9-1-1 Consolidation Grant Recipients

Recipient	Fiscal Year	Amount	Purpose	Approval Date
Atlantic County 9-1-1 Coordinator	2005	$100,000	Consolidation study	February 3, 2006
Atlantic County 9-1-1 Coordinator	2006	$25,000	Consolidation study - supplement	June 2, 2006
Bergen County Police Department	2005	$308,800	Consolidation study and new equipment	December 2, 2005
Bergen County Police Department	2006	$509,221	Equipment for consolidated PSAP	June 2, 2006
Bernards Township	2005	$246,201	Equipment for consolidated PSAP	December 2, 2005
Morris County	2006	$130,000	Consolidation study	June 2, 2006
Sussex County	2005	$60,000	Consolidation study	December 2, 2005
Union County Police Department	2005	$100,000	Consolidation study	December 2, 2005
Warren County	2005	$189,000	Consolidate Phillipsburg into county PSAP	June 2, 2006
Total		**$1,668,222**		

Source: OETS, June 2006.

EFFICIENCIES OF 9-1-1 CONSOLIDATION

Introduction

Few state or national research studies have documented the efficiencies and cost savings resulting from consolidation of 9-1-1 operations. Most of the state 9-1-1 officials interviewed for this study cited anecdotal evidence of cost savings or potential for cost savings, but virtually none were able to point to a fact-based, comprehensive analysis documenting actual savings. The only comprehensive study of PSAP consolidation—conducted by the state of Minnesota in 2003-2004—found there was a potential for cost savings due to consolidation of smaller PSAPs. However, that study found significant cost savings might not be realized due to operational constraints on PSAP operations, such as the need for a 24/7 presence in jails and local police offices. As the study's authors observed, cost savings can be "more elusive in practice than they are on paper."[19]

In 2005-2006, the Heldrich Center conducted an analysis, modeled on the Minnesota study, of the potential efficiencies and cost savings that may be gained from 9-1-1 consolidation in New Jersey.[20] The research team conducted a statewide survey of PSAPs, reviewed data supplied by Verizon, and examined cost estimates prepared by OETS. Using data from various sources, the team examined the relationship between efficiency and a center's workload or call volume, and estimated possible cost savings to the state. This section describes the data sources available to the research team and presents the principal findings from the cost analysis.

Data Sources

The Heldrich Center team relied on three primary data sources. The first source was a survey that was distributed to 203 PSAPs and 105 PSPDs in New Jersey in 2005. Ninety-six PSAPs submitted responses, for a response rate of 47%. However, only 26 PSDPs submitted responses, for a response rate of 25%. Survey respondents were asked to report:

- Total employee costs and total operating and capital costs;
- Number of employees;
- Number of operators and dispatchers on each shift;
- Percentage of time staff spent on 9-1-1 and other duties; and
- Volume of 9-1-1, administrtive, and other calls.

The second data source was a set of Automatic Location Information (ALI) dip data for all PSAPs and PSDPs in New Jersey reported by Verizon. ALI dips represent the number of times that staff in a communications or dispatch center query the database for location information. The number of queries is a proxy for workload or call volume because staff must query the database during the handling of a 9-1-1 call. The research team received a dataset covering seven months of ALI dip activity from 2005 for all PSAPs and PSDPs and used that data to impute call volumes for the remaining five months of the year. This allowed the research team to calculate an estimate of the number of ALI dip calls for 2005.

The third data source was a spreadsheet developed by OETS in September 2005, which provided:

- Types of equipment at all PSAPs and PSDPs in New Jersey,
- Estimated number of equipment positions at all PSAPs and PSDPs, and
- Estimated costs to upgrade basic equipment in all PSAPs and PSDPs to a common technological platform.

There were limitations to all three data sources. The ALI dip call data represented a proxy, not

a direct measure, of workload and call volume. The survey data represented self-reported information that was difficult to verify. For example, each center was asked to report the volume of 9-1-1 calls and other calls received during a given year. However, it was not possible to determine whether the reported number was based on actual records, estimates, or some combination of both.[21] The equipment data provided by OETS were complete, relatively up-to-date, and standardized for all types of centers. However, some of the centers probably changed equipment or underwent other changes during the project period.

Definition of Cost and Efficiency

The analysis focused on two types of costs. The first category was employee cost, defined as "employee salary, overtime, benefits, and allowance" and reported by PSAPs in the survey responses. Employee cost represents the most significant operational cost facing local centers. Because of questions about data quality, researchers excluded from the analysis any PSAP with an average annual salary below $25,000 and above $80,000.

The second category was equipment replacement cost, defined as the estimated cost of upgrading each PSAP's call-taking equipment to a common technological platform. The research team also examined OETS data on the monthly cost of maintaining voice circuits at each PSAP. The number of voice circuits was used because it varies by PSAP; by contrast, the number of ALI circuits is fixed.

To determine the efficiency of local operations, the team calculated two types of measures: cost per call measures and productivity measures that reflect output (calls) per staff person.

Cost Measures:

- Equipment cost per call: The estimated equipment replacement costs for each PSAP developed by OETS divided by the number of ALI dip calls reported by Verizon, or the number of calls reported by each PSAP in the survey responses.
- Employee cost per call: The personnel costs estimated by each PSAP divided by the number of ALI dip calls reported by Verizon, or the number of calls reported by each PSAP in the survey responses.

Productivity Measures:

- Number of calls per equipment position: The number of ALI dip calls reported by Verizon, or the number of calls reported by each PSAP divided by the number of equipment positions reported on the OETS spreadsheet.
- Number of calls per employee: The number of ALI dip calls reported by Verizon, or the number of calls reported by each PSAP in the survey responses divided by either the number of dispatchers and operators reported by each PSAP, or the number of dispatchers, operators, and supervisors reported by each PSAP.

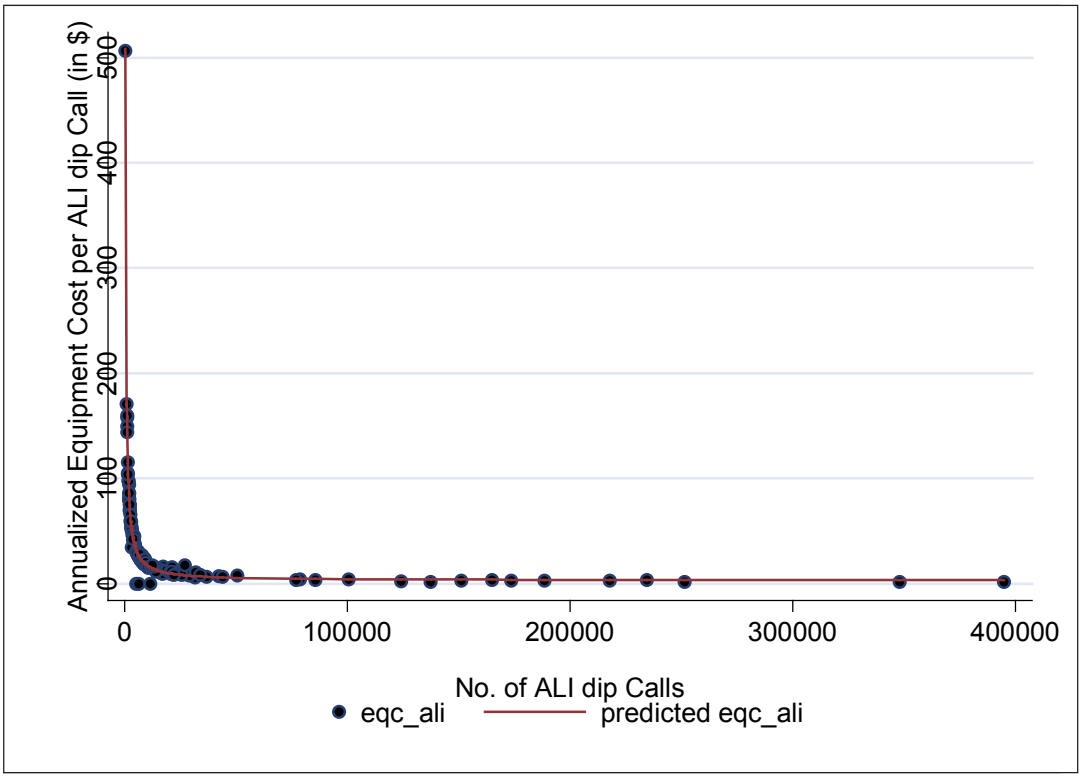
Findings on Potential Efficiencies Resulting from Consolidation

In theory, consolidation of small PSAPs is likely to improve efficiency if larger PSAPs are more efficient in handling emergency calls. Centers that are equipped and staffed to handle a large number of calls may have a lower cost per call than smaller centers. In addition, staff in larger centers may have a greater capacity to handle calls because of the staffing patterns, training opportunities, and information sharing that are possible in a larger operation. Combining different data sources on costs and workload, the research team tested these hypotheses. Below are the most important findings:

- **There was clear evidence of economies of scale in the cost of handling of 9-1-1 calls.**

The statistical analysis demonstrated that average cost declined as call activity increased. Cost per ALI dip call dropped as call activity increased and then began to level off, as illustrated in Figure 1. The pattern of declining average cost held up regardless of the type of measure or data source that was used.

Figure 1. Equipment Cost Per Call



Source: Verizon and OETS, 2005.

Both equipment and employee cost per call followed the same statistical pattern. After falling, average cost began to reach a plateau in the range of 4,000 to 10,000 ALI dip calls per year. It appears that the costs of operations handling calls from 4,000-10,000 to 250,000 are similar due to fixed costs. Operations below 4,000-10,000 appear to be much less efficient.

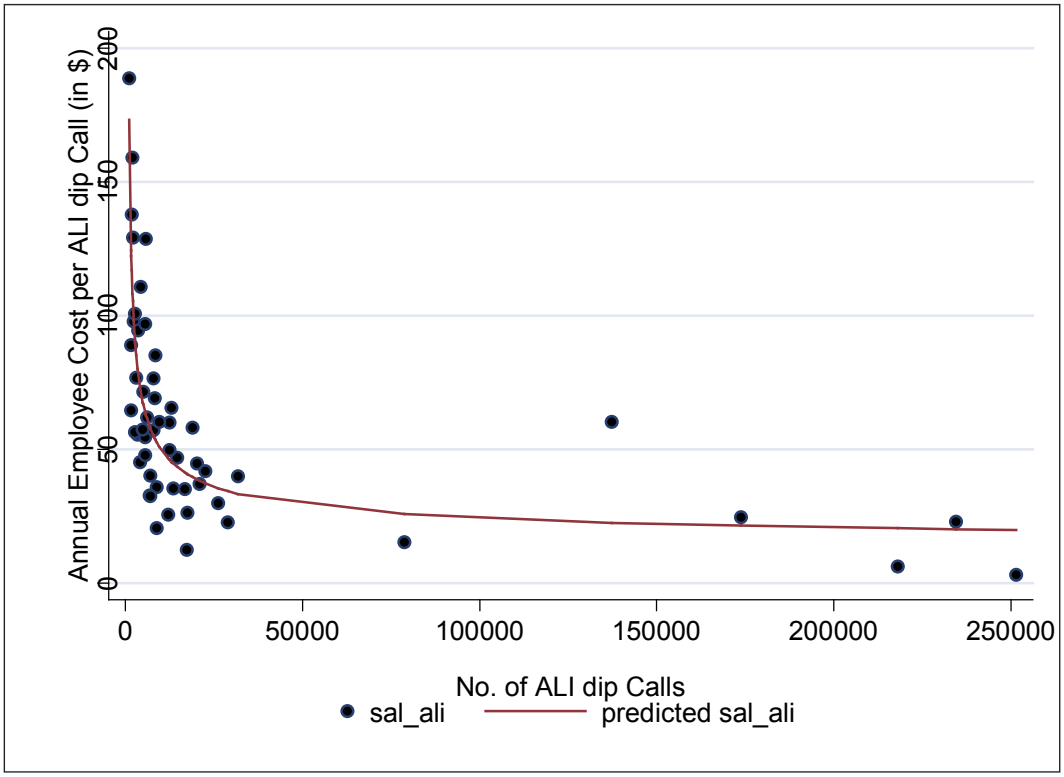
- **PSAPs that handled a large number of calls had a lower cost per call than centers with a low volume of calls.**

Larger PSAPs—those with a moderate to high call volume—have a cost advantage compared with smaller PSAPs. For example, the equipment cost per call for PSAPs taking 1,500 ALI dip calls per year was four times as great as that for centers taking 10,000 ALI dip calls per year. (See Figure 1.) This measure was based on data from a large number of PSAPs for which OETS estimated equipment replacement costs.

Employee cost per call also varied in relation to a PSAP's workload. For example, the average employee cost for PSAPs taking 1,500 ALI dip calls per year was more than twice as high as that for centers taking 10,000 ALI dip calls per year. (See Figure 2.) This measure was based on data from a comparatively small number of PSAPs that responded to the statewide survey and that met data restrictions.

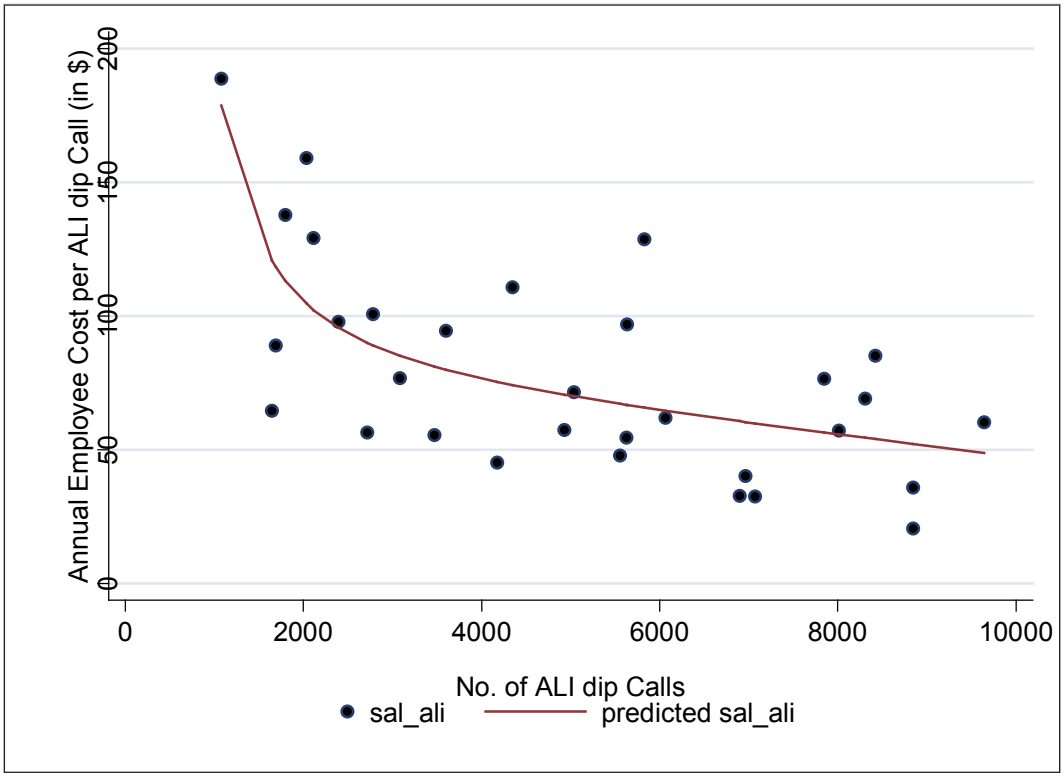
Although the overall trend pointed toward declining average employee costs, there was considerable variability, especially at the low end of the spectrum. A few PSAPs with low call volumes had low costs per call that were comparable to PSAPs with much higher call volumes. (See Figure 3.)

Figure 2. Employee Cost per Call



Source: PSAP Survey and Verizon, 2005.

Figure 3. Employee Cost per Call Below 10,000 ALI dip Calls per Year



Source: Verizon and OETS, 2005.

- **The smallest PSAPs were most likely to be inefficient, compared with all PSAPs.**

To compare PSAPs by level of call activity, the research team first sorted PSAPs into five quintiles. (See Table 4.) The team then calculated four measures of cost per call using different data sources: employee cost per ALI dip call, equipment cost per ALI dip call, employee cost per self-reported call, and equipment cost per self-reported call. PSAPs in each quintile were then compared with the median for all PSAPs.

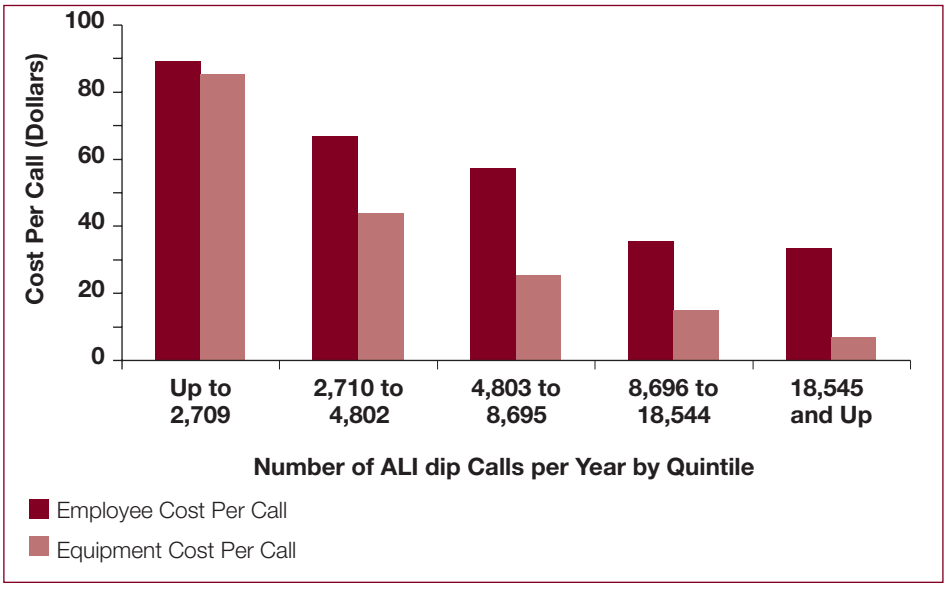
The analysis found that the smallest PSAPs (those with 1-2,709 ALI dip calls per year) had substantially higher costs per call than larger PSAPs. For example, as noted in Figure 4, PSAPs in the first quintile had equipment costs per ALI dip call that were more than three times those of PSAPs in the third quintile. They also were very likely to have costs per call that exceeded the median costs per call for all PSAPs. Nearly all of the PSAPs receiving less than 4,803 ALI dip calls per year exhibited equipment costs per call that were above the median. And most of the PSAPs in the third quintile (4,803-8,695 calls) had equipment and employee costs per call that were above the median.

Table 4. PSAP Call Activity by Quintile (ALI dip Calls per Year)

1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
1-2,709	2,710-4,802	4,803-8,695	8,696-18,544	18,545-up

Source: Heldrich Center/PSAP survey, 2005.

Figure 4. Employee and Equipment Cost per Call by Quintile



Source: Heldrich Center/PSAP Survey, Verizon, and OETS, 2005.

- **PSAPs with one person on duty at any time had higher costs per call than centers with more than one person on duty at all times.**

Another way to characterize PSAPs is to sort them by staffing levels and number of equipment positions. Using survey data, the research team identified PSAPs that usually had only one operator or dispatcher on duty during at least one shift per day and compared their costs per call to the median for all PSAPs. A similar analysis focused on PSAPs with one equipment position.

The analysis demonstrated that centers where only one dispatcher or operator was on duty during at least one shift per day were likely to be inefficient. The vast majority (80%) of PSAPs with only one person on duty had equipment costs per ALI dip call that were above the median for all PSAPs. By contrast, only a fraction (16%) of PSAPs with more than one person on duty had equipment costs per ALI dip call that were above the median. Moreover, centers with only one equipment position tended to have costs per call that were above the median for all PSAPs. Table 5 summarizes the number of call centers located in each county that have one or two positions or that reported employing one call taker per shift.

Table 5. PSAP Summary by County

County	Total PSAPs	One Equipment Position	%	Two Equipment Positions	%	Reported One FTE per Shift	%
Atlantic	15	5	33%	7	47%	1	7%
Bergen	25	5	20%	13	52%	12	48%
Burlington	2	0	0%	1	50%	0	0%
Camden	7	0	0%	2	29%	2	29%
Cape May	10	0	0%	6	60%	2	20%
Essex	21	3	14%	8	38%	2	10%
Mercer	11	0	0%	8	73%	3	27%
Middlesex	22	5	23%	8	36%	10	45%
Monmouth	8	0	0%	3	38%	0	0%
Morris	21	2	10%	16	76%	5	24%
Passaic	9	1	11%	2	22%	3	33%
Somerset	6	1	17%	2	33%	3	50%
Sussex	6	0	0%	6	100%	5	83%
Union	20	5	25%	7	35%	3	15%
Warren	2	0	0%	1	50%	0	0%
Total	**185**	**27**	**15%**	**90**	**49%**	**51**	**28%**

Source: Heldrich Center/PSAP survey, Verizon, and OETS, 2005.

- **Similar to the low-volume PSAPs, most PSDPs experienced extremely low call activity and those with one-equipment position tended to have high costs per call.**

The research team also examined cost data for PSDPs. The primary sources were the Verizon data on call activity and the OETS data on equipment replacement costs and number of equipment positions. Because relatively few PSDPs responded to the statewide survey, data on employee costs among PSDPs were not representative and were therefore not used in this study.

The data available for PSDPs strongly indicated that most PSDPs could be characterized as small operations. For example, Table 6 shows that more than half (53%) had an annual call volume of 1,000 or fewer ALI dip calls—a very low number. In addition, more than half (57%) had only one equipment position and 26% had two equipment positions.

In addition, equipment cost per call varied with workload. PSDPs with high call volumes tended to have lower equipment costs per call than those with minimal call activity. (See Table 7.) In general, the equipment cost per call dropped with increasing call activity and the number of equipment

Table 6. PSDP Summary by County

County	Total PSDPs	1,000 or < ALI dips	%	One Equpment Position	%	Two Equipment Positions	%	Reported One FTE per Shift	%
Atlantic	1	0	0%	0	0%	1	100%	N/A	N/A
Bergen	35	27	77%	31	89%	3	9%	5	14%
Burlington	6	0	0%	5	83%	1	17%	1	17%
Camden	1	1	100%	1	100%	0	0%	0	0%
Cape May	1	1	100%	0	0%	0	0%	N/A	N/A
Cumberland	1	0	0%	1	100%	0	0%	N/A	N/A
Essex	5	1	20%	0	0%	0	0%	N/A	N/A
Hudson	12	2	17%	4	33%	6	50%	1	8%
Mercer	3	0	0%	1	33%	0	0%	N/A	N/A
Middlesex	3	2	67%	2	67%	1	33%	1	33%
Morris	1	0	0%	1	100%	0	0%	N/A	N/A
Ocean	17	7	41%	3	18%	10	59%	3	18%
Passaic	8	7	88%	5	63%	1	13%	N/A	N/A
Salem	3	3	100%	3	100%	0	0%	1	33%
Somerset	4	3	75%	2	50%	2	50%	N/A	N/A
Union	4	2	50%	1	25%	2	50%	2	50%
Total	**105**	**56**	**53%**	**60**	**57%**	**27**	**26%**	**14**	**13%**

Source: Heldrich Center/PSAP survey, Verizon, and OETS, 2005.

Table 7. Median Equipment Cost per Call by Number of Equipment Positions

Number of Positions	1	2	3	4	5
Equipment Cost per Call	$392	$141	$60	$215	$6

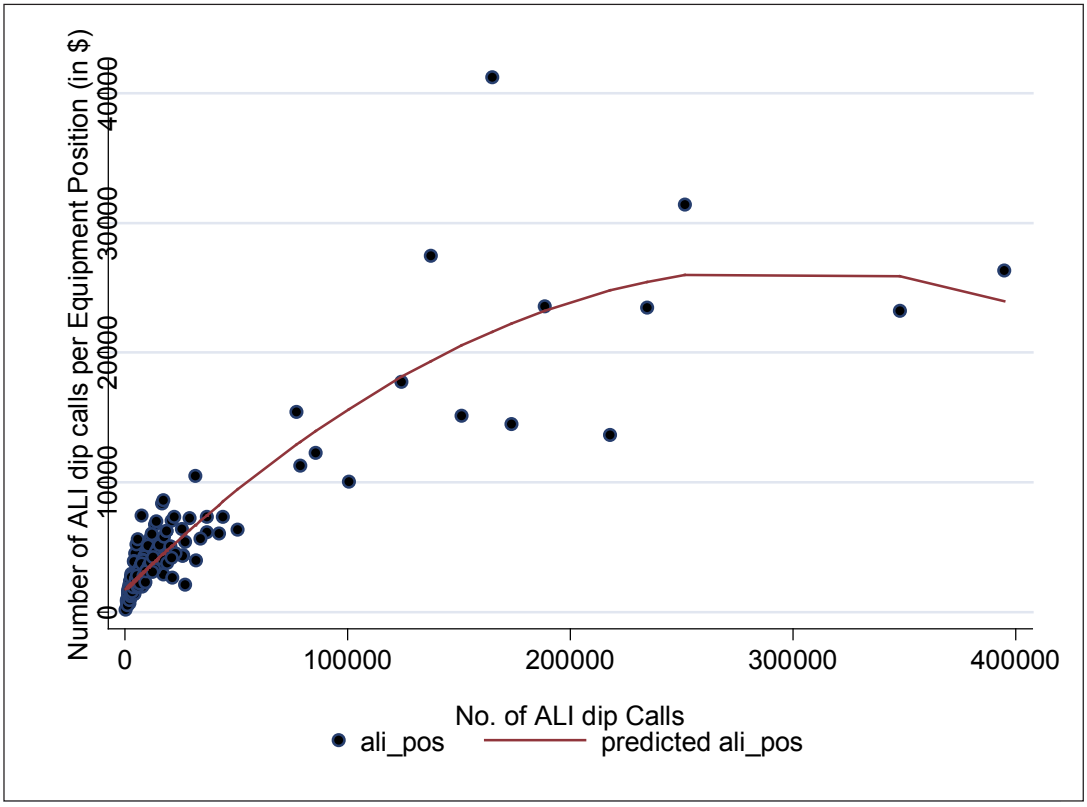
Source: OETS, 2006.

positions. However, PSDPs with four equipment positions had a higher cost than those with fewer positions. The explanation for this anomaly was that one of the PSDPs with four equipment positions apparently received only 396 ALI dip calls per year, skewing the data for the entire category. Appendix C lists PSDPs by call volume, number of positions, and equipment costs. PSDPs with fewer than 1,000 calls per year are highlighted in light blue.

- **Larger PSAPs (with moderate to high call activity) tend to receive more calls per position (and employee) than smaller operations.**

The analysis found that PSAPs handling a large number of calls tend to have higher levels of productivity than smaller PSAPs. For example, PSAPs taking 80,000 ALI dip calls per year took about 12,000 calls per equipment position, compared with only 2,000 calls per position for centers taking 5,000 ALI dip calls per year. In other words, larger PSAPs tended to handle more calls per position than smaller PSAPs. (See Figure 5.) This measure was based on equipment data for nearly every PSAP in the state.

Figure 5. Number of Calls per Equipment Position



Source: Verizon and OETS, 2006.

PSAPs with one equipment position received significantly fewer calls per position than centers with more equipment capacity. The smallest PSAPs with one position had a median of 1,838 ALI dip calls per position compared with a median of 7,342 ALI dip calls per position for centers with five or more positions.

There was also a connection (although not as strong as the other measures) between the number of calls per employee and a PSAP's workload. However, there was substantial variability in the data, especially at the high end of the call activity spectrum. Some PSAPs with high call volumes handled roughly the same number of calls per worker as smaller PSAPs.

- **The results suggest a strong potential for achieving efficiencies from consolidation of PSAPs and PSDPs.**

The results of the cost analysis point to the potential for achieving efficiencies from consolidation of PSAPs and PSDPs. Centers with a low call volume and one person on duty at any time have a relatively high cost per call compared with other centers. Moreover, centers with a low call volume handle fewer calls per position or per employee than larger operations. Other things being equal, reducing the number of small PSAPs is likely to increase operational efficiency.

However, as the site visits demonstrated, there are operational reasons why consolidation may not generate efficiencies. Operators in small PSAPs frequently handle other duties in addition to answering 9-1-1 emergency calls. Those other duties include monitoring a jail, providing clerical or administrative support, and serving as a greeter or initial point of contact at the facility. PSAP officials informed the research team that, if the 9-1-1 function shifted to a larger PSAP, a staff person would still have to perform the other non-9-1-1 duties. Consequently, they argued, consolidation would not generate expected efficiencies in employee costs.

Potential for State Cost Savings Resulting from 9-1-1 Consolidation

Reducing the number of PSAPs and PSDPs has the potential to generate cost savings for state and local government, although it is difficult to quantify those savings. Two categories of state expenditures are directly related to the number of local PSAPs and PSDPs. The first category comprises monthly charges for trunks or phone circuits supporting each PSAP. The state maintains a variable number of voice circuits, depending on the size of the local operation, and two ALI circuits per PSAP or PSDP. The second category comprises the Enhanced 9-1-1 grant program started in FY 2006. The state began distributing the proceeds of the 9-1-1 System and Emergency Response Fee to PSAPs to support equipment upgrades and other operational expenses.

Determining **local** cost savings from 9-1-1 consolidation, on the other hand, is more problematic than estimating **state** cost savings. During the site visits, the Heldrich Center research team found that the budget for PSAP operations, including personnel and capital costs, is typically incorporated into an overall budget for the municipal police department. It is therefore difficult, if not impossible, to isolate precise operational or capital costs for 9-1-1 operations. It is also difficult to quantify local cost savings because consolidation involves transition costs, usually one-time expenses for building new facilities, which are tough to estimate.

There is some anecdotal evidence to support the belief that consolidation can result in costs savings, greater efficiency, and enhanced public safety. When both Bernards Township and Long Hill Township police departments were faced with the need to implement costly upgrades to their radio systems, the two police chiefs sought an alternative that would reduce costs and improve services to their communities. Building on a history of interagency cooperation, the two communities decided to consolidate their PSAPs. The new consolidated center opened in May 2005 and is located in Bernards Township. Because

they merged communication functions, the new PSAP was outfitted with new equipment along with a new radio system. The consolidated PSAP employs 12 full-time telecommunicators, 6 from each agency; they are now able to easily maintain a minimum staffing level of 2 telecommunicators per shift. Both police chiefs believe that they have better equipment, staffing, and functionality than they would have had they pursued individual solutions. The feeling is that they spent less and got more than what they had before.[22]

Given the lack of data and difficulties in calculating local cost savings, the research team focused on the potential for state cost savings resulting from 9-1-1 consolidation. Below are the principal findings on the potential for state-only cost savings:

- **Reducing the number of PSAPs would probably cut the number of phone voice circuits needed to be maintained by the state and thus lead to a possible savings.**

If two PSAPs consolidate to provide call-taking services from a single location, the state can stop paying monthly charges of roughly $43 to support two ALI data circuits used by one of the PSAPs. However, the potential for any reduction in the number of voice circuits maintained by the state is related to the circuit capacity and call volume of the participating PSAPs. If the new location has sufficient capacity, the state can eliminate the voice circuits used by one of the PSAPs. If there is insufficient capacity at the new location, however, the state may actually have to add voice circuits to ensure that the combined operation is able to meet the service standard. As a result, there would be a reduction in the number of ALI data circuits paid for by the state, but there would not necessarily be a net reduction in the number of voice circuits.

- **Reducing the number of PSDPs would be very likely to reduce the number of ALI data circuits and phone voice circuits maintained by the state.**

Reducing the number of PSDPs is very likely to reduce the number of ALI data circuits maintained by the state. It is also likely to lead to a net reduction in the number of voice circuits. Because most PSDPs have low call volumes, a county PSAP or a large regional PSAP is likely to absorb the dispatch function and call volume without adding circuit capacity. A drop in the number of PSDPs would therefore translate into a direct reduction in the number of circuits supported by the state.

- **Reducing the number of circuits maintained by the state would only generate limited cost savings.**

Reducing circuit capacity would not generate substantial cost savings to the state. The current monthly cost to the state of maintaining all circuits (for both PSAPs and PSDPs) is approximately $33,000 and the annual cost is just over $400,000. As noted in Table 8, assuming a 10% net reduction in the number of circuits supporting PSAPs and PSDPs, the monthly cost savings would be about $3,340 and the annual savings would be around $40,000. A more substantial 20% net reduction in the number of circuits would yield monthly savings of $6,700 and an annual savings of a little over $80,000.

As mentioned, a reduction in the number of PSDPs would likely decrease the number of data and voice circuits maintained by the state. Assuming a 50% reduction in the number of PSDP circuits, the monthly cost savings would be about $4,250 and the annual cost savings would be $51,000.

Table 8. Cost Savings from a Reduction in Circuits Maintained by the State

% Reduction	Annual Cost Savings
10% Reduction in Total Circuits	$40,000
20% Reduction in Total Circuits	$80,000
50% Reduction in PSDP Circuits	$51,000

Source: OETS, 2005.

- **Reducing the number of PSAPs, through consolidation, would allow the state to avoid a portion of the projected costs of replacing or upgrading equipment in every local center.**

In FY 2006, the state initiated a new policy of issuing grants to PSAPs to replace or upgrade equipment. To date, 15 PSAPs with the largest populations have received grants. According to OETS estimates, it would cost about $46 million if the state opted to replace basic call-taking equipment in every PSAP and PSDP so that every center would meet new standards. That figure does not include the cost of replacing KML equipment, which has mapping and other functions needed to meet the new standards. It would cost an additional $16 million to provide logging recorders to every PSAP and PSDP.

The state would likely avoid costs if there was a reduction in the number of PSAPs or if the state opted to replace equipment in selected PSAPs rather than every PSAP. For example, if PSAPs with one equipment position were not funded, there would be nearly $2 million in avoided costs for equipment and an additional $600,000 in avoided costs for logging recorders over five years. If PSDPs as well as PSAPs with one equipment position were not funded, there would be nearly $9 million in avoided costs for equipment and $2.6 million for logging recorders over the same period. These avoided costs would be partially offset by the need to obtain additional equipment for centers that absorb operations from PSAPs and PSDPs that would close. This and other scenarios are illustrated in Table 9.

Because equipment must be replaced on a regular basis, the state would also need to issue another round of equipment grants to PSAPs in the long term. State 9-1-1 directors and OETS officials interviewed as part of the study indicated that 9-1-1 equipment must be replaced every five to seven years. Given that schedule, the state would face up to $46 million in basic equipment costs and $16 million in logging recorder costs every five to seven years.[23] That estimate is based on two assumptions: that the state replaced equipment in every existing PSAP and PSDP on a regular basis, and that the costs of technology remained constant. The state would likely avoid a portion of those costs if there was a reduction in the number of PSAPs and PSDPs or if grants were directed to selected centers instead of to every center.

Prospects for Consolidation

New Jersey has a layered structure of local government with the dominant role being played by either counties or municipalities. In most areas of the state, counties have traditionally played a weak role and municipalities have tended to provide the bulk of 9-1-1 services. New Jersey's 9-1-1 system is largely a product of local funding and

Table 9. Potential Avoided Costs to the State for Equipment (in dollars over five years)

Scenario	Count	Average Equipment Cost	Avoided Equipment Costs
PSAPs with One Position	11	$160,602	$1,766,622
PSAPs and PSDPs with One Position	55	$160,602	$8,833,110
PSAPs with Two Positions	60	$160,602	$9,636,120
PSAPs and PSDPs with Two Positions	76	$160,602	$12,205,752
PSAPs with Less than 4,000 ALI dip Calls	41	$194,187	$7,961,667
PSAPs with Less than 10,000 ALI dip Calls	81	$185,584	$15,032,304

Note: Number of PSAPs includes PSAPs requiring new equipment based on OETS estimates.

Source: OETS estimates of equipment, Heldrich Center calculations.

decision making. Those local decisions have led to the creation of small, inefficient call-taking and dispatch centers and wide disparity in the level of investment in equipment and staff training.

Each of the state's 21 counties has at least one 9-1-1 call center. The number of jurisdictions providing call-taking and dispatch services within each county varies widely and the actual number of jurisdictions and their coverage area continuously fluctuate. The state recognizes three primary county models for 9-1-1: countywide, limited county, and no county PSAP. (See Map 1.) In some counties, consolidation has gone as far as it is likely to go. In others, there are additional opportunities to regionalize or consolidate 9-1-1 services.

Based on the annual call volume calculations prepared to support the efficiency analysis in the previous section of this report, the Heldrich Center estimates there were nearly 4.4 million 9-1-1 calls made in the 12 months beginning February 2005. More than **two-thirds (71%) of those calls were handled by the 25 PSAPs** with the highest call volumes. When the number of calls received by the State Police's four PSAPs is added, that figure jumps to 77%. This means that 170 or **87% of the PSAPs in New Jersey processed just over 20% of all 9-1-1 calls.**

There are opportunities for consolidation in almost every county. As indicated, the vast majority of PSAPs are responsible for a small percentage of the 9-1-1 calls in New Jersey and a large percentage of those tend to be less efficient to run than larger PSAPs. While these PSAPs are geographically distributed among nine counties, the majority of the PSAPs are located in the northeast region of the state.

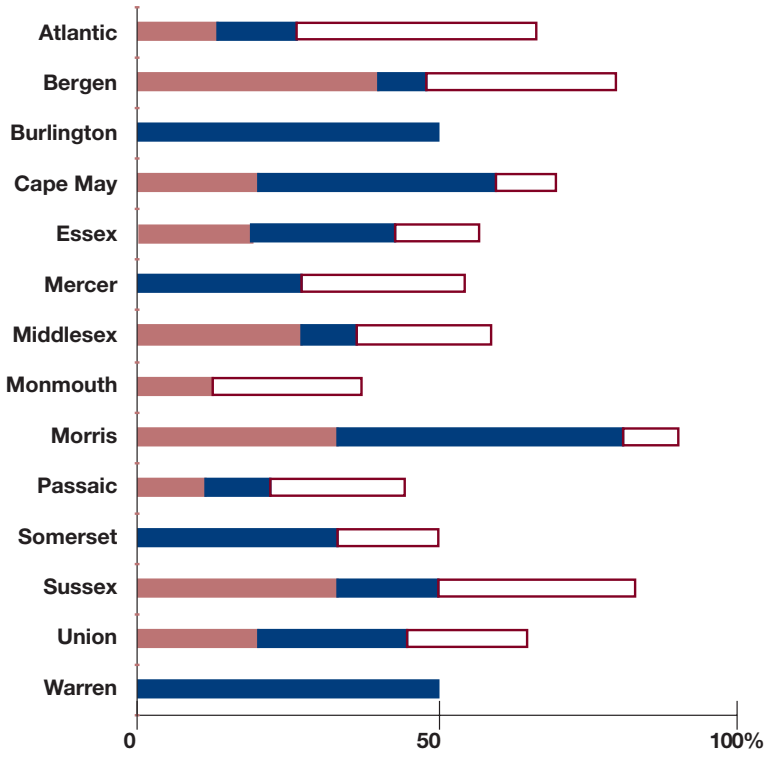
The 25 PSAPs receiving the fewest number of 9-1-1 calls cover 28 municipalities and serve about 200,000 New Jersey residents. Together, they received approximately 36,000 9-1-1 calls. Most of these PSAPs serve a single municipality and none received more than 2,000 ALI dip calls per year. Predictably, most of the PSAPs are located in counties with a limited county or no county PSAP.

As mentioned earlier, the Heldrich Center compared PSAPs by level of call activity by sorting PSAPs into five quintiles. (See Table 4.) The research team then calculated employee and equipment costs per call for each quintile. The analysis demonstrated that the smallest PSAPs are most likely to be inefficient, compared with all PSAPs. The majority of PSAPs appearing in the first, second, and third quintiles by call activity were found to have substantially higher costs per call than larger PSAPs. About 60% of all PSAPs processed 8,695 or fewer calls per year. Figure 6 illustrates the percent of PSAPs in each county that fall within quintiles one through three.

Figure 6 suggests that state officials should focus their efforts on the counties in which more than 50% of PSAPs are likely to be inefficient. According to the state officials interviewed, at least five of those counties—**Atlantic, Bergen, Morris, Sussex,** and **Union**—are currently interested in and/or moving toward consolidation of 9-1-1 services. These counties have all applied for and have been awarded one or more consolidation grants. (See Table 3.) Warren also applied for and was awarded a consolidation grant to study the feasibility of providing 9-1-1 services. Despite having large numbers of small and probably inefficient PSAPs, there is no indication that **Cape May, Essex, Mercer,** or **Middlesex** are currently pursuing consolidation.

Beyond jurisdictions that are actively considering consolidation, there may be additional opportunities for consolidation of 9-1-1 services. This is particularly true in counties without a countywide PSAP. The vast majority of PSAPs in these counties tend to have a relatively low number of incoming calls and one person on duty. The Heldrich Center's analysis of the costs of handling 9-1-1 calls detailed earlier in this report demonstrates the potential for achieving efficiencies from consolidation of smaller communication centers. Centers that receive a relatively low number of incoming calls and that tend to have one person on duty at any time have substantially higher costs per call compared with larger centers. Moreover, centers

Figure 6. PSAPs with Annual Call Volume Below 8,695 ALI dip Calls per Year



	Atlantic	Bergen	Burlington	Cape May	Essex	Mercer	Middlesex	Monmouth	Morris	Passaic	Somerset	Sussex	Union	Warren
% of PSAPs in Quintile 3	40%	32%	0%	10%	14%	27%	23%	25%	10%	22%	17%	33%	20%	0%
% of PSAPs in Quintile 2	13%	8%	50%	40%	24%	27%	9%	0%	48%	11%	33%	17%	25%	50%
% of PSAPs in Quintile 1	13%	40%	0%	20%	19%	0%	27%	13%	33%	11%	0%	33%	20%	0%
Total	66%	80%	50%	70%	57%	54%	59%	38%	91%	44%	50%	83%	65%	50%

Note: There are no PSAPs in quintiles 1 to 3 in Camden, Cumberland, Gloucester, Hudson, Hunterdon, Ocean, and Salem Counties receiving fewer than 8,695 ALI dip calls per year.

Source: Heldrich Center, Verizon, and OETS, 2005.

that only provide dispatch services tend to handle a low number of calls and have high costs per call, based on available data. Reducing the number of small answering and dispatch centers is therefore likely to increase operational efficiency.

Counties without a Countywide PSAP

There are seven counties in this category that provide 9-1-1 services for approximately one-third (34%) of New Jersey's residents: **Atlantic, Cape May, Essex, Mercer, Middlesex, Sussex,** and **Union** counties. The counties in this group contain 122 or 41% of all primary and secondary PSAPs. Fifty-four percent (105) of all New Jersey PSAPs are located in these seven counties. There are far fewer PSDPs in this category; only 16% of all PSDPs in the state. The total population per PSAP is lower than for any other county model and the ratio of municipalities to PSAP is almost one to one. Table 10 details the population, number of municipalities, and number and type of emergency communication centers for counties where there is no countywide PSAP.

All of this suggests that counties in this category may be candidates for targeted efforts to encourage consolidation. As noted earlier, there were clear economies of scale in the cost of handling

Table 10. Summary Data for Counties without a Countywide PSAP

County	Population 2004	Number of Municipalities	Total PSAPs	Primary PSAPs	Secondary PSAPs	Population per PSAP	Population per Primary PSAP	Population per Secondary PSAP	Municipalities per PSAP	Municipalities per Primary PSAP
Atlantic	260,263	23	16	15	1	16,266	17,351	260,263	1.44	1.53
Cape May	101,283	16	11	10	1	9,208	10,128	101,283	1.45	1.60
Essex	796,684	22	26	21	5	30,642	37,937	159,337	0.85	1.05
Mercer	368,993	13	14	11	3	26,357	33,545	122,998	0.93	1.18
Middlesex	781,373	25	25	22	3	31,255	35,517	260,458	1.00	1.14
Sussex	152,218	24	6	6	0	25,370	25,370	N/A	4.00	4.00
Union	531,957	21	24	20	4	22,165	26,598	132,989	0.88	1.05
Total	**2,992,771**	**144**	**122**	**105**	**17**	**24,531**	**28,503**	**176,045**	**1.18**	**1.37**

Note: For the purposes of this chart, population figures are based on population served.

Source: OETS, State of New Jersey, 2006.

9-1-1 calls. Cost per ALI dip drops as call activity increases and then levels off in the range of 4,000 to 10,000 ALI dip calls per year. Table 11 illustrates that of the 105 PSAPs operating in these counties, 70 or 67% recorded fewer than 10,000 ALI dip calls per year. Appendix D compares PSAPs using the efficiency measures described earlier. PSAPs receiving fewer than 4,000 calls per year are highlighted in light blue and PSAPs receiving more than 4,000 but less than 10,000 calls per year are highlighted in salmon.

Counties with a Limited County PSAP

Serving a little more than one-third (36%) of New Jersey's population, the five counties in this category are geographically located in the northern and eastern parts of the state, and are heavily populated. The counties are **Bergen, Hudson, Monmouth, Morris**, and **Passaic**. The 67 PSAPs and 56 PSDPs in these counties comprise 41% of all PSAPs, 34% (67) of all primary PSAPs, and 53% (56) of all secondary PSDPs. The total population per PSAP is slightly lower than that for counties without a county PSAP and the ratio of municipality to PSAP is slightly higher. Table 12 illustrates the distribution of primary and secondary PSAPs by county.

Despite the fact that these counties have some regional call centers, there are more primary and secondary PSAPs in these counties than in other counties.

Counties in this category may be candidates for targeted efforts to encourage consolidation. The analysis of efficiencies indicates that a number of PSAPs (47 or 70%) recorded fewer than 10,000 ALI dip calls per year. (See Table 13.) Similarly, almost 50% of call centers fall within the first two quintiles.

Table 11. Efficiency Measures Applied by County—No County Model

County	Total PSAPs	<10,000	%	1st Quintile 1 - 2,709	%	2nd Quintile 2,710 - 4,802	%	3rd Quintile 4,803 - 8,695	%	4th Quintile 8,696 - 18,544	%	5th Quintile 18,545 - up	%
Atlantic	15	10	67%	2	13%	2	13%	6	40%	4	27%	1	7%
Cape May	10	8	80%	2	20%	4	40%	1	10%	3	30%	0	0%
Essex	21	12	57%	4	19%	5	24%	3	14%	4	19%	5	24%
Mercer	11	6	55%	0	0%	3	27%	3	27%	3	27%	2	18%
Middlesex	22	15	68%	6	27%	2	9%	5	23%	6	27%	3	14%
Sussex	6	5	83%	2	33%	1	17%	2	33%	1	17%	0	0%
Union	20	14	70%	4	20%	5	25%	4	20%	4	20%	3	15%
Total	**105**	**70**	**67%**	**20**	**19%**	**22**	**21%**	**24**	**23%**	**25**	**24%**	**14**	**13%**

Source: OETS, Verizon, PSAP Survey, 2005.

Table 12. Summary Data for Counties with a Limited County PSAP

County	Population 2004	Number of Municipalities	Total PSAPs	Primary PSAPs	Secondary PSAPs	Population per PSAP	Population per Primary PSAP	Population per Secondary PSAP	Municipalities per PSAP	Municipalities per Primary PSAP
Bergen	902,998	70	60	25	35	15,050	36,120	25,800	1.17	2.80
Hudson	606,240	12	16	4	12	37,890	151,560	50,520	0.75	3.00
Monmouth	636,298	53	8	8	0	79,537	79,537	N/A	6.63	6.63
Morris	479,386	39	22	21	1	21,790	22,828	479,386	1.77	1.86
Passaic	500,427	16	17	9	8	29,437	55,603	62,553	0.94	1.78
Total	**3,125,349**	**190**	**123**	**67**	**56**	**25,409**	**46,647**	**55,810**	**1.54**	**2.84**

Note: For the purposes of this table, population figures are based on population served.

Source: OETS, State of New Jersey, 2006.

Table 13. Efficiency Measures Applied by County—Limited County Model

County	Total PSAPs	<10,000	%	1st Quintile 1 - 2,709	%	2nd Quintile 2,710 - 4,802	%	3rd Quintile 4,803 - 8,695	%	4th Quintile 8,696 - 18,544	%	5th Quntile 18,545 - up	%
Bergen	25	20	80%	10	40%	2	8%	8	32%	2	8%	3	12%
Hudson	4	1	25%	0	0%	0	0%	0	0%	1	25%	3	75%
Monmouth	8	3	38%	1	13%	0	0%	2	25%	4	50%	1	13%
Morris	21	19	90%	7	33%	10	48%	2	10%	2	10%	0	0%
Passaic	9	4	44%	1	11%	1	11%	2	22%	0	0%	5	56%
Total	**67**	**47**	**70%**	**19**	**28%**	**13**	**19%**	**14**	**21%**	**9**	**13%**	**12**	**18%**

Source: OETS, Verizon, PSAP survey, 2005.

Counties with a Countywide PSAP

There are nine counties in this category: **Burlington, Camden, Cumberland, Gloucester, Hunterdon, Ocean, Salem, Somerset,** and **Warren**. While comprising almost half of the counties in New Jersey, only 18% (55) of all PSAPs in New Jersey are located within these counties and they serve 30% (2,572,854) of the population. Of the nine counties, only two—Gloucester County Communications Center and Hunterdon County Communications Center—provide all call-taking and dispatch services for their entire counties. Ocean and Salem have one primary PSAP and some secondary PSAPs that dispatch emergency services for individual communities. Burlington, Cumberland, and Warren each have two primary PSAPs, while Somerset[24] and Camden have at least six primary PSAPs each.

There are 32 secondary PSAPs or PSDPs in this category; Ocean has more than half of those with 17 PSDPs. Table 14 illustrates the distribution of primary and secondary PSAPs by county.

Counties within this category tend to be more efficient. Only four (17%) of the PSAPs recorded ALI dip calls per year that fell within the first two quintiles. The majority (57%) of the call centers fell within the fifth quintile. Six (26%) of the PSAPs handle fewer than 10,000 ALI dip calls per year. (See Table 15.)

Most of the counties in this category have achieved a high level of consolidation. Of the nine counties in this category, **Camden, Ocean,** and **Somerset** counties have the possibility of additional opportunities to further reduce the number of 9-1-1 operations (Sse Appendix D). Opportunity, however, may not translate into action for all of these counties.

Table 14. Summary Data for Counties with a Countywide PSAP

County	Population 2004	Number of Municipalities	Total PSAPs	Primary PSAPs	Secondary PSAPs	Population per PSAP	Population per Primary PSAP	Population per Secondary PSAP	Municipalities per PSAP	Municipalities per Primary PSAP
Burlington	449,685	40	8	2	6	56,211	224,843	74,948	5.00	20.00
Camden	516,282	37	8	7	1	64,535	73,755	516,282	4.63	5.29
Cumberland	151,183	14	3	2	1	50,394	75,592	151,183	4.67	7.00
Gloucester	271,806	24	1	1	0	271,806	271,806	N/A	24.00	24.00
Hunterdon	129,746	26	1	1	0	129,746	129,746	N/A	26.00	26.00
Ocean	553,251	33	18	1	17	30,736	553,251	32,544	1.83	33.00
Salem	65,346	15	4	1	3	16,337	65,346	21,782	3.75	15.00
Warren	110,018	22	2	2	0	55,009	55,009	N/A	11.00	11.00
Somerset	325,537	21	10	6	4	32,554	54,256	81,384	2.10	3.50
Total	**2,572,854**	**232**	**55**	**23**	**32**	**46,779**	**111,863**	**80,402**	**4.22**	**10.09**

Source: OETS, State of New Jersey, 2006.

Table 15. Efficiency Measures Applied by County—Countywide PSAP

County	Total PSAPs	<10,000	%	1st Quintile 1 - 2,709	%	2nd Quintile 2,710 - 4,802	%	3rd Quintile 4,803 - 8,695	%	4th Quintile 8,696 - 18,544	%	5th Quntile 18,545 - up	%
Burlington	2	1	50%	0	0%	1	50%	0	0%	0	0%	1	50%
Camden	7	1	14%	0	0%	0	0%	0	0%	3	43%	4	57%
Cumberland	2	0	0%	0	0%	0	0%	0	0%	0	0%	2	100%
Gloucester	1	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%
Hunterdon	1	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%
Ocean	1	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%
Salem	1	0	0%	0	0%	0	0%	0	0%	0	0%	1	100%
Somerset	6	3	50%	0	0%	2	33%	1	17%	2	33%	1	17%
Warren	2	1	50%	0	0%	1	50%	0	0%	0	0%	1	50%
Total	**23**	**6**	**26%**	**0**	**0%**	**4**	**17%**	**1**	**4%**	**5**	**22%**	**13**	**57%**

Source: OETS, Verizon, PSAP survey, 2005.

LESSONS LEARNED

To date, there has been limited consolidation of 9-1-1 services. In 1999, when the Center for Government Services conducted its study, approximately half of all New Jersey's municipalities had entered into regional agreements to provide 9-1-1 call-taking and/or dispatch services.[25] Since that study, limited consolidation has occurred in some counties.[26] Consolidation in New Jersey, where it has occurred, has progressed without mandates or incentives from the state. More recently, the state has encouraged consolidation through the Enhanced 9-1-1 county grant program.

In 2005-2006, the Heldrich Center conducted site visits to 20 PSAPs and PSDPs across the state to assess the opportunities, challenges, and barriers to further consolidation. The participating PSAPs are listed in Table 16.

The site visits yielded valuable information on how local officials view 9-1-1 consolidation, and how they have either found a way to make it work, or how and why they have been unable to move toward a consolidated environment. The following key findings summarize the important information gleaned from the site visits. More details

Table 16. Local Centers Participating in the Study

County	PSAP	Population	Communities Served	PSDPs
Atlantic	Longport	1,054	1	0
Bergen	Mahwah	45,763	5	3
Bergen	Maywood	9,523	1	0
Burlington	Burlington County Communication Center	401,141	40	6
Camden	Cherry Hill	69,965	1	0
Cape May	North Wildwood	4,935	1	0
Cape May	Ocean City	27,493	3	0
Essex	West Caldwell	18,817	2	0
Essex	West Orange	44,493	1	0
Hudson	Jersey City	240,055	1	1
Mercer	Hamilton	87,109	1	0
Mercer	Princeton Borough	14,203	1	0
Middlesex	South Amboy	7,913	1	0
Monmouth	Neptune Township	32,177	2	0
Morris	Morris Plains Borough	5,236	1	0
Morris	Washington Township	26,509	3	0
Ocean	Ocean County Communications	510,916	33	17
Somerset	Bernards Township	33,352	2	0
Somerset	Warren Township	14,259	1	0
Sussex	Andover	9,911	3	0

Source: Heldrich Center, OETS, 2005.

are provided in the Heldrich Center's report, *Site Visit Results and Implications for Consolidation*.

- **Three distinct approaches define the consolidation of answering or dispatch services: contractual arrangement, county-provided arrangement, and a shared governance arrangement.**

The first approach consists of a contractual arrangement or fee-for-service arrangement in which PSAPs receive an annual payment in return for the provision of emergency communications services to neighboring municipalities. The second approach involves a county PSAP providing emergency communications services to most or all municipalities within that county's geographic boundaries. The third approach involves the arrangement of a partnership or shared governance in which several municipalities agree to combine answering or dispatch operations. A key feature of this arrangement is an agreement to jointly oversee and manage the combined operation.

- **The key drivers that have moved local officials toward consolidation are budget pressures and concerns about public safety.**

As evidenced by the site visits, consolidation of 9-1-1 services ultimately occurred because local leaders supported it as a way to reduce costs and improve service and safety for citizens. In New Jersey, budget pressures have sometimes spurred PSAP consolidation as municipalities have sought to avoid the costs of equipment and operational expenses. Concerns about public safety also have driven consolidation.

- **Local officials cite efficiency and the opportunity to improve facilities, acquire better equipment, and increase staff coverage as paramount benefits of consolidation.**

Cost savings and the realization of efficiencies were most often cited as primary benefits of consolidation. Consolidated PSAPs were able to acquire state-of-the-art equipment more efficiently than smaller jurisdictions. Another benefit has been the ability to maintain professional, well-trained staff on every shift that followed uniform procedures for handling calls and dispatches. A third benefit has been the ability to improve public safety by enhancing coverage, and allowing neighboring police departments to share information and coordinate police activity. As evidenced by the site visits, the full benefits of consolidation, however, are unlikely to be achieved unless dispatch services are consolidated along with answering services.

- **Consolidation barriers most often cited included fear of the loss of local autonomy as well as concerns about maintaining a high quality of service in a consolidated operation.**

Concerns about home rule were frequently cited as a major barrier to consolidation. Some local officials fear consolidation because it means a loss of autonomy and loss of control over their local operations and staff. Quality assurance was also cited as a barrier to consolidation. Local officials expressed concern about maintaining the quality of emergency communications if they allowed another center to provide 9-1-1 services for their jurisdiction.

- **The factors that are most likely to encourage jurisdictions to pursue consolidation include providing financial support, providing standards for quality assurance, and effective governance arrangements.**

According to the local and out-of state officials interviewed, financial incentives provided by the state, such as grants or planning assistance, are most likely to spur interest in consolidation. Some local officials also suggested the need for specific performance metrics that could be used to evaluate the quality of a consolidated operation. Others recommended offering models of effective governance as a way to demonstrate to local officials how their concerns about control and accountability can be appropriately addressed.

The consolidation of local services—such as 9-1-1 emergency communications—is a challenging policy area, complete with potential as well as pitfalls and barriers. If the consolidation

process is handled well, it can lead to efficiencies and improved service for citizens. If not handled well, it can disrupt vital services and increase tensions among state and local authorities.

As New Jersey policymakers seek to encourage further consolidation of the state's E9-1-1 system, the following lessons that emerged from the Heldrich Center's research should be taken into account:

- **A strategic, targeted. and well-executed consolidation of 9-1-1 services has clear benefits for citizens and public agencies.**

Combining local operations can result in improved services and, ultimately, improved public safety if done both thoughtfully and well. The benefits of a consolidated center include standardized training, common operating procedures, a larger and more specialized call-taking and dispatch staff, improved training opportunities, and enhanced information sharing. In addition, a consolidated operation is likely to generate efficiencies in the long term by allowing local jurisdictions to share the costs of equipment, personnel, and facilities. However, direct short-term cost savings due to consolidation are difficult to quantify.

- **The consolidation effort is local, and must be driven by local decision makers.**

As the site visits demonstrated, and as documented in the Heldrich Center's research on other states, concerns about governance and accountability are significant barriers to consolidation. Local officials fear losing control of their local operations and staff, and are concerned that consolidated operations will compromise the quality of their existing emergency communications systems. Consolidation is likely to advance only if local officials recognize the benefits of shared services and concerns about governance and quality assurance are appropriately addressed to the satisfaction of local officials. Because local dynamics and political will vary widely, both the prospects and the strategies for encouraging consolidation are different in every county.

- **State policy, however, can influence the consolidation of 9-1-1 services and can foster greater consolidation by creating the right environment for successful efforts.**

The research on other states found that state policy can influence the direction of local consolidation. According to the directors in other states, mandates were not effective in forcing local consolidation. If greater consolidation is a goal for the state, then New Jersey can play a role by creating an environment conducive to local consolidation, and then allow local authorities to work out the details. As the Heldrich Center found, state and regional officials strongly believe that the use of financial incentives is a promising strategy; however, it is not necessarily sufficient to produce consolidation. Other strategies, such as providing improved data and metrics as well as technical assistance, are also necessary to support local decision makers in implementing successful consolidation efforts.

RECOMMENDATIONS

The recommendations for further consolidation of New Jersey's E9-1-1 system presented in this section, although built on lessons learned from other states, are tailored to address the state's unique characteristics. Compared with other states that were studied, New Jersey's E9-1-1 system is heavily funded and directed at the local level. Historically, the state has not exerted authority in setting or enforcing standards, providing equipment, or issuing grants to PSAPs. As a result, the state has limited its ability to require or force consolidation.

State policy should be crafted and established to foster and support consolidation of 9-1-1 services that is, in turn, driven and guided by local decision makers. Consolidation is most likely to advance in those local areas that have cooperated in the past and/or that are willing to consider combining operations. Because of suspicions about county authority in some regions, the best possible route to consolidation in these areas is likely to be the formation of inter-local agreements among compatible and contiguous jurisdictions. In other areas of the state, consolidation at the county level may be more feasible.

To encourage consolidation, New Jersey policymakers should emphasize a combination of strategies, including incentives, improved data and metrics, public education, and technical assistance. The following recommendations specify steps the state should consider to promote further consolidation of the E9-1-1 system.

Combined Operations

Based on the research in New Jersey and the experience of other states, the Heldrich Center believes the state must commit to a policy favoring combined operations for call taking and dispatch. Compared with other states, New Jersey has a large number of stand-alone secondary dispatch centers. And there is a belief among local and state officials that forwarding calls for dispatch is inefficient and may actually increase time needed to handle emergency calls. Other states have encouraged consolidation of dispatch and answering functions, typically through financial incentives.

Incentives

The Heldrich Center found that state and regional officials believe that financial incentives are likely to encourage consolidation. Incentives provide a "carrot" that can reward and reinforce movement toward combined operations. However, because incentives alone are unlikely to be effective, other strategies will be needed. The Heldrich Center recommends the state should:

- Pay a portion or all of the costs associated with PSAP consolidation including:
  - Planning grants for local governments for a study of options;
  - Implementation grants to cover the capital costs to establish a center or to enlarge or enhance an existing PSAP; and
  - Grants to fund necessary equipment upgrades, including enhancements to support interoperability, for all PSAPs and provide enhanced subsidies for municipalities that form a regional communications center.
- Support ongoing education of call center staff in the form of training assistance grants. To encourage consolidation, the state should provide additional funds to consolidated PSAPs to subsidize the salaries of staff attending training.

Improved Data and Metrics

Making better data and metrics available will enable local decision makers to evaluate the performance of a consolidated operation and compare that performance to their own communications operations. To further support efforts to consolidate local communication centers, New Jersey, through OETS and with the help of a working group, should:

- Develop a set of standards defining high-quality E9-1-1 emergency services. The standards should address issues of staffing equipment, facilities, governance, and accountability.
- Require recipients of state E9-1-1 grants to provide regular reports, including budget, staffing, and call volume data, as a condition of their grant. The criteria for these reports should be established by OETS and OMB.
- Collaborate with the Department of Community Affairs to design a more detailed format for reporting appropriations for public safety related expenditures in the annual budget.

Public Education and Technical Assistance

An education campaign targeted at local officials can raise the level of knowledge and awareness of the benefits of 9-1-1 consolidation. Technical assistance will support local areas to implement shared services and overcome consolidation related issues, including governance. The state should:

- Arrange third party facilitation to assist PSAPs with planning and implementation of consolidation.
- Implement a structured, phased education program aimed at local officials (administrators, local decision makers, law enforcement officials, PSAP managers, and the public). The education program should be developed and offered by an independent third party, the state, or some combination of the two.

Enhanced State Operational Role

OETS is a critical partner in New Jersey's E9-1-1 system. While E9-1-1 services remain a largely local/regional service, OETS staff should:

- Provide the support services and lead the efforts to develop the standards described above.
- Communicate and coordinate with the Department of Community Affairs and other state agencies that actively work to promote regionalization of municipal services.

Additional Recommendation for Determining Funding Eligibility

As part of this study, the Heldrich Center was also asked to develop recommendations for categorizing PSAPs and determining eligibility for the Enhanced 9-1-1 county grant program. The primary recommendation is that no communications center should be eligible to receive an enhanced 9-1-1 grant unless it can demonstrate that it is staffed by a minimum of two certified telecommunicators dedicated to the call-taking/dispatching function 24 hours per day, 7 days per week.[27] This standard is grounded in findings from the site visits, interviews with national experts and state 9-1-1 officials, the cost analysis, and general observations.

This recommendation reflects what is needed to ensure public safety and quality of service. When a PSAP has only one employee per shift, it is extremely difficult for the call taker to take breaks or respond to major events or emergencies. During a major emergency, it is physically impossible for one employee to answer the 9-1-1 lines, the administrative line, and handle all the radio traffic necessary to adequately dispatch and monitor the appropriate responders. In addition, taking information from a caller that requires special attention, such as a disabled person, may overwhelm even the most experienced call taker. For all of these reasons, having only one qualified call taker available represents a potential and serious point of failure for that PSAP. Just as centers routinely

have redundant call-taking/dispatching positions, phone circuits, Uninterrupted Power Source systems, and emergency generators, they need to have more than one person on duty to ensure the utmost in public safety as well as quality of service.

In addition, this recommendation reflects what is needed to support efficient PSAP operations. The cost analysis conducted by the Heldrich Center found that the smallest PSAPs were likely to be inefficient, compared with all PSAPs. Most PSAPs with one person on duty at any time tended to have equipment and employee costs that were above the median for all PSAPs. By contrast, most of the centers with more than one person on duty at all times exhibited equipment and employee costs that were below the median. Centers with one equipment position were inefficient, compared with PSAPs with a higher number of positions.

Furthermore, a two-person standard is consistent with the direction that national 9-1-1 organizations and other states appear to be taking. The advisory committee supporting the Minnesota PSAP consolidation study considered setting a minimum staffing requirement, but stopped short of making that recommendation. In its final report, the committee recommended redundant answering equipment (with a minimum of two positions). The research team also was informed that a working group that is part of the National Emergency Number Association, one of the national 9-1-1 organizations, is currently considering a two-person standard; however, the recommendation is not yet final.

While the precise number of PSAPs this standard will affect is unknown, it is possible to estimate the potential impact. Of the 195 PSAPs (excluding state police, academic, or military PSAPs), OETS identifies 27 that are one-position offices. It is assumed that these PSAPs are unable to employ more than one call taker at any given time. In addition, the survey data indicate that at least 51 PSAPs employ only one full-time equivalent (FTE) per shift, regardless of the number of call-taking positions. Adding those two groups together, and removing duplicates (those known to have only one call-taking position that reported a minimum of one FTE per shift in response to the survey) leaves a total of 63 PSAPs (32%) that are likely to be ineligible for general assistance grants.

The actual number of PSAPs that would be affected by this standard could be higher. Of the 65 PSAPs in this sample, all but 6 handle no more than 10,000 ALI dips/year. The ALI dip data for all PSAPs indicate that there are 123 (63%) PSAPs that handled no more than 10,000 calls per year. Since staffing decisions are often based on call volume, it may be assumed that some of those PSAPs would fail to meet the two-person standard as well.

The Heldrich Center explored the types of policies that other states have adopted to determine funding eligibility for grants or assistance to PSAPs. The review found that several states had adopted standards, but none was able to provide a scientific or statistical justification to support selection of the threshold.

Although the Heldrich Center cannot recommend any of those standards, New Jersey policymakers may still want to consider other states' policies for determining funding eligibility. Two states that were studied (Maine and California) established a threshold based on annual call volume. One state (Connecticut) favored a standard based on population served by the PSAP.

Maine requires PSAPs answering fewer than **10 calls per day** to file a consolidation plan. After October 2007, those PSAPs will not continue to receive basic call-taking equipment and training provided by the state. If a PSAP with a low volume of calls remains as a stand-alone operation, it is required to reimburse the state for the total cost of equipment and training.

California requires "new" PSAPs to demonstrate they receive at least **300 calls per month** as a condition for state 9-1-1 funding. PSAPs that answer fewer than 300 calls per month are considered for funding on a case-by-case basis. The state office indicates that application of this policy has been limited to only a few PSAPs.

In **Connecticut**, only towns with **a population of 40,000 or more** receive an annual allocation for

operational assistance. Towns with a population below 40,000 receive only basic call-taking equipment and training assistance from the state. A task force of PSAP administrators developed the standard as part of a review of state funding policies.

The National Emergency Number Association defines a small PSAP as one that serves **a population of 19,000** or less.

Table 17 illustrates the impact of the recommended standard and the standards adopted by other states on PSAPs in the 21 New Jersey counties. It is difficult to estimate the impact of the two-person standard because of a lack of personnel data on every PSAP. Table 17 therefore exhibits the number of PSAPs with one equipment position. All of those PSAPs as well as some proportion of PSAPs with two positions would be affected by that standard.

Table 17. Percentage of PSAPs in Each County Affected by Funding Thresholds

County	2004 Population	No. of Primary PSAPs	<19,000	%	<10 Calls/ Day	%	>40,000 Population	%	At Least 300 Calls/ Month	%	PSAPs with One Position	%
Atlantic	260,263	15	10	67%	2	13%	2	13%	13	87%	5	33%
Bergen	902,998	25	11	44%	10	40%	5	20%	15	60%	5	20%
Burlington	449,685	2	0	0%	0	0%	1	50%	2	100%	0	0%
Camden	516,282	7	1	14%	0	0%	3	43%	7	100%	0	0%
Cape May	101,283	10	7	70%	4	40%	0	0%	6	60%	0	0%
Cumberland	151,183	2	0	0%	0	0%	2	100%	2	100%	0	0%
Essex	796,684	21	9	43%	7	33%	5	24%	14	67%	3	14%
Gloucester	271,806	1	0	0%	0	0%	1	100%	1	100%	0	0%
Hudson	606,240	4	1	25%	0	0%	3	75%	4	100%	0	0%
Hunterdon	129,746	1	0	0%	0	0%	1	100%	1	100%	0	0%
Mercer	368,993	11	4	36%	2	18%	2	18%	9	82%	0	0%
Middlesex	781,373	22	8	36%	8	36%	9	41%	14	64%	5	23%
Monmouth	636,298	8	1	13%	1	13%	3	38%	7	88%	0	0%
Morris	479,386	21	12	57%	9	43%	2	10%	12	57%	2	10%
Ocean	553,251	1	0	0%	0	0%	1	100%	1	100%	0	0%
Passaic	500,427	9	2	22%	1	11%	5	56%	8	89%	1	11%
Salem	65,346	1	0	0%	0	0%	1	100%	1	100%	0	0%
Somerset	325,537	6	1	17%	1	17%	3	50%	5	83%	1	17%
Sussex	152,218	6	2	33%	2	33%	0	0%	4	67%	0	0%
Union	531,957	20	9	45%	7	35%	4	20%	13	65%	5	25%
Warren	110,018	2	1	50%	0	0%	1	50%	2	100%	0	0%
Total	**8,690,974**	**195**	**79**	**41%**	**54**	**28%**	**54**	**28%**	**141**	**72%**	**27**	**14%**

Note: The number of primary PSAPs excludes state police, universities, and military installations.

Source: OETS, 2005.

CONCLUSION

9-1-1 emergency communications services are a small, but vital part of New Jersey's public safety infrastructure. The Heldrich Center's research found that consolidating 9-1-1 services, in a well-thought-out and strategic manner, can lead to greater efficiencies and improved public safety. The barriers to implementing shared services arrangements are significant, but surmountable. This study shows that there are jurisdictions where consolidation is likely to happen without much intervention from the state. At the same time, there are other jurisdictions where it is less likely to occur. Consolidation is unlikely to occur under a state mandate. The state's role should be one of supporting, fostering, and encouraging consolidation. In this environment, New Jersey policymakers should put in place a mix of strategies that offers more than financial incentives alone.

Based on information from interviews and site visits, it is important to understand that anticipated cost savings alone are insufficient motivation to pursue consolidation. Rather, consolidation should also be driven by local officials' interest in improved service and maintaining high standards of public safety. It is likely that consolidation efforts in New Jersey may require an initial investment of state resources to support the construction of new, or expansion of existing, local facilities and/or to finance the purchase of additional equipment at the local level to make future consolidated efforts a reality.

Success will most likely be achieved where there is significant local political will and support, local champions, and a public, transparent process. Also critical to the success of a consolidation effort will be an early, well-planned education campaign designed to educate stakeholders about the opportunities and pitfalls associated with consolidation. The State of New Jersey, acting through the members of the 9-1-1 Commission and the Office of Emergency Telecommunications Services, can do much to provide support for local officials. To do this, the state should formally adopt the recommendations outlined in this report and initiate a dialogue with local and state officials to build support for consolidation initiatives.

Endnotes

[1] Center for Government Services, *New Jersey's Statewide 9-1-1 System: A Case Study in Regionalization in New Jersey* (New Brunswick, NJ: Center for Government Services, 1999).

[2] Bonny Fraser, *Profile of the New Jersey E9-1-1 System* (New Brunswick, NJ: John J. Heldrich Center for Workforce Development, 2005). Neil Ridley, *Reorganizing 9-1-1 Operations: A Report on Experiences with Consolidation in Other States* (New Brunswick, NJ: John J. Heldrich Center for Workforce Development, 2005). Bonny Fraser and Neil Ridley, *Site Visit Results and Implications for Consolidation* (New Brunswick, NJ: John J. Heldrich Center for Workforce Development, 2005).

[3] P.L. 1989, c.1.

[4] N.J.A.C. 17:24-1.2.

[5] The cutover process for Phase II wireless refers to the process whereby OETS works with an individual PSAP to test and confirm receipt of wireless location information and is conducted on a provider-by-provider basis for each county.

[6] Ridley, *Reorganizing 9-1-1 Operations*.

[7] For a list of PSAPs and PSDPs by county, refer to Appendices A and B in Fraser, *Profile of the New Jersey E9-1-1 System*.

[8] P.L. 1989, c. 3.

[9] Phase I wireless requires that all wireless carriers provide the PSAPs with the wireless telephone number and the location of the cell tower that received the call.

[10] E-mail from John Cusack, OETS, August 30, 2005.

[11] No operational entity can be created in state government unless it is attached to an existing Executive Branch agency. At one time, the Office of Information Technology was a division of the Department of the Treasury, but it was felt that they could not effectively provide services for the Executive Branch when it was part of Treasury. The "in-but-not-of" construct allows a certain degree of independence, but still satisfies the spirit/intent of the law.

[12] Verizon (formerly Bell Atlantic), the Certified Local Exchange Carrier in New Jersey.

[13] OETS estimates that over 100 PSAPs were required to acquire new call-taking equipment.

[14] P.L. 2004, c.48.

[15] The revenue will also be applied to pay for costs of funding the state's capital equipment, facilities, and operating expenses that arise from emergency preparedness, emergency response training, counterterrorism measures, security at state facilities, and any expenses of the Office of Emergency Management (part of the Division of State Police in the Department of Law and Public Safety).

[16] Department of the Treasury, Office of Information Technology, and Office of Emergency Telecommunications Services, *FY 2006 Enhanced 9-1-1 Grants Handbook* (April 13, 2006), p. 3.

[17] Ibid., p. 5.

[18] The State Department of Community Affairs distributed just over $500,000 in FY 2005 and 2006 to communities and counties exploring joint police and dispatching services.

[19] Minnesota Department of Public Safety, *PSAP Consolidation* (Saint Paul, MN: Minnesota Department of Public Safety, 2004), p. 68.

[20] Ibid.

[21] There is a strong correlation between the two measures of workload—that is, between what Verizon reports and what individual PSAPs estimate. The trends in the cost data are similar.

[22] Interview with Chief Robert E. Kumpf, Senior, Bernards Township Police Department and Chief Michael Peoples, Long Hill Township Police Department, January 2006.

[23] That estimate could be higher if the state replaces KML equipment recently acquired by smaller PSAPs.

[24] In the Heldrich Center's earlier reports on this study, Somerset County was characterized as having a limited-county PSAP. That classification was based on data provided by OETS. Recently, OETS modified the county's designation to a countywide PSAP.

[25] Center for Government Services, *New Jersey's Statewide 9-1-1 System*.

[26] The Center for Government Services documented 210 primary PSAPs (excluding university, state police, and military installations). In 2006, the Heldrich Center documented 195 primary PSAPs providing emergency communications services to New Jersey's 566 municipalities.

[27] This is not to say that all PSAPs must adhere to this standard. Rather, it is a threshold requirement to be considered eligible for the grant program. Survey results indicate that approximately 58% of the PSAPs responding to the survey would not be eligible for a grant. PSAPs with one position call-taking equipment are unlikely to meet this standard.

Appendix A:
E9-1-1 Consolidation Study Interviewees

Lieutenant James Abbondanzo
Morris Plains Police Department

Lieutenant Michael Bailey
Washington Township Police Department (Morris)

Chief James Batelli
Mahwah Police Department

Hank Birkenheuer
Camden County 9-1-1 Coordinator

Sergeant S.P. Blank
Mahwah Police Department

Chief Robert Blevin
Ocean City Police Department

Captain Michael Bramhall
West Caldwell Police Department

Officer Pal Campana, IT Specialist
Cherry Hill Police Department

Brian Campion, Administrator
Warren Township

Neil Campbell
Monmouth County 9-1-1 Coordinator

Lieutenant Peter Casamento
Maywood Borough Police Department

Lieutenant Arthur P. Ceccato
Warren Township Police Department

Chief Phillip Coleman
Andover Township Police Department

Chief James Collins
Hamilton Police Department

Ted Connolly
Hudson County 9-1-1 Coordinator

Sergeant Robert Cosentino
West Orange Police Department

Eskil S. Danielson, Director
Sussex County Sheriff's Office

James DeLigny
Ocean County 9-1-1 Coordinator

William Dressel
New Jersey State League of Municipalities

Hal English, Director of Information Technology
Hamilton Township

Chief Anthony Federico
Princeton Borough Police Department

Chief Joseph Forbes
Passaic County 9-1-1 Coordinator

Howard Ghetti, Communications Supervisor
Washington Township Police Department (Morris)

LeRoy Gunzelman III
Somerset County 9-1-1 Coordinator

Robert Hartman
Mercer County 9-1-1 Coordinator

Lieutenant Richard Herrick, 9-1-1 Coordinator
Director of Emergency Management &
Patrol Administration
Hamilton Township Police Department

Kathy Horn, Chief Public Safety
Telecommunications Officer
Ocean City Police Department

Jeffery Johnson, Chief Telecommunicator
Burlington County Communications Center

Vincent Jones, Atlantic County 9-1-1 Coordinator

Captain Perry Kelly
Ocean County Communications Center

Raymond Kenny, Technical Specialist
Washington Township Police Department (Morris)

Lieutenant Anthony Kozlowski
Newton Police Department

Lieutenant Bruce Kuipers
Mahwah Police Department

Chief Robert E. Kumpf Sr.
Bernards Township Police Department

Lieutenant Mark K. Lepinski
Bergen County 9-1-1 Coordinator

Chief Brian Malloy
Cherry Hill Police Department

Captain Robert Matteucci
North Wildwood Police Department

Frank McCall
Cape May County 9-1-1 Coordinator

Lieutenant Melson, Services Division Commander
Cherry Hill Police Department

Sergeant Bill Monro
Neptune Township Police Department

Chief David Pegg
Maywood Police Department

Chief Michael Peoples
Long Hill Township Police Department

Chief A. Scott Porter
Longport Police Department

Captain Bruce Richmond
South Amboy Police Department

Lieutenant Datina J. Rinn, Commander
Community Relations Division
Jersey City Police Department

Joseph Saiia, Director
Burlington County Communications Center

Chief Douglas P. Scherzer
Morris Plains Borough Police Department

Captain Robert Schofield
Cherry Hill Police Department

Sergeant Vicki Skill
North Wildwood Police Department

Michael Somers
Jersey City Police Department

Captain William Stahl
Warren Township Police Department

Sergeant Ray Strilec
Morris County 9-1-1 Coordinator

Dawn Summerling
Ocean County Communications

Jack Terhune, Borough Administrator
Maywood Borough

Raymond Townsend, Administrator
North Wildwood

Chief Charles B. Tubbs
West Caldwell Police Department

Sheriff Robert Untig
Sussex County 9-1-1 Coordinator

Captain James Wallis
South Amboy Police Department

Patty Walsh, Lead Public Safety Telecommunicator
Cherry Hill Police Department

Rory Zach
Middlesex County 9-1-1 Coordinator

Appendix B:
SHARE Public Safety Grant Recipients

Date	Community	County	Amount	Purpose	Partner(s)	County	Outcomes
November 2004	Westwood	Bergen	$20,000	Study police consolidation	Emerson	Bergen	Lost interest, DCA is working to revive
November 2004	Hopatcong	Sussex	$8,333	Study shared police services	Alpha	Warren	Deemed successful per DCA
November 2004	Beach Haven	Ocean	$20,000	Study shared police services	Long Beach	Ocean	PDs did not consolidate; Long Beach now dispatches for Beach Haven
November 2004	Princeton Borough	Mercer	$20,000	Condolidate police dispatch	Princeton Township	Mercer	Did not implement
February 2005	Audubon	Camden	$100,000	Consolidate police services	Audubon Park	Camden	Deemed successful per DCA
February 2005	Belmar	Monmouth	$20,000	Study public safety communications	Bradley Beach	Monmouth	Deemed successful per DCA
February 2005	Bernards Township	Somerset	$100,000	Implement joint police dispatch	Long Hill	Morris	Deemed successful per DCA
April 2005	Margate City	Atlantic	$20,000	Study shared police dispatching	Longport Borough	Atlantic	Did not implement; does not intend to
April 2005	Spring Lake	Monmouth	$100,000	Implement joint police dispatching	Spring Lake Heights	Monmouth	Deemed successful per DCA
March 2006	Hopewell Township	Mercer	$6,600	Study shared police servcies	Hopewell Borough	Mercer	Refined exisiting contract for police services
March 2006	Matawan	Monmouth	$40,172	Establish emergency services dispatching	Monmouth County	Monmouth	Deemed successful per DCA
June 2006	Long Beach	Ocean	$100,000	Implement joint police dispatching services	Beach Haven	Ocean	Deemed successful per DCA
June 2006	Collingswood Borough	Camden	$150,412	Implement joint police services	Woodlynne Borough	Camden	Began July 1, 2006
	Total		**$705,517**				

Source: Department of Community Affairs.

Appendix C:
PSDPs by Call Volume, Number of Positions, and Equipment Costs

County	PSDP	Annual ALI dip Calls	ALI dip Calls/Day	Number of Positions	ALI dip Calls/ Position/Day	Equipment Costs	Equipment Cost/Call
Atlantic	Atlantic Cty Med Ctr	13,889	38	2	19	-	-
Bergen	Ridgefield PD	-	-	1	-	$160,602	$160,602
Bergen	Haworth PD	46	0	1	0	$160,602	$3,470
Bergen	Teaneck Fire	178	0	1	0	-	-
Bergen	South Hackensack PD	216	1	1	1	$160,602	$744
Bergen	Ho-Ho-Kus PD	259	1	1	1	$160,602	$620
Bergen	Oradell PD	363	1	1	1	$160,602	$442
Bergen	Hillsdale PD	410	1	1	1	$160,602	$392
Bergen	Bogota PD	441	1	1	1	$160,602	$365
Bergen	Waldwick PD	459	1	1	1	$160,602	$350
Bergen	Wood-Ridge PD	489	1	1	1	$160,602	$329
Bergen	Rochelle Park PD	513	1	1	1	$160,602	$313
Bergen	Franklin Lakes PD	543	1	1	1	$160,602	$296
Bergen	River Edge PD	547	1	1	1	-	-
Bergen	Upper Saddle PD	573	2	1	2	$160,602	$280
Bergen	East Rutherford PD	583	2	1	2	$160,602	$276
Bergen	Little Ferry PD	609	2	1	2	$160,602	$264
Bergen	Wallington PD	687	2	1	2	$160,602	$234
Bergen	Tenafly PD	706	2	1	2	$160,602	$227
Bergen	Oakland PD	722	2	1	2	$160,602	$223
Bergen	Englewood Fire	758	2	1	2	$160,602	$212
Bergen	Edgewater PD	759	2	2	1	$160,602	$211
Bergen	Ridgefield Park PD	780	2	1	2	$160,602	$206
Bergen	Ramsey PD	845	2	1	2	$160,602	$190
Bergen	New Milford PD	871	2	1	2	$160,602	$184
Bergen	Palisades Park PD	958	3	1	3	$160,602	$168
Bergen	Fairview PD	969	3	1	3	$160,602	$166
Bergen	Saddle River PD	987	3	1	3	$160,602	$163
Bergen	Rutherford PD	1,107	3	1	3	$160,602	$145
Bergen	Wyckoff PD	1,171	3	2	2	$160,602	$137
Bergen	North Arlington PD	1,365	4	1	4	$160,602	$118

Bergen	Lyndhurst PD	1,402	4	2	2	$160,602	$115
Bergen	Cliffside Park PD	1,416	4	1	4	$160,602	$113
Bergen	Moonachie PD	1,570	4	1	4	$160,602	$102
Bergen	Cresskill PD	1,774	5	1	5	$160,602	$91
Bergen	Lodi PD	2,179	6	4	1	$212,997	$98
Burlington	Florence PD	1,243	3	1	3	$160,602	$129
Burlington	Bordentown PD	1,666	5	1	5	$160,602	$96
Burlington	Cinnaminson PD	2,954	8	2	4	$160,602	$54
Burlington	Moorestown PD	3,015	8	1	8	$160,602	$53
Burlington	Maple Shade PD	3,134	9	1	9	$160,602	$51
Burlington	Mount Laurel PD	9,674	27	1	27	$160,602	$17
Camden	Rutgers PD	57	0	1	0	$160,602	$2,839
Cape May	Cape May Comm Ctr	369	1	3	0	$160,602	$436
Cumberland	Millville PD	4,323	12	1	12	$186,600	$43
Essex	MONC	477	1	12	0	N/A	N/A
Essex	East Orange Fire	2,335	6	3	2	$186,600	$80
Essex	Essex Valley Med	7,464	20	3	7	$186,600	$25
Essex	NJ Transit PD	13,512	37	4	9	N/A	N/A
Essex	University of Medicine and Dentristy	38,098	104	10	10	$388,975	$10
Hudson	Guttenberg PD	507	1	1	1	$160,602	$317
Hudson	Harrison PD	670	2	2	1	$160,602	$240
Hudson	Weehawken PD	1,041	3	1	3	$160,602	$154
Hudson	Kearny PD	1,488	4	1	4	$160,602	$108
Hudson	Jersey City Fire	2,198	6	2	3	-	-
Hudson	North Hudson Reg Fire	2,319	6	2	3	$160,602	$69
Hudson	Hoboken PD	2,554	7	2	3	$160,602	$63
Hudson	McCabe Ambu	3,159	9	1	9	-	-
Hudson	West New York PD	3,657	10	3	3	$186,600	$51
Hudson	North Bergen PD	3,994	11	2	5	$160,602	$40
Hudson	Union City PD	4,563	13	2	6	$160,602	$35
Hudson	Jersey Cty HUDCN	40,711	112	5	22	$239,194	$6

Mercer	Mercer Co Emergency	1,442	4	3	1	$186,600	$129
Mercer	Mercer County Emergency	1,442	4	3	1	$186,600	$129
Mercer	LIFECOMM	18,881	52	1	52	$160,602	$9
Middlesex	Woodbridge FD	122	0	1	0	$160,602	$1,320
Middlesex	Milltown PD	605	2	1	2	$160,602	$265
Middlesex	RWJ Medical	2,590	7	2	4	$160,602	$62
Morris	Jefferson PD	3,034	8	1	8	-	-
Ocean	Beach Haven PD	274	1	1	1	N/A	N/A
Ocean	Seaside Park PD	312	1	1	1	-	-
Ocean	Lavallette PD	317	1	2	0	$160,602	$506
Ocean	Seaside Heights PD	531	1	2	1	-	-
Ocean	Ocean Twp PD	756	2	2	1	-	-
Ocean	Brick Twp PD	807	2	3	1	-	-
Ocean	Point Pleasant Beach PD	849	2	2	1	-	-
Ocean	Point Pleasant Boro PD	1,500	4	1	4	$160,602	$107
Ocean	Long Beach PD	2,794	8	2	4	-	-
Ocean	Stafford PD	3,115	9	2	4	$160,602	$52
Ocean	Little Egg Harbor PD	3,497	10	2	5	-	-
Ocean	Jackson Twp	4,407	12	2	6	$160,602	$36
Ocean	Manchester Twp PD	6,329	17	3	6	-	-
Ocean	Lakewood Twp PD	6,449	18	3	6	-	-
Ocean	Lacey PD	6,581	18	2	9	-	-
Ocean	Berkeley Twp PD	7,872	22	2	11	-	-
Ocean	Dover Twp	26,158	72	4	18	$212,997	$8
Passaic	MICCOM	396	1	4	0	$212,997	$538
Passaic	North Haledon PD	398	1	1	1	-	-
Passaic	Haledon PD	466	1	1	1	-	-
Passaic	Ringwood	615	2	1	2	-	-
Passaic	Passaic Fire	615	2	2	1	-	-
Passaic	West Paterson PD	694	2	1	2	-	-
Passaic	Totowa PD	924	3	1	3	-	-
Passaic	Paterson Fire	12,847	35	3	12	$186,600	$15

Salem	Lower Alloways Creek	75	0	1	0	-	-
Salem	Carneys Point PD	201	1	1	1	-	-
Salem	Salem City PD	307	1	1	1	-	-
Somerset	Bernardsville PD	245	1	1	1	$160,602	$655
Somerset	Green Brook PD	639	2	1	2	-	-
Somerset	Watchung	816	2	2	1	$160,602	$197
Somerset	Hillsborough PD	1,205	3	2	2	-	-
Union	Union Co PD	168	0	2	0	$160,602	$956
Union	Roselle Fire	543	1	2	1	$160,602	$296
Union	Summit	1,217	3	1	3	-	-
Union	Overbrook Hospital/ CENCOM	21,363	59	4	15	-	-

Source: Verizon and OETS, 2005

= PSDPs receiving less than 1,000 calls per year

Appendix D:
PSAPs by Call Volume, Number of Positions, and Equipment Costs

County	PSAP Name	Pop	Annual Ali Dip Calls	Ali Dip Calls/ Day	Number of Positions	Calls/ Position	Equipment Costs	Equipment Cost/Call
Atlantic	Longport	1,083	819	2	1	819		
Atlantic	Linwood	7,415	2,403	7	1	2,403		
Atlantic	Absecon	7,905	3,727	10	2	1,863	$160,602	$43.09
Atlantic	Margate City	8,627	3,874	11	2	1,937		
Atlantic	Brigantine	12,769	4,918	13	2	2,459		
Atlantic	Somers Point	11,731	5,203	14	1	5,203		
Atlantic	Egg Harbor City	44,654	5,333	15	2	2,667	$160,602	$30.11
Atlantic	Buena	15,729	5,621	15	1	5,621		
Atlantic	Ventnor	12,831	6,276	17	2	3,138		
Atlantic	Hammonton	13,280	7,438	20	1	7,438		
Atlantic	Galloway Twp. PD	36,198	13,464	37	2	6,732		
Atlantic	Hamilton	23,669	13,783	38	3	4,594		
Atlantic	Pleasantville	19,113	14,004	38	2	7,002	$160,602	$11.47
Atlantic	Egg Harbor Township	12,554	18,377	50	4	4,594	$212,997	$11.59
Atlantic	Atlantic City PD	40,580	85,755	235	7	12,251	$305,134	$3.56
Bergen	Emerson PD	7,339	1,018	3	1	1,018	$160,602	$157.72
Bergen	Leonia PD	8,911	1,077	3	2	538	$160,602	$149.18
Bergen	Washington Township	9,623	1,411	4	1	1,411		
Bergen	River Vale PD	15,681	1,529	4	1	1,529	$160,602	$105.03
Bergen	Carlstadt PD	6,019	1,642	4	2	821	$160,602	$97.79
Bergen	Maywood PD	9,505	1,689	5	1	1,689		
Bergen	Englewood Cliffs PD	5,655	1,694	5	1	1,694		
Bergen	Westwood PD	11,051	1,985	5	3	662	$186,600	$94.01
Bergen	Dumont PD	17,571	2,030	6	2	1,015	$160,602	$79.13
Bergen	Saddle Brook PD	13,236	2,705	7	2	1,353	$160,602	$59.37
Bergen	Hasbrouck Heights PD	11,679	3,677	10	2	1,839	$160,602	$43.68
Bergen	Elmwood Park PD	19,005	3,797	10	2	1,899	$160,602	$42.30
Bergen	Bergenfield PD	26,210	5,040	14	2	2,520		
Bergen	Park Ridge PD	22,177	5,280	14	2	2,640	$160,602	$30.42
Bergen	Closter PD	35,405	6,062	17	3	2,021	$186,600	$30.78
Bergen	Fairlawn	31,613	6,881	19	2	3,441		
Bergen	Garfield	29,833	6,905	19	2	3,453		

Bergen	Mahwah	47,681	7,500	21	2	3,750	$160,602	$21.41
Bergen	Fort Lee	37,310	8,539	23	3	2,846	$186,600	$21.85
Bergen	Englewood PD	26,353	8,544	23	2	4,272	$160,602	$18.80
Bergen	Teaneck	39,853	10,697	29	2	5,349		
Bergen	Paramus	80,869	16,886	46	3	5,629	$186,600	$11.05
Bergen	Ridgewood Pub Safety	157,462	20,239	55	4	5,060	$212,997	$10.52
Bergen	Hackensack PD	69,408	31,500	86	3	10,500	$186,600	$5.92
Bergen	Bergen County PD	163,549	164,842	452	4	41,211	$597,000	$3.62
Burlington	Medford	23,568	4,685	13	2	2,343	$160,602	$34.28
Burlington	Burlington County Communications	426,117	234,444	642	10	23,444	$780,000	$3.33
Camden	Voorhees Twp PD	28,742	8,846	24	2	4,423	$160,602	$18.16
Camden	Winslow Twp PD	36,061	17,270	47	2	8,635	$160,602	$9.30
Camden	Gloucester Twp PD	11,608	17,457	48	4	4,364		
Camden	Pennsauken	35,625	21,051	58	3	7,017	$186,600	$8.86
Camden	Cherry Hill PD	71,929	28,867	79	4	7,217	$212,997	$7.38
Camden	Camden City PD	79,948	137,333	376	5	27,467	$239,194	$1.74
Camden	Camden County	252,369	348,230	954	15	23,215	$528,354	$1.52
Cape May	Stone Harbor	1,087	1,006	3	2	503	$160,602	$159.60
Cape May	Wildwood Crest	4,282	2,460	7	2	1,230	$160,602	$65.29
Cape May	Sea Isle City	2,976	2,727	7	2	1,364	$160,602	$58.88
Cape May	Avalon PD	2,164	2,973	8	2	1,486	$160,602	$54.03
Cape May	North Wildwood PD	4,801	4,178	11	3	1,393	$186,600	$44.67
Cape May	Cape May City	5,162	4,179	11	2	2,090	$160,602	$38.43
Cape May	Wildwood PD	5,211	8,011	22	2	4,005	$160,602	$20.05
Cape May	Lower Township	22,019	9,651	26	3	3,217	$186,600	$19.33
Cape May	Middle Township	25,565	14,676	40	3	4,892	$186,600	$12.71
Cape May	Ocean City PD	28,016	15,475	42	3	5,158	$186,600	$12.06
Cumberland	Vineland	58,009	30,123	83	8	3,765	$239,194	$7.94
Cumberland	Cumberland County Communications	93,174	78,819	216	7	11,260	$305,134	$3.87
Essex	Essex Fells	2,130	317	1	2	159	$160,602	$506.40
Essex	North Caldwell	7,354	941	3	1	941	$160,602	$170.65
Essex	Glen Ridge	7,123	1,392	4	2	696	$160,602	$115.38

Essex	Roseland	5,341	1,882	5	2	941	$160,602	$85.32
Essex	Cedar Grove	12,565	2,943	8	1	2,943	$160,602	$54.56
Essex	Fairfield PD	7,827	3,171	9	2	1,586	$160,602	$50.64
Essex	Verona PD	13,315	3,454	9	2	1,727	$160,602	$46.49
Essex	West Caldwell PD	18,690	4,531	12	1	4,531	$160,602	$35.45
Essex	South Orange	16,788	4,646	13	2	2,323	$160,602	$34.57
Essex	Nutley	27,875	5,745	16	2	2,872	$160,602	$27.96
Essex	Millburn		6,669	18	3	2,223	$186,600	$27.98
Essex	Maplewood PD	23,450	8,422	23	3	2,807	$186,600	$22.16
Essex	Livingston	27,861	10,258	28	2	5,129	$160,602	$15.66
Essex	Bloomfield PD	46,793	12,372	34	4	3,093	$212,997	$17.22
Essex	Montclair	38,298	12,711	35	3	4,237	$186,600	$14.68
Essex	West Orange PD	44,832	14,885	41	4	3,721	$212,997	$14.31
Essex	Belleville PD	35,399	18,801	52	3	6,267		
Essex	Orange PD	32,388	22,027	60	3	7,342	$186,600	$8.47
Essex	East Orange PD	68,930	42,255	116	7	6,036	$305,134	$7.22
Essex	Irvington	59,689	44,045	121	6	7,341	$273,966	$6.22
Essex	Newark	280,451	394,815	1,082	15	26,321	$521,933	$1.32
Gloucester	Gloucester County Communications	271,806	151,299	415	10	15,130	$450,000	$2.97
Hudson	Secaucus PD	15,663	9,350	26	3	3,117	$186,600	$19.96
Hudson	Bayonne PD	60,748	22,575	62	5	4,515	$239,194	$10.60
Hudson	Jersey City PD	239,079	173,717	476	12	14,476	$440,170	$2.53
Hudson	Hudson County 9-1-1	290,750	251,412	689	8	31,427	$331,331	$1.32
Hunterdon	Hunterdon County Communications	129,746	31,810	87	8	3,976	$331,331	$10.42
Mercer	Washington Township	11,445	2,942	8	2	1,471	$160,602	$54.59
Mercer	Hightstown PD	9,048	3,082	8	2	1,541		
Mercer	Princeton Borough PD	13,590	3,470	10	2	1,735		
Mercer	Princeton Township	17,349	5,198	14	2	2,599	$160,602	$30.90
Mercer	Hopewell Township	22,346	5,631	15	2	2,816		
Mercer	East Windsor Twp PD	26,872	7,473	20	2	3,736		
Mercer	West Windsor	24,458	11,386	31	2	5,693		
Mercer	Lawrence Twp PD	31,391	12,084	33	2	6,042		
Mercer	Ewing Township	37,057	13,785	38	3	4,595		

Mercer	Hamilton Twp PD	90,058	26,205	72	6	4,367	$273,966	$10.45
Mercer	Trenton	85,379	100,438	275	10	10,044	$388,975	$3.87
Middlesex	Dunellen PD	6,995	1,641	4	1	1,641	$160,602	$97.89
Middlesex	Metuchen PD	13,335	1,687	5	1	1,687		
Middlesex	Spotswood PD	10,238	1,798	5	1	1,798		
Middlesex	Jamesburg PD	13,672	2,115	6	1	2,115		
Middlesex	South Amboy PD	8,008	2,258	6	2	1,129	$160,602	$71.13
Middlesex	Middlesex Borough PD	13,967	2,321	6	1	2,321	$160,602	$69.19
Middlesex	South River	16,025	2,877	8	2	1,439	$160,602	$55.82
Middlesex	Highland Park	14,172	3,156	9	2	1,578	$160,602	$50.89
Middlesex	Plainsboro Twp PD	21,300	5,625	15	2	2,812		
Middlesex	South Plainfield	23,034	6,554	18	2	3,277		
Middlesex	Carteret PD	21,523	6,962	19	2	3,481		
Middlesex	Sayreville PD	42,663	7,846	21	4	1,962	$212,997	$27.15
Middlesex	Monroe Township	32,621	7,960	22	2	3,980	$160,602	$20.18
Middlesex	South Brunswick Twp PD	40,318	8,846	24	4	2,211	$212,997	$24.08
Middlesex	East Brunswick PD	48,317	9,645	26	3	3,215	$186,600	$19.35
Middlesex	North Brunswick	38,872	10,584	29	3	3,528	$186,600	$17.63
Middlesex	Piscataway	52,412	10,649	29	2	5,325	$160,602	$15.08
Middlesex	Old Bridge PD	64,151	12,379	34	3	4,126	$186,600	$15.07
Middlesex	Perth Amboy	48,823	16,443	45	4	4,111	$212,997	$12.95
Middlesex	Edison Township	100,142	21,151	58	8	2,644	$331,331	$15.67
Middlesex	Woodbridge	100,775	25,887	71	6	4,315	$273,966	$10.58
Middlesex	New Brunswick	50,010	26,991	74	5	5,398	$239,194	$8.86
Monmouth	Belmar	7,829	2,301	6	2	1,151		
Monmouth	Hazlet	21,226	5,580	15	2	2,790	$160,602	$28.78
Monmouth	Marlborough Twp PD	39,780	8,309	23	3	2,770	$186,600	$22.46
Monmouth	Freehold Twp PD	33,853	11,517	32	3	3,839	$186,600	$16.20
Monmouth	Middletown PD	68,185	14,081	39	3	4,694	$186,600	$13.25
Monmouth	Neptune Twp PD	32,752	15,334	42	3	5,111	$186,600	$12.17
Monmouth	Howell Twp PD	50,320	16,733	46	2	8,367	$160,602	$9.60
Monmouth	Monmouth County Communications	382,353	188,558	517	8	23,570	$531,545	$2.82
Morris	Morris Plains	5,563	1,114	3	2	557	$160,602	$144.13
Morris	Butler	8,118	1,260	3	2	630		

Morris	Mountain Lakes PD	4,359	1,546	4	1	1,546	$160,602	$103.88
Morris	Boonton	8,468	1,862	5	2	931		
Morris	Chatham Borough	8,428	1,985	5	2	993	$160,602	$80.91
Morris	Pequannock Twp PD	15,192	2,145	6	2	1,072	$160,602	$74.89
Morris	Chatham Township	13,454	2,155	6	2	1,077	$160,602	$74.53
Morris	Florham Park	12,556	2,763	8	1	2,763	$160,602	$58.12
Morris	Madison PD	16,005	3,051	8	2	1,526	$160,602	$52.63
Morris	Morris Twp PD	21,412	3,602	10	2	1,801	$160,602	$44.59
Morris	Rockaway Township	25,244	4,073	11	3	1,358	$186,600	$45.81
Morris	Denville PD	16,188	4,116	11	2	2,058	$160,602	$39.02
Morris	Hanover Twp PD	13,556	4,191	11	2	2,096	$160,602	$38.32
Morris	Washington Township	33,065	4,212	12	2	2,106	$160,602	$38.13
Morris	Randolph Twp PD	25,734	4,380	12	2	2,190	$160,602	$36.67
Morris	Montville	21,368	4,488	12	2	2,244	$160,602	$35.78
Morris	Roxbury Township	23,854	4,538	12	2	2,269	$160,602	$35.39
Morris	Mount Olive Twp PD	25,718	6,118	17	2	3,059	$160,602	$26.25
Morris	Morristown PD	18,842	7,224	20	2	3,612	$160,602	$22.23
Morris	Morris County Communications	110,623	17,249	47	6	2,875	$273,996	$15.88
Morris	Parsippany-Troy Hills	51,639	17,381	48	3	5,794		
Ocean	Ocean County Communications	553,251	217,992	597	16	13,625	$552,500	$2.53
Passaic	Little Falls	11,946	1,971	5	2	986	$160,602	$81.46
Passaic	Hawthorne	18,378	3,939	11	1	3,939	$160,602	$40.77
Passaic	Pompton Lakes PD	29,528	5,554	15	2	2,777		
Passaic	West Milford Twp PD	28,217	7,070	19	3	2,357	$186,600	$26.39
Passaic	Passaic County Sheriff	57,481	18,711	51	3	6,237		
Passaic	Wayne PD	55,402	18,924	52	5	3,785	$239,194	$12.64
Passaic	Passaic PD	68,662	25,509	70	4	6,377	$212,997	$8.35
Passaic	Clifton	79,994	33,909	93	6	5,652	$273,996	$8.08
Passaic	Paterson	150,869	124,255	340	7	17,751	$305,134	$2.46
Salem	Salem County Communications	65,346	36,763	101	6	6,127		
Somerset	Warren Twp PD	15,531	2,781	8	1	2,781		
Somerset	Montgomery	22,952	3,470	10	2	1,735		
Somerset	Bernards Twp PD	35,691	5,830	16	2	2,915		

Somerset	Bridgewater Twp PD	44,370	10,855	30	3	3,618		
Somerset	Franklin Twp PD	56,863	14,530	40	4	3,633		
Somerset	Somerset County Communications	150,130	50,676	139	8	6,335	$392,000	$7.74
Sussex	Hardyston Twp PD	11,119	1,690	5	2	845		
Sussex	Andover Twp PD	10,652	2,391	7	2	1,196		
Sussex	Hopatcong PD	28,406	4,344	12	2	2,172		
Sussex	Sparta Twp PD	27,132	4,932	14	2	2,466		
Sussex	Vernon Twp PD	39,054	5,637	15	2	2,818	$160,602	$28.49
Sussex	Newton	35,855	12,024	33	2	6,012		
Union	Fanwood PD	7,255	1,382	4	1	1,382		
Union	Garwood	4,166	1,750	5	1	1,750		
Union	Kenilworth PD	7,764	1,838	5	1	1,838		
Union	New Providence	11,981	2,016	6	2	1,008	$160,602	$79.66
Union	Mountainside PD	6,660	2,714	7	1	2,714	$160,602	$59.18
Union	Clark Township	14,709	2,928	8	2	1,464	$160,602	$54.85
Union	Berkeley Heights	13,619	3,122	9	2	1,561	$160,602	$51.45
Union	Roselle Park	13,296	3,862	11	1	3,862		
Union	Springfield PD	14,788	4,185	11	2	2,092	$160,602	$38.38
Union	Cranford	24,128	5,772	16	3	1,924		
Union	Scotch Plains	23,027	6,326	17	2	3,163	$160,602	$25.39
Union	Summit Fire	21,267	6,466	18	2	3,233	$160,602	$24.84
Union	Westfield PD	30,062	6,900	19	2	3,450	$160,602	$23.28
Union	Hillside PD	21,891	9,274	25	4	2,319	$212,997	$22.97
Union	Roselle PD	21,415	12,559	34	3	4,186	$186,600	$14.86
Union	Linden PD	40,004	13,063	36	4	3,266	$212,997	$16.31
Union	Rahway	27,578	13,817	38	3	4,606		
Union	Union PD	55,636	20,895	57	5	4,179	$239,194	$11.45
Union	Plainfield PD	47,987	36,717	101	5	7,343	$239,194	$6.51
Union	Elizabeth	124,724	77,157	211	5	15,431	$239,194	$3.10
Warren	Phillipsburg	15,070	4,586	13	2	2,293		
Warren	Warren County Communications	94,948	27,034	74	13	2,080	$469,610	$17.37

Source: Verizon and OETS, 2005.

= PSAPs receiving less than 4,000 calls per year

= PSAPs receiving more than 4,000 and less than 10,000 calls per year

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