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Department of Public Safety

Public Safety Answering Point Consolidation

February 2004

Report to the Minnesota Legislature

Admin Minnesota
DEPARTMENT OF ADMINISTRATION

MANAGEMENT ANALYSIS DIVISION

Department of Public Safety

PSAP Consolidation

February 20, 2004

Report to the Minnesota Legislature

MANAGEMENT ANALYSIS DIVISION

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Management Analysis Division
The Management Analysis Division is Minnesota government's in-house fee-for-service management consulting group. We are in our 18th year of helping public managers increase their organization's effectiveness and efficiency. We provide quality management consultation services to local, regional, state, and federal government agencies, and public institutions.

Acknowledgements

The Management Analysis Division is indebted to the following groups and individuals, for their input, advice, efforts, and feedback:

The members and alternates of the PSAP Advisory Committee for their individual and collective efforts on behalf of this study, and to John DeJung and Bill Mund for hosting committee meetings.

The sheriffs, PSAP managers, dispatchers, local government officials, technical experts, and others who worked to complete the survey or took the time for an interview.

The individuals who helped coordinate regional meetings in Greater Minnesota:
Rebecca Holm, Swift County
Dayle Peterson, Minnesota State Patrol, Detroit Lakes
Sheriff Patrick Madure, Itasca County
Faith Evers, City of Rochester
Dennis Billstrom, Lyon County
Monette Soderholm, Jackson County

The staff and supervisors of the following PSAPs, for their courtesy, cooperation, and time during "sit alongs":
Anoka County
City of Bloomington
City of Maplewood
City of Minneapolis
Hennepin County

And the following individuals for their courtesy and cooperation in helping us in our research efforts:

Barb Brewington, Pearl Street PSAP, Rice and Steele Counties
Kathy Colvin, Red River Dispatch Center, Fargo ND
Jody Hauer, Office of the Legislative Auditor
Marcia Pacolt, City of Maplewood
Grant Weyland, City of Moorhead, Police Chief

MINNESOTA DEPARTMENT OF PUBLIC SAFETY

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February 20, 2004

- Alcohol and Gambling Enforcement
- Bureau of Criminal Apprehension
- Capitol Security
- Division of Homeland Security and Emergency Management
- Office of Justice Programs
- Driver and Vehicle Services
- State Fire Marshal and Office of Pipeline Safety
- Minnesota State Patrol
- Office of Traffic Safety

The Honorable Senator Leo T. Foley
Senate Crime Prevention and Public Safety Committee
Minnesota Senate
G-24 State Capitol Building

The Honorable Senator Jane Ranum
Senate State Government and Budget Division
Minnesota Senate
120 State Capitol Building

The Honorable Representative Steve Smith
House Judiciary Policy and Finance Committee
Minnesota House of Representatives
543 State Office Building

Dear Senators Foley and Ranum and Representative Smith:

During the 2003 Special Session, the Minnesota Legislature passed a law, Chapter 1, Laws 1 Special Session 2003, requiring a study of PSAP consolidation and minimum standards.

"The public safety radio communication system planning committee shall study and make recommendations on the feasibility of consolidating public safety answering points. In making recommendations, the planning committee must consider a cost-benefit analysis of consolidations, the impact on public safety, interoperability issues, and best practices models. In addition, the planning committee shall recommend minimum standards for public safety answering points and recommend possible funding incentives for consolidation."

The study came under the jurisdiction of the Minnesota Department of Public Safety, which was directed by the legislature not to exceed $150,000 in contractual fees. The Department of Public Safety contracted with the Department of Administration's Management Analysis Division to initiate the study. Final cost to the Department of Public Safety was $149,940. The study team proposed the creation and use of a select committee called the PSAP Advisory Committee to provide background information, technical expertise, feedback, and recommendations on specific topics.

We greatly appreciate the assistance and cooperation provided by the members of Public Safety Answering Points Advisory Committee and the members of the Public Safety Radio Communication System Planning Committee.

Very truly yours,

Rich Stanek, Commissioner
Department of Public Safety

CONTENTS

Public Safety Answering Point
Advisory Committee
PSAP Consolidation Study – 2004 Report to the Minnesota Legislature

February 12, 2004

To the Public Safety Radio Communication System Planning Committee:

The Public Safety Answering Point (PSAP) Advisory Committee is pleased to forward to the Public Safety Radio Communication System Planning Committee a report on PSAP Consolidation. The PSAP Advisory Committee believes that the research that the study team from the Management Analysis Division at the Department of Administration has undertaken will be valuable to everyone interested in the important role that PSAPs play in ensuring public safety in Minnesota. The study team's recommendations regarding consolidation should be considered by policy makers at all levels throughout the state as future policy options are discussed.

Although we realize it may be outside the scope of the legislative study, the PSAP Advisory Committee would like to make the following statement:

"911 services are financed primarily with local tax dollars in Minnesota. The PSAP Advisory Committee discussed that this can lead to a higher level of service in some jurisdictions when compared to others. The committee would recommend that a variety of funding methods be explored that would enable all PSAPs to adequately staff and equip their PSAP to meet current and future needs."

Representatives from the Departments of Public Safety and Finance took part in the discussions of the Advisory Committee but these departments take no position on the conclusions and recommendations in this report.

Thank you for your efforts to improve public safety in Minnesota.

Sincerely,

Tim Leslie
PSAP Advisory Committee Chairperson

Public Safety Radio Planning Committee

PSAP Consolidation Study – 2004 Report to the Minnesota legislature

February 20, 2004

The following notations are a consensus of the Radio Planning Committee and should be considered with this report.

The Public Safety Radio System Planning Committee is pleased to forward the report on Public Safety Answering Point (PSAP) Consolidation authorized by the Legislature. The recommendations contained in the report are intended to provide for enhanced public safety for all Minnesota citizens while exploring opportunities to reduce costs for PSAP operation where it will not affect service delivery.

The recommendations concerning PSAP Standards presented by the PSAP Advisory Committee and listed in the report are critical to proper operation of Minnesota Public Safety Answering Points.

The Public Safety Radio System Planning Committee stresses that in a number of places within the report caution should be exercised to ensure the findings are interpreted within the context of the entire report. Examining sections of the report independently of the entire report could lead to the mistaken belief that the cost of PSAP operation is approximately $66 million annually. This is an estimate of cost excluding capital investment, costs, and maintenance. The total actual cost is greater. The report also uses illustrative examples of potential consolidation savings from other studies that are subject to interpretation and were not verified by the committee. The information should be viewed in the context of the report as a whole and care should be given to examine total cost structures including personnel costs, capital expenditures, and maintenance etc.

It is the assessment of the Public Safety Radio System Planning Committee that the Management Analysis Division at the Department of Administration has done an excellent job presenting an objective and forthright portrayal of opinions regarding PSAP consolidation, particularly from Greater Minnesota.

We believe this report will assist policy makers in understanding the state of Public Safety Answering Point operations in Minnesota. Thank you for your support of this project.

Sincerely,

Public Safety Radio System Planning Committee:

Tim Leslie, Department of Public Safety
Dave McCauley, Metro Radio Board
Andy Terry, Department of Transportation
Linda Finley, Department of Administration
Ulsses Seal, League of Cities - Metro Area
Steve Borchardt, Minnesota Sheriff's Association
Tom Hannon, League of Cities - Greater Minnesota
Mike Hamm, Department of Natural Resources
Bruce Tolzman, Association of MN Counties

EXECUTIVE SUMMARY

During the 2003 Special Session, the Minnesota Legislature passed a law requiring a study of Public Safety Answering Point (PSAP) consolidation and minimum standards.

"The public safety radio communication system planning committee shall study and make recommendations on the feasibility of consolidating public safety answering points. In making recommendations, the planning committee must consider a cost-benefit analysis of consolidations, the impact on public safety, interoperability issues, and best practices models. In addition, the planning committee shall recommend minimum standards for public safety answering points and recommend possible funding incentives for consolidation."[1]

The study came under the jurisdiction of the Minnesota Department of Public Safety, which asked the Department of Administration's Management Analysis Division to assist in meeting the requirements in the legislation. The study team proposed the creation and use of a select committee called the PSAP Advisory Committee to provide background information, technical expertise, feedback, and recommendations on specific topics. The committee had fourteen members knowledgeable in PSAPs, the 911 system, or public safety communication.

The study team defined "PSAP consolidation" to mean any situation where two or more jurisdictions with their own PSAPs enter into an agreement to provide dispatching and call taking from one location. A range of options is allowed in that definition, from a full consolidation where one organizational structure controls all functions within the PSAP, to a "co-located" structure where a degree of operational autonomy by one jurisdiction is maintained.

OVERVIEW of PSAPs in MINNESOTA

Minnesota Statute 403.02 defines a Public Safety Answering Point as: *". . .a communications facility operated on a 24 hour basis which first receives 911 calls from persons in a 911 service area and which may, as appropriate, directly dispatch public safety services or extend, transfer, or relay 911 calls to appropriate public safety agencies."* Under this definition, Minnesota has 119 PSAPs. Eighty-four of these PSAPs are countywide, and St. Louis County operates two PSAPs. Various cities, primarily in the Twin Cities metropolitan area, operate 19 PSAPs and the Minnesota State Patrol operates ten PSAPs throughout the state handling primarily wireless 911 calls. The Metropolitan Airports Commission, the University of Minnesota and the Red Lake Band of Chippewa operate single PSAPs. The counties of Rice and Steele have joined together to operate the Pearl Street PSAP and the Red River Regional Dispatch PSAP brings together the cities of Fargo, North Dakota and Moorhead, Minnesota plus the counties of Clay in Minnesota and Cass in North Dakota.

[1] *Minn. Laws, First Special Session 2003, Chapter 1, Sec. 29, Subd. (b).*

PSAPs provide two primary public safety services – taking calls, including 911 calls, and dispatching for public safety agencies. The total number of 911 calls received by these PSAPs in 2002 was approximately 2.6 million. The total number of events requiring the dispatching of law enforcement was approximately 3.3 million. According to the 110 PSAPs who submitted information on staffing, they employ 1,352 FTEs in PSAPs, although many of these employees have other duties in addition to dispatching and call-taking. PSAPs provide services for law enforcement, fire, emergency medical services, and occasionally, other public services as well.

The language in Chapter 403 of the Minnesota Statutes governs 911 emergency telecommunications in Minnesota. Section 403.01 identifies the PSAP under the jurisdiction of the county. But this section also allows for a multi-jurisdiction PSAP. The Metropolitan 911 Board, created by a joint-powers agreement, oversees the 911 system in the seven-county Twin Cities metropolitan area. The state's duties under Chapter 403 have been to coordinate the maintenance of 911 systems. Further, the state is responsible for the emergency telecommunications service fee.

Money to operate PSAPs comes from locally collected property taxes or other local government taxing options and a portion of revenue collected by the state from 911 fees on telephone service. The money received from 911 fees varies from PSAP to PSAP, but the total amount distributed to local government is ten percent of local government's PSAP operating costs statewide.

PSAPs are diverse in their makeup and populations they serve. About one-quarter of the PSAPs serve jurisdictions with a population under 15,000 while just over eight percent serve populations greater than 100,000. The ten Minnesota State Patrol PSAPs handle primarily wireless (cellular) 911 calls while a few other PSAPs handle only wireline 911 calls. Roughly 30% of the PSAPs were small operations with no more than one person regularly staffed at any one time. 13 PSAPs have 4 or more people in the PSAP on at least one shift. There is a blend of county-run PSAPs, city-operated PSAPs and a small number of PSAPs that are operated by other governmental jurisdictions. Currently, all but 5 Minnesota PSAPs have "enhanced" 911 service, meaning the telephone company selectively routes a 911 call based on PSAP service areas, as well as providing the 911 caller's telephone number and address. Wireless 911 service is becoming more uniform. Currently 94 percent of the counties in Minnesota have initiated some portion of "Phase II enhanced" wireless 911 service meaning under certain conditions, when coverage is available, the 911 call taker will see the wireless caller's cellular number and the location of the caller by latitude and longitude within a few hundred feet.

CONSOLIDATION MODELS FROM TWIN CITIES METROPOLITAN AREA

The Twin Cities metro area contains 28 PSAPs. One is operated by the Minnesota State Patrol, seven are operated by counties, 18 are operated by cities, and two independent PSAPs are operated by the University of Minnesota and the Metropolitan Airports Commission.

Two consolidation models have been used in the Metropolitan area. They are:

- Multi-city consolidations involving the consolidation of two or more city PSAPs. Examples include Golden Valley and Saint Louis Park.
- Intra-county consolidation involving the consolidations of independent city PSAPs with the county PSAP. Examples include the consolidation (since terminated) between Ramsey County and the city of Maplewood.

Consolidation of PSAPs is currently a hot topic in the Twin Cities metro area. Although some cities with their own PSAPs have little interest in consolidation, there is a larger number that has explored, or is currently exploring, its options in this regard, due to budget constraints and technological needs.

CONSOLIDATION MODELS FROM GREATER MINNESOTA

In many respects, PSAP operations and issues in Greater Minnesota are different from those in the Twin Cities metro area. For instance, there is only one city PSAP in Greater Minnesota. Only two other counties have more than one PSAP. Consolidation within counties has gone about as far as it can go. Instead, options in Greater Minnesota are primarily limited to multi-county or regional models.

A number of consolidation models were examined and discussed during the PSAP consolidation study. In greater Minnesota, the models fall into three general categories:

- Intra-county consolidations typically involve the consolidation of two or more city PSAPs, the consolidation of city and county PSAPs, or a combination of the two.
- Multi-county consolidations involve two or more county PSAPs joining together to create a single multi-county PSAP. There are only two such examples in Minnesota, currently.
- Regional consolidations, which do not exist in Minnesota, other than in the case of the dedicated State Patrol PSAPs (with 10 PSAPs for 11 regions), but were much discussed.

Important themes emerged in Greater Minnesota. The themes include:

- Current level of consolidation
- Sense of local responsibility and accountability
- Confusion and skepticism toward the State's interest in consolidation

COSTS and BENEFITS

The study team relied on several sources of data including a survey of Minnesota PSAPs as well as other sources. The three categories of costs and benefits that were examined were operating costs savings from an increased efficiency from a consolidated PSAP, capital equipment cost savings from spreading fixed costs over a higher volume of activity, and the transition costs required to consolidate.

Operating costs consist of the day-to-day costs of running a PSAP. The combined operating expenses of our survey respondents who were able to report at least some of this information (105 out of the 119 PSAPs in Minnesota - covering 94 percent of the state's population) added up to $66 million. By far the biggest operating cost was the expense of the employees working in the PSAP, including salaries, overtime, benefits, and training. According to the PSAP survey, employee costs averaged 86 percent of a PSAP's operating expenses.

COST AND BENEFITS CONCLUSIONS

1) Larger PSAPs have lower cost-per-911-call and cost-per-event numbers than smaller PSAPs, indicating potential for cost savings from consolidating smaller PSAPs.
2) Based on 911-call- and event-per-FTE numbers, the potential for cost savings in smaller PSAPs seems rooted in minimum staffing requirements.
3) These potential operating cost savings from consolidation quickly diminish above a certain level of activity (20,000 911 calls and 10,000 events per year).
4) The potential for capital cost savings also exists when a neighboring PSAP has excess capacity, a PSAP is in need of significant capital upgrades, and the necessary transition costs are sufficiently low.
5) The potential cost savings may not be achievable, in some PSAPs, due to minimum around-the-clock staffing needs of jails and law enforcement centers.
6) Actual PSAP consolidations have not always resulted in cost savings. The reasons for this include: the PSAPs already had relatively high efficiencies prior to consolidation; no positions were eliminated out of the desire to avoid layoffs; backfilling of prior dispatcher responsibilities was required; costs previously not on the PSAP budget were now included on that budget.
7) The likelihood of cost savings, and their magnitude, for any specific proposed consolidation, would have to be determined as part of a feasibility study that looked very closely at job responsibilities and minimum staffing requirements.
8) The cost indicates the cost-saving potential for consolidation of State Patrol PSAPs as much as it indicates the potential for local government PSAPs. Although the feasibility of any specific consolidation needs to be determined by looking at specifics, the State would have more credibility in encouraging local government to consolidate PSAPs if it conducted a specific study on the feasibility of consolidating State Patrol PSAPs.

PUBLIC SAFETY IMPACTS

The public safety impacts of PSAP consolidation, and the public safety impacts of PSAP operations in general, proved very difficult to quantify. The study team found that "hard" indicators of public safety, such as consistent measures of dispatch times, answer times,

and customer satisfaction, were only sporadically collected by PSAPs, if at all. As such, while there is some data from the survey results, this section relies heavily on information gleaned from interviews and general observations.

PUBLIC SAFETY CONCLUSIONS

1) Local public safety stakeholders who see themselves as the potential targets of consolidation (smaller county PSAPs in Greater Minnesota and smaller city PSAPs in the Twin Cities metro area) are intensely skeptical about any potential public safety benefits. In fact, they strongly believe that consolidation will cause them to compromise public safety services. The concern and skepticism about consolidation by many local public safety officials, particularly sheriffs and dispatch supervisors in Greater Minnesota, cannot be overstated.
2) In consolidations, and in larger PSAPs that face many of the same challenges of a consolidated PSAP, almost all of these concerns have been solvable through careful planning and implementation, or can potentially be offset by public safety benefits.
3) Just because these concerns **can** be solved does not mean that they **will** be solved, and in some consolidations, they have **not** been solved.
4) As such, while many of the concerns of local public safety officials can be successfully addressed in a skillfully planned and executed consolidation, these officials have reason to be skeptical that they **will** be successfully addressed.
5) Accountability and responsibility concerns by the current local law enforcement operators of PSAP services should be taken seriously, listened to, and clearly addressed in the governance structures and daily operations of PSAPs. The study team found some instances where these accountability concerns were dismissed or criticized as "whining," "fear of change," "turf-fighting," and the like. Rather, these are legitimate management issues.
6) The extent to which public safety would be affected by consolidation depends substantially on the quality of the consolidation, and the extent to which potential problems are effectively handled. The study team found a few instances where the relationship between a consolidated PSAP operation and its dispatched services could be described as "tense," as well as operations where local agencies expended a lot of effort to work out their governance structures, roles and responsibilities, and day-to-day feedback mechanisms, and where relationships were more collegial. In practice, solving problems seems to go more smoothly when key local stakeholders, such as public safety officials, support the consolidation, and tends to go badly more often when there is considerable opposition.
7) Overall, the study team finds that while the potential problems of consolidation and of larger PSAP operation are solvable and have been solved with good management and oversight, the intrinsic problems faced by smaller PSAPs, particularly one-person PSAPs, are more intractable. For instance, while it is possible for a consolidated PSAP to have superb geographic knowledge through training, databases, and mapping software, it is more difficult for a smaller PSAP to overcome the various difficulties of only having one dispatcher on duty (the risk of simultaneous public safety crises, the danger of the dispatcher falling

victim to illness while on duty, the difficulties in offering tactical fire dispatching, etc.). However, operational specifics are very important. A loss in training, experience, geographic knowledge, and management quality resulting from a poorly planned consolidation could outweigh any public safety benefit of adding an additional person on duty at all times.

8) This report makes **general** statements about PSAP efficiency and public safety, but because of the importance of local operational details, management, and relationships in any PSAP operation, it does not draw specific conclusions about individual PSAPs. The above conclusions point mainly to potential given a well-managed consolidation, and to what has succeeded elsewhere. Determining whether a consolidation would be wise for any given selection of PSAPs would require a specific study on the operational details of those PSAPs as well as community needs and requirements.

TRADE-OFFS between COSTS and PUBLIC SAFETY

When cost and public safety are considered together, several additional findings and conclusions emerge.

1) Many of the smaller PSAPs that may seem at first pass to have the lowest levels of cost-efficiency are in very sparsely populated regions of the state, consisting of large amounts of forest or farmland, with few large cities. While combining a few of these very small PSAPs **may** yield operational cost savings, obtaining cost-per-911-call efficiencies similar to those considerably larger PSAPs would be difficult without creating a PSAP covering a large geographic area (for instance, in the northwest region of the state). It is not clear whether such a large area can be effectively managed by one PSAP. As such, an attempt to reach high cost-effectiveness in such areas could be futile, or could result in negative public safety impacts.
2) As mentioned previously, the largest PSAPs often **require** better technology to solve the greater organizational difficulties that result from increased size. For instance, dispatchers in a small PSAP can share information easily by being right next to each other, and by having overlapping shifts. Recent events and problems are discussed during slow times. In larger centers, this becomes more difficult, and better information technology is a requirement in order to reduce the loss of knowledge. For example, a larger PSAP may require information on problem addresses to be kept in their CAD database, whereas a smaller PSAP would solve the same problem with the dispatchers over-hearing each other's calls, or talking during slow times. As such, in order to consolidate without compromising public safety, it may be necessary to spend money on capital and information improvements. Any such expenditure could potentially diminish any operational or capital cost savings from consolidation.

3) When it comes to any perceived trade-off between cost and public safety, the local public safety officials interviewed by the study team would uniformly choose public safety. It was a commonly expressed concern from these officials that any attempt to save money through consolidation would unduly compromise public safety. If support for consolidation is sought from local public safety officials, they will have to be convinced of the public safety benefits before they would support consolidation

BEST PRACTICES in PSAP CONSOLIDATION

The best practices information and findings in this report represent the perspectives of PSAP leaders, managers, and customers who are experienced with consolidation. The conclusions and lessons are based on an assessment of these best practice findings. Experts were asked to identify issues significant to PSAP consolidation, what the research should cover, which PSAPs might have "best practice" models, contact information and for any relevant studies.

Other states have facilitated consolidations by:

- Passing legislation allowing local governments to assess phone line surcharges that can be used for operating expenses and temporary surcharges for capital expenses. Local surcharge increases or limits may be subject to referendums.
- Passing legislation that would remove any legal barriers to consolidation and/or authorize particular governance structures
- Providing grants to study, plan, and implement consolidation
- Making consolidation more convenient through interoperability improvements This includes giving equipment to local PSAPs that improves services and enhances interoperability. These make consolidations more convenient and affordable, and have public safety benefits as well in improving communication and the availability of data.
- Increasing state line surcharges to pay for any state actions that need funding
- Facilitating education and trust throughout the PSAP system

Conclusions and lessons for Minnesota:

1) Mandates to consolidate appear to be ineffective and may be counterproductive.
2) Performance and standards requirements have a positive impact on consolidation when accompanied by state funding and assistance in meeting the requirements.
3) The state's optimal role is to create a "consolidation friendly" environment
4) Education is a critical factor influencing consolidation

INTEROPERABILITY

Interoperability refers to the ability of two or more organizations to communicate and share information in real time. Public safety entities across the country and the State of Minnesota are working to craft solutions to interoperability issues in an attempt to improve public safety. Interoperability would make PSAP consolidation easier by removing communication barriers, as well as by providing a range of cooperative options that could eventually lead to consolidation. Consolidation could affect interoperability by potentially reducing the costs of upgrading to a digital trunked radio system.

Additionally, the move toward interoperability is currently serving as a factor to consolidation for the Twin Cities metropolitan area cities that want to be on the digital trunked radio system but cannot afford the upgrade costs on their own. However, the study team consistently found skepticism about the statewide interoperable system in many parts of Greater Minnesota. While these were partially operational concerns about whether it would work in their area, skepticism centered on whether the digital trunked radio system would meet their needs well enough to be worth the cost that they believe they may have to pay. In addition, the time frame for expanding the statewide digital trunked radio system to much of Greater Minnesota is sufficiently far off that few jurisdictions with PSAPs in Greater Minnesota are likely to make any PSAP consolidation decisions on the basis of moving to the statewide system.

As the state works toward expanding its interoperable radio system to Greater Minnesota, officials in local jurisdictions want the state to listen carefully to their needs and consider the variety of interoperable solutions available to address those needs. Their concerns need to be considered along with the potential advantages of the State's interoperable radio communication system.

RECOMMENDATIONS

Recommendations are broken into two sections, those on standards and incentives put forth by the PSAP Advisory Committee, and those from the Management Analysis Study Team.

PSAP ADVISORY COMMITTEE RECOMMENDATIONS

PSAP Advisory Committee Recommendations on Minimum Standards for Public Safety Answering Points

The PSAP Advisory Committee makes the following recommendations:

1. The PSAP Advisory Committee recommends that minimum standards for PSAP be developed for Minnesota in six key areas including:
    a. PSAP performance,
    b. PSAP personnel,
    c. Training for PSAP personnel,
    d. PSAP infrastructure,
    e. PSAP administration, and
    f. PSAP governance.

2. The PSAP Advisory Committee recommends that a select committee of PSAP officials and stakeholders should be identified to further develop the points outlined in each of the six standard areas and complete the development of formal standards and recommend options for the implementation of standards in Minnesota.
3. The PSAP Advisory Committee recommends that the committee charged with developing these standards should review the models identified in this report and any additional models that may become available as they work to implement the standards.
4. The PSAP Advisory Committee further recommends that the process to develop language in these six areas and initiate the adoption process should be completed by July 1, 2005.

The committee recommends these key performance standards for adoption in Minnesota:

- 911 call answering standard, measured in seconds
  (An example for drafting the standard would be: "X"% of all 911 calls will be answered in "X" seconds or less during a defined time - the busy hour of an average day in a busy week, for instance)
- PSAPs should have written performance requirements and dispatch time standards for dispatching both emergency and non-emergency calls for service
- Each PSAP shall be staffed 24 hours a day, seven days a week. This standard already exists in Minnesota Rule 1215.09, Sub. 3

The committee recommends these key personnel standards for adoption in Minnesota:

- Hiring qualification will be developed to include: background investigations; knowledge, skills and abilities; psychological pre-employment screening; and physical requirements
- Minimum staffing levels will be determined to meet performance standards

The committee recommends these key training standards for adoption in Minnesota:

- A standard shall be developed for all entry level 911 personnel to complete a basic telecommunicator training course
- Minimum of "X" hours continuing education required annually

Additional Training Standards recommendations

To provide some accountability for the training standard the committee recommended:

- The PSAP must certify whether PSAP personnel have met the training standards for that year and this can be submitted to the Minnesota Department of Public Safety along with the PSAP annual audit regarding 911 program funds

One other recommendation from the committee that crosses several of these areas but also impacts training is:

- PSAPs shall make available medical pre-arrival instructions either directly or by a third-party provider.

The committee recommends these key infrastructure standards for adoption in Minnesota:

- Limit access to the PSAP – secure from the public – limited to authorized access
- Secure communication equipment to prevent unauthorized access
- Sufficient 911 facilities to provide P.01 grade of service, or equivalent (currently in Minnesota Rules 1215.08, Subpart 1.)
- Redundant power source capable of providing continuous power for a minimum of 4 hours
- Diverse 911 location databases
- Redundant 911 answering equipment (minimum of 2 answering positions)
- Ability to transfer and receive a 911 call to/from another PSAP, with location data
- Network standards shall be developed to ensure that 911 calls are not disrupted
- Develop standards for new PSAP facilities based on model specifications and/or best practices

The committee recommends these key administration standards for adoption in Minnesota:

- A written records retention schedule and data practices policy
- A written personnel policy, agency-wide or specific to PSAP
- A written policy for addressing MSAG/911 database discrepancies to include a periodic reconciliation of 911 records to service address/location
- A written training plan/manual for calltaker/dispatcher/supervisor
- A written business continuity plan for 911/radio/telephone/data communications
- A written policies and procedures to ensure facility security
- A written interoperability plan listing communications resources in common with co-located agencies and neighboring jurisdictions
- A record-keeping system that allows for retrieval of call/incident data for analysis/review
- A written standard operating procedure for communications personnel
- A written policy describing radio system configuration, performance, and maintenance

The committee recommends these key governance standards for adoption in Minnesota:

- There shall be a written legal agreement (for example, MOU, contract, etc.) of the parties (representative of the area agencies served) that delineates geographic boundaries, participation, financial support, obligations, organizational structure, levels of cooperation, and scope of authority
- There shall be written policies defining policy development, operational standards, decision-making process, command protocols, service priorities and dispute resolution determined by a collaborative process of the parties
- There shall be an audit and review process defined that deals with governance structure, policy, financial, methods and procedures, and service priorities

PSAP Advisory Recommendation on Possible Funding Incentives for Consolidation
The incentive that the committee selected includes:

- The State of Minnesota should pay the cost for part or all of PSAP consolidation including:
  - Planning grants for local governments for study of options to pursue PSAP consolidation
  - Implementation grants for all, or a portion of, the capital costs to establish a center or sharing PSAP infrastructure including costs from construction of facility through software purchase
  - Provide a sales tax exemption for all items included in the consolidation or sharing infrastructure of PSAPs

A key non-financial incentive was to provide for a three-to-five-year transition period for consolidation of PSAPs. Another non-financial incentive was to provide access to statewide mapping data.

MANAGEMENT ANALYSIS DIVISION RECOMMENDATIONS

1) The study team concludes that PSAP consolidation is feasible in Minnesota, and has the potential to offer cost saving and public safety benefits when the circumstances are right. The study team recommends that PSAPs examine their operations to see if these circumstances exist, and if so, to consider consolidation as a means to save money and/or improve public safety. The circumstances that make a consolidation more feasible are where:
   - PSAP operating costs, per 911 call or per event dispatched, are relatively high when compared to larger PSAPs in the state (see Tables 2 and 3, on pages 55 and 57 for comparisons with other PSAPs)
   - The PSAP is in need of capital upgrades that could be avoided through consolidation
   - Willing consolidation partners can be found in other PSAPs
   - Public safety agencies and other key stakeholders are willing participants in the consolidation, or are at least not hostile to the notion. One way to get the support of public safety agencies is to allow them to use all, or a substantial portion of, the savings from consolidation for other public safety needs
   - A satisfactory arrangement can be made regarding PSAP governance, accountability, service, standards, and control
   - A PSAP has only one dispatcher covering some or all shifts
   - The transition costs would be low relative to the potential for operating or capital cost savings
   - A feasibility study has verified the potential for operational, cost, or public safety benefits within the specific consolidation on the table. Such a feasibility study should investigate operational data, and determine the way PSAP resources are actually allocated, particularly in the smaller PSAPs where dispatchers commonly perform multiple duties and have their shifts occasionally covered by officers on a different budget

2) The study team recommends that the State of Minnesota **not** mandate or coerce PSAP consolidation. Although the study team has not had any indication that policymakers are considering this as an option, local PSAP stakeholders are concerned about state mandates. The study team sees several reasons why mandates would be a mistake:
   - The likely success of PSAP consolidation, as well as the likelihood of cost savings, is highly contingent on local factors, such as working relationships, staffing, trust, and specific local service needs.
   - The functional and statutory responsibility for public safety rests with local government in Minnesota, and decisions about how to carry out that responsibility should be left to local government.
   - When state governments have tried to mandate consolidation there has been political backlash. In Oregon, for instance, the backlash resulted in the mandate being overturned. The study team's sense from its visits and focus groups across the state is that this is a very important issue for local public safety agencies, and a similar reaction to that in Oregon would be possible.

3) Any PSAP consolidation needs to be well-planned, and allow adequate resources for training and transition. This may seem obvious, but consolidations in Minnesota have occasionally been rushed, with insufficient training or planning.

4) In supplement to the PSAP Advisory Committee's recommendations of funding incentives, the study team recommends that funding incentives for consolidation, including feasibility studies and implementation grants, be structured around cost-savings and public safety, not consolidation as an end in itself. It is quite possible to have a consolidation that is a net financial loss and worsens public safety.

   Examples of such funding incentives would be:
   - Fund implementation grants for consolidation only after a feasibility study has shown potential gains in cost savings and/or public safety.
   - Fund items that would remove barriers to consolidation, such as shared radio and records managements systems (in interviews, the potential consolidation or interfacing of record management systems was widely seen as a benefit even if PSAP consolidation never occurred as a result).

5) The study team recommends that jurisdictions exploring consolidation consider a governance structure that includes representatives from the public safety agencies that use the services of the PSAP. Governance structure models that might be considered by PSAPs considering consolidation are those used by Anoka County and the Red River Dispatch Center in Fargo, ND.

PSAP Advisory Committee's Response to Recommendations

Pursuant to the committee charge, the PSAP Advisory Committee reviewed, discussed, and accepted the five recommendations identified above.

INTRODUCTION

BACKGROUND and PURPOSE

The Public Safety Answering Point (PSAP) is a key component of Minnesota's statewide emergency 911 system. The PSAP answers 911 calls and dispatches the appropriate emergency response service. The effectiveness of the 911 system relies on the PSAP operation being fast, reliable, and accurate. Currently, Minnesota has 119 PSAPs, mostly operating under county, city, or state jurisdictions.

2003 Legislation

During the 2003 Special Session, the Minnesota Legislature passed a law requiring a study of PSAP consolidation and minimum standards.

"The public safety radio communication system planning committee shall study and make recommendations on the feasibility of consolidating public safety answering points. In making recommendations, the planning committee must consider a cost-benefit analysis of consolidations, the impact on public safety, interoperability issues, and best practices models. In addition, the planning committee shall recommend minimum standards for public safety answering points and recommend possible funding incentives for consolidation."[2]

The study came under the jurisdiction of the Minnesota Department of Public Safety, which asked the Department of Administration's Management Analysis Division to assist in meeting the requirements in the legislation. The Management Analysis study team was asked to provide quantitative and qualitative research to inform decisions concerning the consolidation of PSAPs in Minnesota. This research would provide information and responses from a variety of sources and on key topics, including best practices, costs and benefits, public safety, interoperability, and other key issues. Further, the study team proposed the creation of a select committee of persons knowledgeable about PSAPs, the 911 system, or public safety communication to assist in the study.

PSAP Advisory Committee

The PSAP Advisory committee was created to provide background information, technical expertise, feedback, and recommendations on specific topics. The committee had fourteen members including an assistant commissioner from the Department of Public Safety, the 911 program administrator, the President of the Minnesota chapter of National Emergency Number Association (NENA), the President of the Minnesota chapter of Association of Public-Safety Communication Officials (APCO), a fire chief, a police chief, a county sheriff, representatives from the Minnesota State Patrol, the Minnesota

[2] *Minn. Laws, First Special Session 2003, Chapter 1, Sec. 29, Subd. (b).*

Department of Finance, and the Metropolitan 911 Board, and four PSAP managers, one representing the League of Minnesota Cities. Requests were made to the Minnesota Association of County Officials and to the Citizens' League, but no one was appointed.

The charge for the PSAP Advisory Committee was to develop recommendations on minimum standards for PSAPs and on incentives, with Management Analysis' assistance, and respond to consolidation recommendations from the Management Analysis study team's research. The committees' responses could accept the study team's recommendations, comment on the recommendations, or pass on the recommendations without acceptance or comment. Further, the committee provided input to the study team on various topics regarding PSAPs and provided feedback during the study process. Representatives from the Departments of Public Safety and Finance took part in the discussions of the Advisory Committee but these Departments take no position on the conclusions and recommendations in this report.

This report represents the results of this process.

REPORT STRUCTURE

This report is divided into the following sections.

Methodology, describing the research and analytical methods used by the study team.

An Overview of PSAPs in Minnesota, describing how the 911 system functions, as well as the roles of the various stakeholders, and the major issues facing the 911 system.

Consolidation in the Twin Cities Metro Area, describing recent or ongoing 911 consolidation efforts in the Twin Cities Metro region, as well as the context for future consolidation.

Consolidation in Greater Minnesota, describing the same points for the rest of the state.

The Costs and Benefits of Consolidation, discussing the potential for cost savings from consolidation.

Public Safety, describing potential public safety impacts of consolidation.

Best Practices, describing consolidation efforts and models in other states.

Interoperability, discussing the interaction of PSAP consolidation with the goal to have interoperable radio systems statewide.

Recommendations, listing the recommendations of the Advisory Committee and the study team, as well as a list of consolidation "do"s and "don't"s.

This report also contains appendices containing more details about statistical methods and results, as well as data obtained regarding other states.

METHODOLOGY

For the purposes of this report, the study team defined "PSAP consolidation" to mean any situation where two or more jurisdictions with their own PSAPs enter into an agreement to provide dispatching and call-taking from one location. A range of options is allowed in that definition, from a full consolidation where one organizational structure controls all functions within the PSAP, to a "co-located" structure where a degree of operational autonomy by one jurisdiction is maintained.

Summary of research tools

The study team relied on the following tools to collect data for the report:

- Interviews with 911 stakeholders and experts.
- Regional focus groups, collecting insights and views of local government stakeholders in Greater Minnesota.
- Focus groups with line level providers of public safety services.
- Site visits, involving tours of PSAPs, and conversations with dispatchers, call-takers, supervisors, and managers.
- Visits to consolidated centers.
- "Sit-alongs," where project team staff sat with call-takers and dispatchers at PSAPs for several hours, listening in on calls and radio traffic, while discussing PSAP operations.
- A survey on PSAP operations, completed by PSAP management and staff.
- Operational data from PSAPs, such as budget documents and activity reports.
- The review of existing reports on PSAP operations, and consolidation feasibility studies.
- Best Practice interviews with experts in other states.

Interviews

The study team interviewed sheriffs, police chiefs, fire chiefs, PSAP managers, state and local elected officials, local government administrators, dispatchers, ambulance services, interest groups, and government agency personnel. Interviewees were selected for many reasons, such as expertise, known experience with consolidation, or to get their views on how well they were served by a particular model of PSAP. Interviewees were asked about experiences, operational details, advantages and disadvantages of consolidation, obstacles to consolidation, and their views on possible incentives. The study team completed 134 of these interviews.

Regional focus groups

The study team conducted five regional focus groups in Greater Minnesota. Attendees included interested parties such as sheriffs, PSAP managers and communications directors, county administrators, fire chiefs, and emergency managers. The geographic size and number of agencies in the Northeast region (there are 185 agencies in St. Louis County alone) made a region-wide meeting impractical to coordinate, so a meeting was held with the sheriffs in the region. The themes that emerged from this more limited attendance focus group in St. Louis County did not differ from the themes in the larger focus groups held in other regions. The focus group facilitators asked attendees similar questions to those asked of interviewees.

Focus Groups with Line Level Providers

The study team conducted two focus groups, one for dispatchers at the annual APCO/NENA conference in November 2003, and one for firefighters organized by the Minnesota Professional Firefighters Association in January 2004.

Site visits

The study team conducted 31 site visits at PSAPs around the state. The site visits familiarized the study team with a variety of physical layouts, staffing arrangements and technology (systems and consoles) at PSAPs. When possible, we met and talked with the dispatchers on duty.

Consolidated center visits and meetings

The study team visited and had discussions with personnel and governing boards of models of consolidated centers that were of particular interest. The study team toured the Pearl Street facility (the joint center operated by Rice and Steele counties), interviewed its director at length, and held two focus groups in Rice and Steele counties with interested parties in the community. A study team member also toured the Red River Regional Dispatch center (the joint center operated by Cass County, North Dakota, and Clay County, Minnesota, in the Fargo-Moorhead area), interviewed its director, and met with its governing board. In the Twin Cities metro area, similar efforts were undertaken in Anoka County.

The team also looked extensively at the former PSAP consolidation of the city of Maplewood and Ramsey County. This consisted of a series of interviews as well as site visits to the Ramsey and Maplewood PSAPs.

"Sit-Alongs"

The team conducted five "sit-alongs" at PSAPs in the Twin Cities metro area. In a typical sit-along, a project team member arrived at the PSAP in the evening, sat next to different PSAP staff, and listened in on calls and radio traffic. When time permitted, the study team members would ask about operational details, experiences, and technology.

Survey

A written survey asked about operational and technical details about PSAPs, and was sent to all 119 PSAPs in the state. Specifically, the survey was sent to the contact on the state 911 program's list – usually a sheriff or communications supervisor. 115 PSAPs returned the survey, for a response rate of 97 percent. For the 28 Twin Cities metro area PSAPs, the response rate was 100 percent. Four surveys were received too late to be included in the analysis in the body of the report, but their results are contained in the aggregated survey results in the appendix[3]. Four PSAP surveys were never received[4]. The population covered by the 111 PSAP surveys that were received in time to be included in the analysis added up to 97 percent of the population of the state. Several survey questions were modeled on the survey conducted by the Office of the Legislative Auditor, as part of their 1998 Best Practices study.[5]

Operational data

The study team also requested budget data and operational reports from PSAPs. While these data were only received from a small number of PSAPs, the study team made a particular point of getting such data from PSAPs that were of more critical interest, such as the Pearl Street and Maplewood dispatch centers.

Existing reports and studies

The study team looked at other recent work on PSAPs, including the aforementioned Office of the Legislative Auditor's Best Practices report, feasibility studies done for the Pearl Street and Red River dispatch centers, and other studies from Minnesota and from other states.

Best Practice Interviews

The study team interviewed 39 people in other states to gain an understanding of how other states, cities, and metropolitan areas have dealt with PSAP consolidation. Interviewees were selected based on recommendations from the advisory team, policymakers, from other interviewees, or from indications in other reports that a particular source would be of interest.

[3] The four received too late for inclusion in the analysis were for PSAPs in Clearwater, Dodge, Lake, and Wabasha Counties.
[4] The four PSAPs not responding were those in Becker, Lincoln, Mahnomen, and Roseau Counties.
[5] 9-1-1 Dispatching: A Best Practice Review, Office of the Legislative Auditor, 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf

OVERVIEW of PSAPs in MINNESOTA

Definition of PSAP

The State of Minnesota defines a Public Safety Answering Point (PSAP) as: *". . .a communications facility operated on a 24 hour basis which first receives 911 calls from persons in a 911 service area and which may, as appropriate, directly dispatch public safety services or extend, transfer, or relay 911 calls to appropriate public safety agencies."* [6]

Under this definition, Minnesota has 119 PSAPs. Each of the 87 counties in Minnesota has at least one PSAP, except for Rice and Steele counties, which share the Pearl Street Dispatch Center, and Clay County, which is served by the Red River Dispatch Center jointly run with Cass County North Dakota. St. Louis County has two county-operated PSAPs. Various cities, primarily in the Twin Cities metropolitan area, operate 19 PSAPs, and the Minnesota State Patrol operates ten PSAPs throughout the state handling primarily wireless 911 calls. The Metropolitan Airports Commission, the University of Minnesota and the Red Lake Band of Chippewa operate single PSAPs.

The location and boundaries of all 119 PSAPs in Minnesota can be seen in the following map:[7]

[6] *M.S. 403.02*, Available online at http://www.revisor.leg.state.mn.us/stats/403/02.html.
[7] The map was created by Jim Beutelspacher from the Statewide 911 Program Office, Minnesota Department of Public Safety

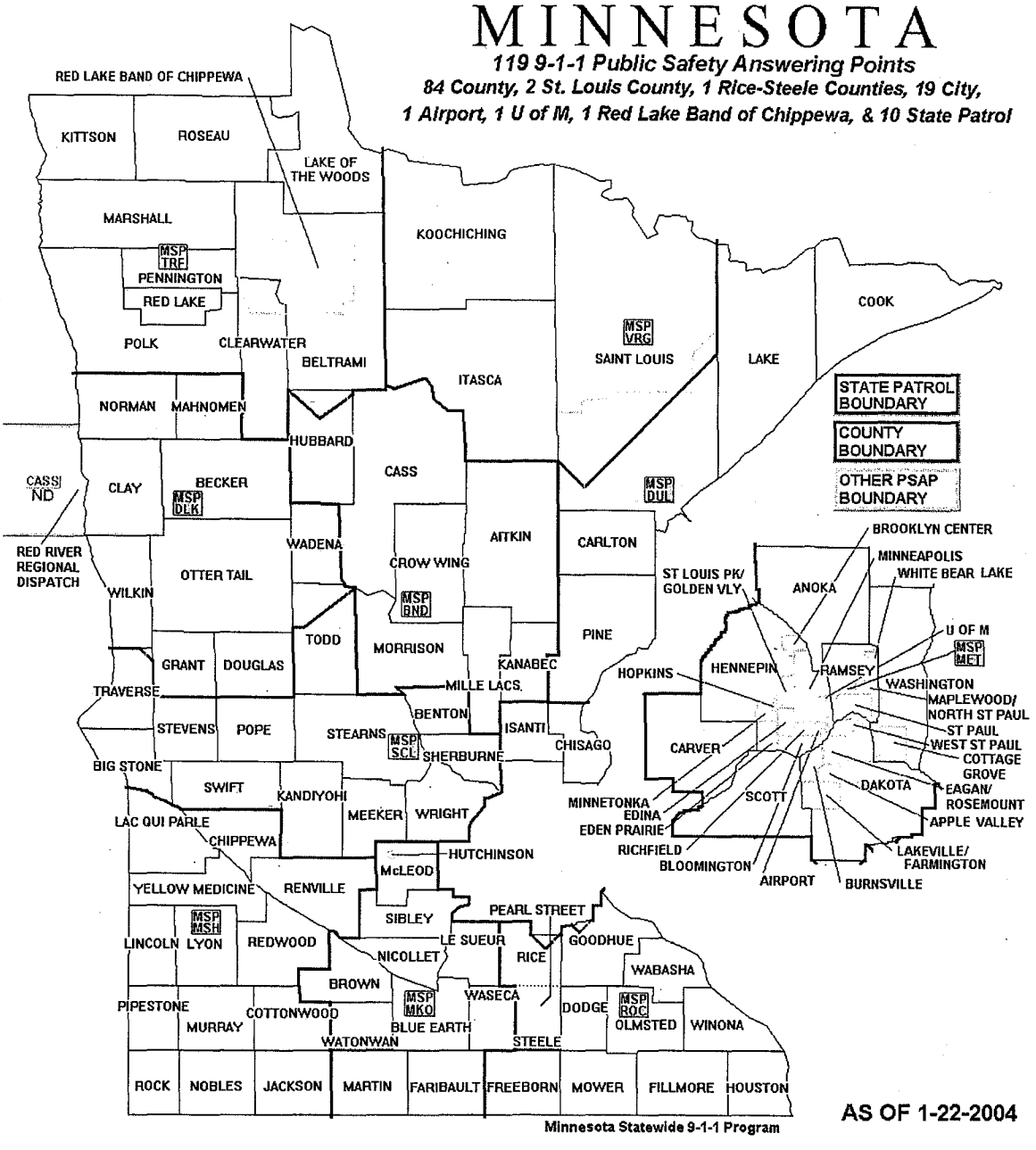


Figure 1: Map of PSAPs in Minnesota

Volume of Activity

The study team received information on the volume of 911 calls from 98 PSAPs in Minnesota, serving 87% of the state's population. The total number of 911 calls received by these PSAPs in 2002 was approximately 2.6 million. For those PSAPs, that is a 911 call volume of .58 per capita. There is a lot of variation in the number of 911 calls, from under 300 911 calls in 2002 in the smallest PSAP that responded to the survey, to 480,000 in the largest.[8]

[8] 911 call data obtained from the PSAP survey, and from Qwest's 911 audit trail report, given to us by the

The study team also received information from the survey on the number of events requiring the dispatching of law enforcement units for 85 Minnesota PSAPs, serving 84% of the state population. The total number of events requiring the dispatching of law enforcement was approximately 3.3 million. For the PSAPs reporting event data, that yields an event rate of .79 events per capita. There was considerable variation here as well, with survey responses ranging from under 300 in the smallest to over 475,000 in the largest.

According to the 110 PSAPs who submitted survey information on staffing, they employ 1,352 FTEs in PSAPs, although many of these employees have other duties in addition to dispatching and call-taking.

County Jurisdiction

The language in Chapter 403 of the Minnesota Statutes governs 911 emergency telecommunications in Minnesota. Section 403.01 identifies the PSAP under the jurisdiction of the county. *"Each county shall operate and maintain a 911 emergency telecommunications system."* But this section also allows for a multi-jurisdictions PSAP. *"The 911 systems may be multijurisdictional and regional in character provided that design and implementation are preceded by cooperative planning on a county-by-county basis with local public safety agencies."*[9]

Historically, this chapter required counties to submit a plan for the establishment of a 911 system. This language was repealed by the 2002 Legislature[10] but language still remains regarding modification of county 911 plans. The same 2002 legislation altered the language as to who operates and maintains the 911 system to include "any other governmental agency."[11] This change clarified what was already happening with 32 PSAPs operated by jurisdictions other than counties. Currently, Chapter 1215 of Minnesota Rules requires each county board to create a committee to develop and be responsible for 911 emergency telephone service plans for that county.

Metropolitan 911 Board

The Metropolitan 911 Board, created by a joint-powers agreement, oversees the 911 system in the seven-county Twin Cities metropolitan area. The Metropolitan 911 Board's purpose is to plan and implement a coordinated 911 system between the various telephone exchanges and the multiple units of government in the region. The key functions performed by the Metropolitan 911 Board are:

- Provide 911 network oversight, establish standards and guidelines for 911 service, and coordinate the 911 database to ensure accuracy, reliability and integrity of the 911 system;
- Coordinate regional Emergency Medical Service (EMS) activities, serve as an information clearinghouse and support EMS providers with monetary and

Metropolitan 911 Board.

[9] *M.S. 403.01.* Available online at http://www.revisor.leg.state.mn.us/stats/403/01.html

[10] *Minn. Laws 2002, Chapter 372, Sec.10.*

[11] *Ibid*, sec. 7.

programmatic resources to enhance the regional EMS system;

- Provide a forum for problem-solving and discussion by facilitating meetings for PSAPs and EMS providers and coordinate activities between agencies involved in providing 911 and EMS;
- Plan, prepare for, and manage change in the 911 and EMS industries by providing information on potential impacts, facilitating activities to implement or manage change, and supporting research to validate and/or enhance 911 and EMS; and
- Educate the public about how to effectively access 911 and EMS and about changes or issues that impact the system.[12]

The joint-powers agreement and board structure, under which the 911 Board operates, is enabled under Minnesota Statute, Chapter 403 rules and regulations, promulgated by the State of Minnesota's Department of Administration, and Minnesota Statute, Section 471.59. It is an arrangement that allows a single authority to represent the defined common interests of the various jurisdictions involved while still allowing the individual counties or cities to plan and implement key services as they see fit.

Role of State

The state's duties under Chapter 403 have been to coordinate the maintenance of 911 systems in Minnesota and to aid counties in the "formulation of concepts, methods, and procedures which improve the operation and maintenance of 911 systems."[13] The state is also responsible for the emergency telecommunications service fee[14], which is currently a $0.40 monthly charge on telephone and wireless phone bills. Of the $0.40, $0.10 goes to PSAPs plus an additional $0.02 of the fees from wireless bills *only* goes to the Minnesota State Patrol for handling 911 emergency calls made from cellular phones[15]. Over 50 percent of the funds from this fee are used to reimburse telephone companies for supporting the network and maintaining the databases that make the 911 system work in Minnesota.[16]

The State Patrol

The Minnesota State Patrol operates 10 regional PSAPs in Minnesota that collectively cover all state and federal highways in the state. These PSAPs dispatch for State Patrol vehicles (and usually MnDOT and DNR vehicles as well) and also take a varying proportion of wireless 911 calls directly. Whether wireless 911 calls go to the State Patrol, or to a local PSAP is decided in interagency discussions, and a different decision can be made for each wireless tower in the area. For instance, a wireless tower near an Interstate highway might receive most of its 911 calls due to problems on the Interstate, requiring the dispatch of the State Patrol. In such circumstances, having the call go directly to the State Patrol can reduce the number of transfers, although a call requiring a

[12] www.metro911board-mn.org/aboutus, Mission Statement, 2004 (January 2004)
[13] *M.S., Sec. 403.06, subd. 1.*
[14] *M.S., Sec. 403.11.*
[15] This is the equivalent of .008 cents of the total charge for both wireless and wireline.
[16] Statewide 9-1-1 Emergency Telephone Service Program Report, December 15, 2003, Statewide 911 Program, Minnesota Department of Public Safety.

local response would still have to be transferred. In other cases, where a tower is near an Interstate as well as a major population center, the majority of wireless 911 calls may be requests for a city response. In that situation, all calls from that tower might be routed to the city or county PSAP, with any calls requiring the dispatch of the State Patrol being transferred.

PSAP Funding

The largest portion of money to operate PSAPs comes from locally collected property taxes or other local government taxing options. As mentioned above, PSAPs do receive a portion of the state-collected 911 fees. This amount is distributed to the PSAPs by a formula, with half the collected amount divided equally among the 100 PSAPs that are not run by cities, and the other half distributed to all PSAPs based on the population they serve. The total amount of money distributed from 911 fees averages out to be ten percent of the PSAP operating expenses for local government (that is, excluding the State Patrol) that were reported on the survey. In the past, some PSAPs have received either federal or state grants for purchasing specific equipment or other items, but these funds are available on a one-time-only basis.

PSAP roles

PSAPs provide two primary public safety services: taking calls, including 911 calls, and dispatching for public safety agencies. The two are strongly related, as many 911 calls and even some administrative calls require dispatching. However, PSAPs also take administrative or non-emergency calls that require no dispatching. These may be questions about government services, for example. Additionally, dispatching tasks do not always come from requests from the public. Many tasks are "field generated" – license plate queries, warrant checks, and keeping track of the status of response units (off duty, on a call, available, etc.), for example.

In most PSAPs in the state call-taking and dispatching are combined. In the very largest PSAPs, however, the responsibilities are often split, with some staff only or primarily answering calls, and with other staff only or primarily dispatching response units. This distinction is known as "one-stage" or "two-stage" dispatching.

PSAP clients

PSAPs provide services for law enforcement, fire, emergency medical services, and occasionally, other public services as well.

Law Enforcement

According to interviews and survey data, the vast majority of events that require a response from a public safety agency require a response from law enforcement. This did vary considerably from PSAP to PSAP, but for the 71 PSAPs that reported both law enforcement and Fire/EMS dispatch events, the law enforcement share was 89 percent of the total number of events. This is in addition to the "field generated" tasks that come from officers on patrol. Because of this heavy interaction between PSAPs and law

enforcement, PSAPs are (with some exceptions) almost always operated by law enforcement agencies such as the police department or the sheriff's office. One thing that became clear in the course of this study was how much law enforcement officers depend on their dispatchers and 911 call-takers. Dispatcher/call-takers often make decisions with potentially life or death consequences (for example, whether to send a back-up unit), or to recognize a potentially dangerous situation in a 911 call (for example, whether the address requesting the response poses a known public or officer safety risk).

Most PSAPs dispatch multiple law enforcement agencies. County-operated PSAPs dispatch the sheriff's office, along with many, or all, police departments in that county. Many city-operated PSAPs dispatch for more than one city. St Louis Park dispatches for Golden Valley, for instance, and Maplewood dispatches for North St Paul.

Fire

PSAPs also provide dispatching services for fire departments. The most frequent incidents requiring the dispatch of fire departments are medical calls, as fire departments have first responder and paramedic units, and are often the ambulance service as well.

As stated above, only 11 percent of the events requiring dispatching require the dispatching of fire and EMS units, but that proportion is not a reflection of the importance of the services provided, given the life or death nature of many medical and fire calls.

Because PSAPs are usually located within law enforcement agencies, and because most of the PSAPs activity is geared toward law enforcement, the study team frequently heard from fire chiefs and firefighters that fire departments are "second-class citizens" within PSAPs, where equipment and operations are geared toward the needs of law enforcement agencies, rather than fire departments.

EMS

Dispatching emergency medical services (EMS, or ambulance services) follows some general trends and raises certain issues.

Dispatching trends in urban and greater Minnesota follow certain patterns. In larger urban areas, it is most common that PSAPs immediately hand the calls for emergency medical services over to a local EMS dispatch center, except in the case when the city or county that operates the PSAP also owns the ambulance service. In Greater Minnesota, outside of the larger cities, emergency medical services are more commonly dispatched directly from the PSAP.

Respondents from the EMS community reported that EMS providers benefit from PSAPs that have the expertise and resources to carefully monitor EMS resources within the PSAP. If, for example, an EMS unit is to leave its primary service area to perform a transfer, the PSAP may have to dispatch neighboring EMS providers (via mutual aid agreements) until the original EMS unit returns to the area. If this situation is not monitored carefully, it can result in repeated and futile attempts to page the unit until the

PSAP realizes the unit is not available, resulting in a delayed response.
In some cases privately operated EMS dispatch operations have centralized and specialized the EMS dispatch function. For example, Gold Cross ambulance dispatches all of its 13 provider sites from Rochester, Minnesota. The locations being dispatched are spread across the state from Duluth to St. Cloud to Rochester and to other locations in Minnesota and Wisconsin. Moreover, Gold Cross provides pre-arrival instructions (discussed in more detail starting on page 82 of this report) and collects detailed scene and emergency information from the caller, allowing them to tailor the response to the unique circumstances of the emergency.

The licensing and designation of primary service areas also affects PSAP operations. The Minnesota EMS Regulatory Board (EMSRB) licenses all EMS providers in the state. Through the licensure process, the EMSRB grants each provider the exclusive right to serve a defined geographic area. This geographic service area is called a primary service area (PSA).[17]

There are 308 PSAs in Minnesota.[18] The boundaries of PSAs have historically been based on criteria involving unit travel time and distance, transportation corridors, and estimated response times. They are not based on local geopolitical boundaries alone. Consequently, the PSA boundaries often do not coincide with PSAP boundaries or other geopolitical lines.

In general, EMS interviewees said that they could benefit from greater EMS expertise among dispatchers, and that specialized EMS dispatch services would be more likely in larger or consolidated PSAPs. They recognized, however, that the economies realized by consolidated or larger PSAPs may not necessarily result in specialized improvements to the dispatch of EMS providers.

Other clients

Some PSAPs are also responsible for dispatching public works staff and community service officers, including road repair crews and animal control.

PSAP Diversity

PSAPs are diverse in their makeup and populations they serve. From the "largest" jurisdictions in terms of population served (Minneapolis, serving a population of 382,700) to the "smallest" (Traverse County serving a population of 3,965[19]) each PSAP answers 911 calls and dispatches the appropriate emergency response agency. Thirty two PSAPs serve jurisdictions with a population under 15,000 while ten serve populations greater than 100,000.[20] The ten Minnesota State Patrol PSAPs handle primarily wireless

[17] *M.S. 144E.06*
[18] Information provided by the EMS Regulatory Board, January, 2004.
[19] Minnesota Demographic Center, http://www.demography.state.mn.us/

[20] *Ibid.* Numbers exclude State Patrol PSAPs, the University of Minnesota, and the Metropolitan Airports Commission due to difficulties in calculated "population served" for PSAPs that substantially cover populations that are in transit, and/or non-resident.

(cellular, PCS, etc.) 911 calls, while a few other PSAPs handle only wireline (traditional telephone collected by wire lines) 911 calls. 36 of the PSAPs that responded to our survey were small operations with no more than one person regularly staffed at any one time. 13 PSAPs have four or more people in the PSAP regularly staffed on at least one shift. As mentioned earlier, there is a blend of county-run PSAPs, city-operated PSAPs and a small number of PSAPs that are operated by other governmental jurisdictions. The seven-county metropolitan area contains 28 PSAPs. There are 91 PSAPs in Greater Minnesota.

PSAPs are also diverse in their operational details. Some offer pre-arrival instructions for medical emergencies, and some do not. Some use Computer-Aided Dispatching (CAD) to dispatch electronically, whereas others do not.

Although PSAPs are diverse in their operations and populations served, the 911 telephone service available to the PSAPs has become more uniform. Currently, all but five Minnesota PSAPs (operated by the University of Minnesota and the counties of Fillmore, Murray, Pipestone, and Wabasha) have selective router-based "enhanced" 911 service, meaning the 911 network can selectively route a 911 call based on PSAP service area, and the 911 caller's telephone number and address is provided to the PSAP. This allows 911 calls to be sent to the correct PSAP even where telephone exchanges overlap PSAP boundaries, and permits easier transfer of 911 information for those calls that still need to be transferred to another PSAP. The remaining five PSAPs still have phone number and location information but the location information is provided by the PSAP's own database. They are not selectively routed, however. All calls from a given exchange go to the same PSAP. The PSAPs operated by the University of Minnesota and Fillmore and Murray counties have projects under way to connect to selective routers.

Wireless 911 service is also becoming more uniform. Currently 94 percent of the counties in Minnesota have initiated some portion of "Phase II enhanced" wireless 911 service meaning under certain conditions, when coverage is available, the 911 call taker will see the wireless caller's cellular number and the location of the caller by latitude and longitude within a few hundred feet. In reality, this capability is not common on most wireless 911 phone calls because the phone itself does not have the capability to provide precise locations. In such circumstances, the PSAP only gets the location of the wireless tower that is receiving the call.

ISSUES and TRENDS

In the course of this study, the study team ran across a variety of issues and trends in PSAP operations that have important impacts on the findings, conclusions, and recommendations of this report.

Consolidation of dispatch services

Over time, the number of jurisdictions in Minnesota providing dispatch services has decreased. In the nineteen-sixties, with the expansion of radio technology, many local

1970s and 1980s lead to a more sophisticated, coordinated operation and many county sheriffs' offices began to combine call taking and dispatch services with the various local police forces in their county. More recently, driven by the need for more effective and efficient service, the Minnesota State Patrol has been dispatching Minnesota Department of Transportation service vehicles and snowplows, as well as Minnesota Department of Natural Resources conservation officers. In 1998, Minnesota had 122 PSAPs, three more than today[21]. As technology and operational procedures improve, dispatching and call taking will keep changing to find the most effective and efficient way to provide a fast, reliable response to public safety concerns.

Computerization

The use of computers to assist PSAP operators has been more widespread over the last five to ten years. Today's PSAP operators have at their fingertips a vast amount of technology capable of providing call back and location information on the caller and some PSAPs have a computer aided dispatch (CAD) system that allows the dispatcher to send the details of service requests directly to computers in response vehicles. CAD systems may also be capable of providing information about the caller's location including past events at that location. Additionally, computers can map locations and provide access to law enforcement databases (warrants, motor vehicle registration, driver's licenses, etc.). Some law enforcement officers can now run identification checks from laptops in their cars, allowing them to compare computerized records of drivers' license photos with the person they are looking at. The use of computers in law enforcement is still in early stages of development and use, and is unequally distributed across the state. The use of computers has had a tremendous impact on PSAP operations in the last decade and will continue to affect public safety agency operations in the future.

Professionalization of dispatching

Over the last decade dispatching has become more professional. A dispatcher's communication link with public safety agencies is critical in effecting a rapid response. The technological complexity of public safety communication requires the PSAP operators to have special computer skills and knowledge. Further, they have to assess the information they have been given and make quick decisions based on this information, their knowledge of various emergency response protocols, and experience. They also need to understand the geographic area covered, communicate effectively with multiple parties, do several tasks at the same time, and perform these operations under stressful circumstances.

This has occasionally resulted in some tensions between dispatchers and law enforcement organizations, as more highly trained and professionalized dispatchers see themselves as skilled professionals, less willing to do additional tasks that law enforcement officers previously requested of them.

[21] See note 5, OLA, 112 local, plus 10 State Patrol.

Wireless services

Wireless phone use has greatly affected PSAP operations. Some PSAPs in Minnesota take primarily wireless calls (State Patrol) while other PSAPs have opted out of having wireless calls routed to them. According to Qwest's 911 audit trail report for 2002[22] (which doesn't include the State Patrol), wireless calls accounted for 37 percent of all 911 calls. Wireless calls frequently come in to PSAPs without some of the key location information needed for effective dispatching. The PSAP operator must take the time to query the caller for location information, which may be difficult if the caller is upset. Technology is becoming available in Minnesota to assist the PSAP operator through enhanced wireless 911, which provides information from the wireless phone regarding the call back number and the latitude and longitude of the caller.

Additionally, automobile drivers reporting traffic accidents on their wireless phones have created problems for PSAPs. It is not unusual for a dozen phone calls to come into the PSAP reporting a single accident. Each of these calls has to be answered, raising the possibility of a single call from a separate emergency getting a delayed response. Wireless calls also result in a disproportionate number of hang-ups or accidental calls, due to automatic dialing features, according to call-takers who were interviewed during PSAP "sit-alongs".

Improved Radio Communications

Radio communications for emergency response agencies have been greatly affected by the implementation of digital, trunked public radio systems. These systems use computer technology to assign and reassign open radio channels to various users or "talk groups," thereby expanding the capacity of the radio system. The new system, often called "800 Megahertz" (although this can be a misnomer) uses narrower, more efficient radio waves and moves radio communication to a single network that replaces the current multitude of radio systems used by emergency response agencies. These systems are already in use by some response agencies and PSAPs in the Twin Cities Metro area.

Internet Telephony

Internet telephony is the use of the Internet as a telephone line. This is currently in its infancy, but is growing rapidly. It offers some benefits to phone customers, but poses some challenges to the 911 system. An Internet phone line does not provide location information or the number of the telephone. The phone number itself is portable, and can be used in different locations. 911 calls are routed to PSAPs by the internet phone provider, based on customer information, but if the customer fails to update that information, a 911 call could be misrouted. Also, federal law limits the extent to which such companies can be regulated by state and local government. Internet telephones are likely to prove an additional challenge to the 911 system over the coming years.

[22] This was received as a spreadsheet from the Metropolitan 911 Board.

Lack of standardization

The Legislative Auditor's report from 1998 identified the development and use of standard operating procedures as a key action to facilitate effective and efficient PSAP operation. The report further discussed the need for statewide standards for dispatcher training.[23] While many PSAPs in Minnesota have operating procedures, there is no set of statewide minimum standards for PSAP operation and PSAP operator training. Many PSAPs do their own training, select their equipment, and operate the PSAP without fully understanding how their neighbors operate their PSAPs. Alternatively, a PSAP can find itself in the position of having to choose between neighboring PSAPs with regards to compatibility (records management systems are an example). This can create PSAP "islands" rather than a statewide network working together to effectively provide emergency agency communication.

METRO AREA

DESCRIPTION

The Twin Cities metro area contains 28 PSAPs. One is operated by the Minnesota State Patrol, seven are operated by counties, 18 are operated by cities, and two independent PSAPs are operated by the University of Minnesota and the Metropolitan Airports Commission.

The number of PSAPs within each county varies considerably; however, as shown in the following table (which does not include the Metro State Patrol PSAP):[24]

Table 1: Metro Area PSAPs, by County

County	Total Number of PSAPS	Number of City PSAPs	Population[25]
Anoka	1	0	308,171
Carver	1	0	75,312
Dakota	6	5	369,593
Hennepin	12	9	1,130,880
Ramsey	4	3	514,748
Scott	1	0	99,488
Washington	2	1	210,724
TOTAL	27	18	2,708,916

[23] See note 5, OLA, 1998

[24] The appendix contains a table showing similar data for three other Metropolitan areas: St Louis, Indianapolis, and Portland. Rough comparisons can be made to the Twin Cities.

[25] Minnesota Demographic Center.

CONSOLIDATION MODELS

In reviewing the various PSAPs in the seven-county Metropolitan area, two consolidation models become evident. They are:

- Multi-city consolidations involving the consolidation of two or more city PSAPs;
- Intra-county consolidation involving the consolidations of independent city PSAPs with the county PSAP.

Multi-city consolidations

Cities with their own PSAPs provide dispatching services for fire, police and emergency medical services for the residents inside their city boundary. In this consolidation model, two or more cities have agreed to have a single PSAP answer and dispatch 911 calls. One city will contract and pay for PSAP services from another city. Examples of multi-city consolidations include: St. Louis Park and Golden Valley; Eagan and Rosemount; Lakeville and Farmington; Maplewood and North St. Paul; and West St. Paul, Mendota, and Mendota Heights.

Intra-county consolidations

Under this model, suburban communities inside the county consolidate with the county and receive call taking and dispatching services from the county PSAP. The county either fully funds the PSAP from property taxes, or charges independent police departments for dispatching services. Examples of this type of consolidation include South Saint Paul with Dakota County, Maplewood with Ramsey County (consolidated from 1999-2001), and Robbinsdale with Hennepin County.

CONSOLIDATION EFFORTS and CASE STUDIES

St Paul / Ramsey

The Ramsey County Board on August 19, 2003 passed Resolution 2003-261 to initiate a planning process to develop a public safety communication system in Ramsey County. A nine voting member planning committee has been developed to make recommendations regarding the organization, governance and financing of this system.[26] Currently the cities of St. Paul, Maplewood and White Bear Lake operate PSAPs independent of Ramsey County.

The planning committee charged with carrying out the process consists of elected policy makers from the various jurisdictions involved, a project manager selected by the county board from a recommendation by the Policy Planning Committee, plus a project management team of public safety officials from affected agencies, and potentially a series of work groups to research and develop options on key topics. Financing for the project has been secured through grants from the federal government and the

[26] http://www.co.ramsey.mn.us/psradio/docs/Policy_Planning.pdf , Feb. 3, 2004.

Metropolitan Radio Board. Some additional funds will also come from Ramsey County. The planning committee estimates the time to complete the public safety communication system will be from 18 to 24 months.

Ramsey County and St. Paul did not develop an 800 MHz system over the past few years because they did not have the funds to support it. The likelihood of developing an 800 MHz system increased with the opportunity to use federal and Metro Radio Board funds. Further, both the St. Paul and Ramsey County PSAPs needed to be upgraded so the time for a full-scale communication center seemed appropriate. The location for the communications center is still under discussion.

A budget estimate from the fall of 2003 identified just over $35 million dollars for development costs of the communications system. These costs include 800 MHz connections, computer aided dispatch (CAD) upgrades, facility costs, portable radios, and other supporting equipment.

As this consolidation effort is in the very early planning phases, very little can be drawn from it in terms of lessons for others exploring consolidation. Rather, it is offered here as indication of local interest and action related to PSAP consolidation.

Allied Suburban PSAP Study

In the summer of 2003, a group of 10 communities in Hennepin County commissioned a consultant to study the feasibility of consolidating "PSAP services to save money while maintaining acceptable levels of service"[27] The ten communities involved in the study include the cities of Bloomington, Brooklyn Center, Eden Prairie, Edina, Golden Valley, Hopkins, Minnetonka, Richfield, Saint Louis Park, Minneapolis, and Hennepin County. The report was finalized in late January of 2004.

The report focuses on the feasibility, opportunities and obstacles surrounding different possible PSAP consolidation models.[28] The report notes that consolidation of PSAP service is feasible but points out different factors that affect feasibility. The report authors identified five "feasibility filters" that each community should consider regarding PSAP consolidation. They are: level of difficulty, amount of pain, level of risk, duration of change process and financial impacts.[29] The consultant identified additional factors such as openness to consolidation, alignment of customer service philosophy, procedural similarities and other considerations in the consolidation process. The report concluded, "greater effectiveness and premier service can be achieved at reduced overall cost through purposeful consolidation."[30] Also, the study identified governance of the consolidated dispatch operation as a critical success factor and identified five potential governance options including comments on each option.

[27] Jeff Nelson, PSC Incorporated, *REVISED FINAL REPORT*, City of Saint Louis Park, Minnesota and Partnering Communities Public Safety Answering Point (PSAP) Consolidation Analysis, Project ID #03-D-25-025, January 15, 2004, page 8.
[28] *Ibid.*
[29] *Ibid*, Pages 39 – 41.
[30] *Ibid*, Page 45.

The study contained five consolidation scenarios for discussion purposes and to "focus on opportunities." Each scenario contained a forecasted savings amount. An additional sixth scenario of maintaining the status quo was also identified. The five scenarios and the projected savings in employee costs:[31]

- Minneapolis provides service to Brooklyn Center with a forecasted annual employee savings of approximately $364,000
- The five communities of Golden Valley, Hopkins, Richfield, St. Louis Park and Brooklyn Center cluster in a consolidated center with a forecasted annual employee savings of approximately $433,000
- The two communities of Richfield and Edina consolidate PSAPs with a forecasted annual employee cost savings of about $131,000
- All nine suburban cities in the study consolidate into a single PSAP with a forecasted annual employee cost savings of approximately $780,000
- The three cities of Golden Valley, Richfield and St. Louis Park consolidate to an upgraded and expanded PSAP with a forecasted annual employee cost savings of about $183,000

Finally, the report recommends as an initial step in consolidating PSAPs, the development of a mission statement. The report suggests principles for the mission statement including:

> "The mission for this shared public safety communications organization is to provide quality, cost-effective communications services to the public and public safety personnel. This organization will strive to deliver this service utilizing the latest technology and qualified, carefully selected employees that are appropriately recruited, trained, and supervised."[32]

The report identified four major policy areas that need to be considered once the mission is crafted and agreement is reached. They include addressing personnel issues, continually weighing cost of services against benefits and needs of communities, cooperatively establish policy and procedures to meet needs, and efficiently use communication resources.

Golden Valley/St. Louis Park

In 1993, Golden Valley and New Hope had a joint PSAP independent of Hennepin County. When operating costs increased, New Hope opted to have dispatching provided by Hennepin County, which offered the service without charge to the city. The operating costs for the PSAP were $276,000 in its final year of operation. Golden Valley couldn't afford to operate the PSAP without New Hope's contribution, and entered into a contract with St. Louis Park. Golden Valley paid Saint Louis Park approximately $250,000 in

[31] Numbers are obtained from line 40 in the various scenarios in Appendix 1A of the PSC report. Employee costs were chosen because they were deemed the most reliable and consistent numbers by PSC, and it also is consistent with how the Management Analysis study team looked at operating costs in this report. PSC also remarked to us in an interview that they deemed the wage estimates within the employee cost information as more reliable than the benefit estimates.

[32] See note 27, Page 71.

2002 to operate its PSAP.[33] Golden Valley's 1993 PSAP operating costs, adjusted for inflation, equal $344,000. Based on this calculation, Golden Valley saves approximately $94,000 per year as a result of consolidation.

A study team member met with elected and appointed officials from both cities. Both cities expressed satisfaction with the arrangement. Their client/vendor (or vendor/user) operation works for the following reasons:

- It is functionally more similar to a joint powers agreement or partnership than a vendor/client relationship
- There is a users' advisory group that meets every other month with the PSAP manager and police and fire representation from both cities to resolve issues such as conflicting policies and procedures
- The PSAP manager listens to and responds to the needs of both communities
- There was a mutual desire to merge
- The communities had much in common geographically, philosophically, and with their approach to safety
- They have people actively working on trust-building with the communities and continuously working to maintain and increase that trust (referred to as "champions" of the consolidation effort)

Both communities are exploring further consolidation as part of the study of suburban Hennepin PSAPs, referenced above.

Robbinsdale/Hennepin County

Robbinsdale consolidated with Hennepin County over ten years ago primarily for cost savings. The current police chief estimated the savings at $50,000 per year, plus the avoided costs of necessary capital upgrades. The other stated major benefit of the consolidation was having their neighboring communities, Crystal and New Hope, in the same PSAP, which in his view improves communication and cooperation when compared with other neighboring cities that still have independent PSAPs.

South Saint Paul and West Saint Paul

The cities of West Saint Paul and South Saint Paul are located just south of the St. Paul city border, and each has a population of approximately 20,000[34]. West Saint Paul currently provides police and fire dispatch services for the city of Mendota Heights (11,600), the Village of Mendota (198), and Lilydale (610), as well as fire dispatch for the city of South Saint Paul.

South Saint Paul had its own PSAP from 1950 until 1995, when South Saint Paul closed its PSAP and its police and fire personnel became a client of West Saint Paul. About four years later, the police became a client of Dakota County dispatch while the fire department remained a client of West Saint Paul.

[33] Totals obtained from interviews with staff from Golden Valley and Saint Louis Park
[34] U.S. census data found at http://www.lmic.state.mn.us/datanetweb/php/census2000/2000Glance.php

The South Saint Paul Police Department reported that it chose to become a client of Dakota County dispatch because:

- The West Saint Paul system was going to upgrade its equipment and was asking the client agencies to share in the capital costs of the upgrade. Dakota County, on the other hand, did not expect the same level of financial commitment from its clients.
- Becoming a client of the County also allowed South Saint Paul police to consolidate its record management system and share record management system resources with Dakota County and other neighbors.

The South Saint Paul Fire Department reported that it continues to be a client of West Saint Paul because:

- South Saint Paul and West Saint Paul Fire Departments have mutual aid agreements to the degree that both departments respond to all "live person" fire calls. The two departments do not jointly respond to all fire alarms, because alarms are most often false.
- South Saint Paul prefers to use one radio frequency for dispatch and on-the-scene communications. If South Saint Paul is dispatched on one channel (for example a county channel) and must switch to another (West St. Paul) for on the scene communications, the possibility that a firefighter is on the wrong frequency on the scene of a fire increases. Inadequate communication is often a factor in on-the-scene firefighter injuries.

West Saint Paul and South Saint Paul have considered consolidation of their fire departments in the past and the study's respondents said that, assuming local government aids and local revenues continue to decline, consolidations may be actively explored in the future.

Anoka County: A Case Study

Anoka contains a mix of suburbs, older cities enveloped by metropolitan growth, and rural areas. Its population in 2002 was 308,171,[35] making it the third largest PSAP in the state in terms of population served. According to Qwest's 911 audit trail, Anoka received 132,386 911 calls in 2002, and dispatched for 191,855 events requiring a law enforcement response. Anoka is the fourth busiest PSAP in the state, ranked by number of events, and the sixth busiest if ranked by the number of 911 calls (as reported on the PSAP survey and from Qwest's 911 audit trail).

Anoka County's PSAP frequently came up in early discussions of PSAP consolidation, as it is the largest example of a fully consolidated county PSAP in the state, has an excellent reputation for quality of service, and has an unusual governance model for its PSAP. As such, the study team spent considerable time and effort on Anoka County, including a site visit, a "sit-along," and 13 interviews with key PSAP stakeholders.

[35] Population data obtained from the State Demographic Center's Web page, at http://www.demography.state.mn.us

Anoka County consolidated approximately 30 years ago, prior to the implementation of 911 in the county. However, PSAP operations were not the only things that were consolidated. The county also consolidated communications, law enforcement training, and criminal investigation. More recently, countywide records management was also consolidated. The Joint Law Enforcement Council (JLEC) was created to oversee all five consolidation activities. The composition of the JLEC has changed over time, but it now consists of an elected official and the police chief from each Anoka city that has its own police force, plus the sheriff, county commissioners, the county attorney (who chairs the council), the President of the county Fire Prevention Council (a Fire Chief), elected representatives from cities with law enforcement provided by the Sheriff's Office, and a citizen-at-large.

The Anoka County PSAP itself has ten answering positions, with six typically staffed at any one time: two call-takers, two dispatchers (one for the northwest half of the county, the other for the southeast), a fire/EMS dispatcher who also takes calls, and a "data channel" dispatcher who runs database queries. The staff is arranged in a circular configuration that allows for easy communication with each other, if necessary. Its technological capabilities were typical for a Twin Cities metro PSAP.

The striking thing about Anoka County was the widespread praise for and satisfaction with its model of consolidation. While nobody claimed perfection, and disadvantages were often mentioned, the very consistent message from clients and stakeholders was that the Anoka consolidated model works well. The chief factors in its success were usually cited as the JLEC, which allowed input from a wide variety of public safety and elected officials, creating a law enforcement system that was responsive to the needs of local communities while providing the benefits of better coordination and communication.

Maplewood/Ramsey County: A Case Study

In 1999, Maplewood closed its PSAP and became a client of the Ramsey County PSAP, with the former Maplewood dispatchers becoming employees of Ramsey County. This consolidation lasted two years, until Ramsey County notified Maplewood that it would no longer provide service after a specific date, and Maplewood built a new PSAP. This consolidation serves as an object lesson and a caution to any local governments considering consolidation, and merits being explored in some detail.

Maplewood is a city of 35,600 people, and its PSAP serves not only Maplewood, but also the neighboring city of North St. Paul, with a population of 11,959. The total population served by the PSAP is 47,559. The population of Ramsey County is 514,748, but St. Paul, White Bear Lake, and Maplewood/North St. Paul operate their own PSAPs. As such, the population currently served by the Ramsey County PSAP is 154,315.[36] In the level of activity managed by the PSAPs, however, Ramsey and Maplewood are closer in size. Ramsey took 44,646 911 calls in 2002, and dispatched to 66,495 events. Maplewood took 24,894 calls, and dispatched to 36,287 events.[37]

[36] State Demographic Center's Web page.

[37] Call volumes for Ramsey are from Qwest's 911 Audit Trail for 2002. Qwest had incomplete data for Maplewood; therefore Maplewood's numbers are from those self-reported in the survey. Ramsey's self-

Drivers for consolidation

Maplewood's decision to join Ramsey was driven by the following factors:

- Maplewood was in need of capital upgrades
- Ramsey offered Maplewood dispatching services for $200,000, half of what Maplewood was then paying to operate its own dispatch center
- The Maplewood PSAP was seen as understaffed by Maplewood police, but the department could not get the budget to hire additional dispatchers.
- Maplewood was already paying for the Ramsey County PSAP through county property taxes. Some policymakers in Maplewood didn't like paying for PSAPs twice (this was a commonly voiced sentiment at city-run PSAPs).

Maplewood's decision to consolidate was contentious. According to Maplewood interviewees, most members of the police and fire departments, as well as some members of the community, viewed the consolidation with great skepticism. But because of the cost savings, and commitments from Ramsey that the center would hire all Maplewood dispatchers and have a "Maplewood feel", Maplewood made the decision to become a client of Ramsey County. Although the Maplewood dispatchers became County employees at the beginning of 1999, Maplewood dispatching did not take place from the Ramsey PSAP until May 1999.

Initially, the plan was for the former Maplewood dispatchers to become fully integrated into the Ramsey PSAP, but this proved difficult, as Ramsey found it necessary to have former Maplewood dispatchers assigned to dispatch solely for Maplewood, for the following reasons:

- Familiarity with Maplewood standard operating procedures, which were different from those in Ramsey County
- Response to complaints from Maplewood public safety officers, elected officials, and the community
- Maplewood's use of police officers as paramedics, an unusual method of providing EMS, with which Ramsey was unfamiliar and found to be very complicated.

The former Maplewood dispatchers' dissatisfaction with their new work environment posed considerable problems for the consolidation. Although it is difficult to determine truth and causation amidst the finger pointing, several factual points seem clear:

- The former Maplewood dispatchers had opposed the consolidation and hoped that the consolidation would eventually be reversed. Their morale was extremely low. A major complaint was that while they had retained seniority in the consolidation for the purposes of vacation and sick leave, they had no seniority, regardless of years of experience, over the Ramsey dispatchers when it came to the issue of selecting shifts. Shift selection is very important to dispatchers given the 24/7

reported numbers were just over 51,000. Minor discrepancies between Qwest and the survey were common, and were almost always due to differences in whether certain subsets of calls were included or excluded in the counts. The study team used the Qwest numbers wherever possible simply because the counting methodology was consistent. This is discussed in more detail in the appendix. The survey was the source for both PSAP's number of events requiring dispatch.

nature of dispatching and the difficulty in coordinating unusual work hours with a family and social life. This loss of seniority was resented as it meant major changes in work schedules for some dispatchers.

- The Maplewood dispatchers were brought in to Ramsey with minimal-to-nonexistent training on Ramsey standard operating procedures, equipment, and geography. This increased the level of frustration felt by the Maplewood dispatchers, and posed operational problems.
- Ramsey saw the Maplewood dispatchers as a problem. The consolidation was sold with the promise that Ramsey would hire the Maplewood dispatchers, and many in the Ramsey PSAP saw the Maplewood dispatchers as having been forced on them. The morale and training problems described above reinforced this notion, and there were allegations (impossible for the study team to confirm or disprove) that the Maplewood dispatchers were working to sabotage the consolidation.

Service complaints from Maplewood public safety officers were high. The consolidation was not popular with the Maplewood Police Department. The complaints heard by the study team were mostly related to delays in the dispatching of non-critical calls, not delays in life-threatening situations. Additionally, the Maplewood PD saw a loss in service from no longer being able to offer walk-up service at the law enforcement center, from lack of access to dispatchers, and from the loss in dispatcher's time to work on additional tasks during slow periods. Ramsey PSAP management, after reviewing complaints, found most of them not valid, and believed that the Maplewood PD was trying to scuttle the consolidation by increasing the amount of complaints.

Additionally, according to interviewees from both Maplewood and Ramsey, the consolidation did not ease the workload at the Ramsey PSAP. The $200,000 Maplewood was paying for services did not cover the payroll increases required for the six full time dispatchers brought over from Maplewood.

After two years, continuing complaints, operational problems, a change in management of the Ramsey PSAP, and a continuing movement within Maplewood to end the consolidation, the Ramsey County Sheriff sent Maplewood a letter giving notice that they would no longer provide PSAP services to Maplewood after a few months. After briefly exploring and rejecting other consolidation options, Maplewood re-established its PSAP, which began taking calls in October of 2001.This PSAP had $540,000 in operating costs in 2002, and cost $650,000 to construct.

Advice

Maplewood and Ramsey interviewees were asked for their advice to any jurisdictions considering consolidation. The advice was:

- Governance structure is critical. A consolidated PSAP should not be directly accountable to only one of the jurisdictions served by the PSAP. This creates the appearance of special treatment, even if there is none.
- Consolidating two understaffed PSAPs creates one understaffed PSAP. Anyone considering consolidation should pay attention to call volumes and workloads.

- Attention needs to paid to operating procedures. Either the new consolidated center has to be willing and able to accommodate differences, or the client agencies have to be willing to change the way they operate.
- Sufficient time and resources have to be budgeted in order to allow for training and transition.
- Human resource planning is important. The consolidation needs to be sufficiently sold to staff, and a consolidated center should not be forced to employ staff that does not want to be there.

Overall, the failure of the Maplewood/Ramsey consolidation serves as a cautionary note that consolidation is not a panacea, and if not planned and executed well, can create more problems than it solves.

METRO, POLITICAL, and FINANCIAL ENVIRONMENT

Consolidation of PSAPs is currently a hot topic in the Twin Cities metro area. While some cities with their own PSAPs have little interest in consolidation, more have explored, or are exploring, their options in this regard. The study involving the PSAPs in Hennepin County, and the discussions between St. Paul and Ramsey County are the most prominent examples, but there are others as well. There are two reasons for this:

1) The current budget environment has placed a premium on reducing local government expenditures.
2) The need for certain capital improvements, particularly interoperable radio, can be achieved more cheaply through consolidation (this is discussed in more detail in the section on interoperability, starting on page 96).

This level of interest, however, does not extend much further into Greater Minnesota, as can be seen in the next section.

GREATER MINNESOTA

In many respects, PSAP operations and issues in Greater Minnesota are different from those in the Twin Cities metro area. For instance, while there are 18 city PSAPs in the Twin Cities metro area, there is only one in Greater Minnesota (that PSAP, in the city of Hutchinson, was consolidated with McLeod County for a short period of time, before going back on its own). Only two other counties have more than one PSAP. St. Louis County has two PSAPs but they are jointly operated and serve as backup to each other. Beltrami County has an independent PSAP at the Red Lake Band of Chippewa's reservation. As such, consolidation within counties has gone about as far as it can go. Instead, options in Greater Minnesota were mostly limited to multi-county or regional models.

CONSOLIDATION MODELS

A number of consolidation models were examined and discussed during the PSAP consolidation study. In greater Minnesota, the models fall into three general categories:

- Intra-county consolidations typically involve the consolidation of two or more city PSAPs, the consolidation of city and county PSAPs, or a combination of the two.
- Multi-county consolidations involve two or more county PSAPs joining together to create a single multi-county PSAP. There are only two such examples in Minnesota.
- Regional consolidations do not exist in Minnesota, other than in the case of the dedicated State Patrol PSAPs (with 10 PSAPs for 11 regions), but were much discussed.

Intra-county consolidations

Counties typically provide dispatch services for all unincorporated areas within their boundaries and in most cases provide dispatch services for most, if not all, of the smaller towns and cities within their borders. It is also common for a county PSAP to provide dispatch services for larger communities within the county borders. For example, Lyon County in southwestern Minnesota provides dispatch services for the City of Marshall, as well as for all smaller communities within Lyon County. In cases where counties provide dispatch services to municipalities within their boundaries, the municipalities sometimes – but not always – pay a share of the operating costs of the PSAP. Larger municipalities that have consolidated with county PSAPs, often pay a share of the initial capital costs involved in the consolidation and in some cases pay a share of the ongoing county equipment or software upgrades. The most common arrangement, however, is that the municipalities pay a share of operating costs and are responsible only for their own equipment costs, such as the purchase and repair of mobile radios.

As mentioned above, intra-county consolidations have progressed about as far as they can go.

Multi-county consolidations

There are only two examples of multi-county consolidations in Minnesota. Pearl Street is a consolidation of Rice and Steele counties and all of the jurisdictions within the two counties. The other example is the Red River Dispatch Center, which is a consolidation of most of the PSAPs within the Fargo and Moorhead metropolitan area. These multi-county consolidations are a relatively new phenomenon; Pearl Street entered into its joint powers agreement in 1997 and didn't take its first 911 call until 1999. Cass and Clay counties joined their PSAPs in August 2001 and the consolidated dispatch center took its first 911 call in October 2003.

Regional consolidations

The only regional PSAPs in Minnesota are the 10 State Patrol PSAPs. The State Patrol has 11 regions, two of which are in the Twin Cities metro area and are served by one PSAP. Several policymakers suggested the possibility of the State Patrol providing regional dispatch services in Greater Minnesota, and county PSAP managers and Sheriffs in greater Minnesota often suggested that county PSAPs could dispatch for the State Patrol. This is discussed in more detail on page 48.

GREATER MINNESOTA – ACTIVE CONSOLIDATION EFFORTS

Pearl Street Public Safety Answering Point: A Case Study

Description

Rice and Steele counties lie just south of the Twin Cities seven-county metropolitan area. Faribault, which is located 50 miles south of Minneapolis on Interstate 35W, is the largest city in the two counties and is the Rice County seat. Northfield, the second largest city in Rice County, is home to St. Olaf and Carleton colleges. Rice County has a total population of approximately 58,628.[38]

Steele County lies directly south of Rice County, and has a total population of 34,429.[39] Owatonna, approximately 15 miles south of Faribault (Rice County seat) on Interstate 35, is the county seat and the location of the Pearl Street PSAP.

The two counties combined have a population of 93,643. The Pearl Street PSAP received 51,400 911 calls in 2002, making it the seventh busiest PSAP in the state when measured that way. It dispatched law enforcement to 61,955 events, making it the thirteenth busiest PSAP, when measured by that metric.

The Pearl Street PSAP provides dispatch services for all the residents of the two counties, including police, fire, ambulance, and sheriff's deputies. Services provided to all public safety entities in the area include enhanced 911 dispatch services, records management services, and the purchase and maintenance of all related hardware and equipment. Pearl Street is governed by a joint powers agreement among the two counties and the cities of Faribault, Northfield and Owatonna.

Drivers for consolidation

Prior to consolidating into the Pearl Street PSAP, both counties maintained their own dispatch centers, as did the city of Northfield. A number of factors were driving the three PSAPs to consider consolidation. Local officials reported that:

- The equipment being used at the time was getting old and was requiring increased maintenance

[38]State Demographic Center, 2002 county data.
[39]*Ibid.*

- Radio traffic was growing and initial cost estimates for the transition to 800 MHz were daunting
- There were increased concerns about Y2K and the potential impact on the record management systems
- Public expectations of enhanced 911 were increasing; and
- Community leaders believed that consolidation could result in economies of scale not possible by multiple dispatch centers

The elected officials from the two counties were enthusiastic about the joint PSAP and, despite some reluctance on the part of the two sheriffs and other public safety personnel, the first joint powers agreement was signed in 1997.

Key steps in the evolution of the joint PSAP

The decision to create a joint PSAP in Rice and Steele Counties evolved in three broad phases: "Feasibility Study and Analysis, Implementation Planning, and Organizational Formation and Implementation."[40] Staff and local officials relied on consultants in the areas of communications equipment, labor relations, and architectural services. The three broad phases of development are as follows:

- Feasibility Study. In 1993, local discussions regarding future jail and dispatch needs led to the decision to apply for a grant that would allow for a feasibility study for joint dispatch among Rice, Steele, and LeSeuer Counties (LeSueur County later declined to participate in this specific consolidation). The feasibility study, completed in 1995, indicated that the concept was technically feasible, yet a number of human resource issues were identified. These included the use of dispatch personnel for non-dispatch duties such as jailer, clerical support and receptionist. A ten-member steering committee was formed, composed of 2 elected officials from each of the three cities and the two counties. The function of the steering committee was to continue to discuss the feasibility of consolidation and to prepare a joint powers agreement for review and approval by each county.
- Implementation Planning. In 1996, the US Department of Justice awarded the COPS-More grant, which allowed Rice and Steele counties to hire a communications-engineering consultant and complete the implementation plan. The implementation plan addressed capital and operating costs, including personnel costs; a suggested management structure; and a timeline for implementation. The study estimated $2.9 million in savings in one time capital costs and $589,000 in yearly operational costs, provided that the record management enhancements were fully implemented.
- Organizational Formation and Implementation. The five jurisdictions (Rice and Steele, plus Northfield, Faribault, and Owatonna, which have their own police departments) formed a joint powers agreement in early 1997. Over a four-year period, the board changed from a 10-member board (two from each jurisdiction) to a seven-member board (two from each of the two counties and one from each

[40] O'Malley, Steve, *Rice and Steele County Consolidated Dispatch Organization*, Chapter 1: "How it was established, Determining Feasibility, Establishing Organization Structure and Keys to Success," September 1997.

city). The financial arrangements also changed from an equal sharing of initial capital costs among all five jurisdictions, to an arrangement where the ongoing operating and capital costs would be assigned to the two county governmental units on a per capita distribution.[41]

Post consolidation stakeholder opinions

The study team conducted focus groups in Owatonna and Faribault in November 2003. Participants in the two meetings included stakeholders from public safety, fire, emergency medical services, dispatchers, elected officials and others. Participants gave many examples of expectations or "promises" made by consultants that never came to be. Operating costs have greatly exceeded the original estimates and implementation took longer than expected (this is discussed in more detail starting on page 67). In spite of the disappointments, it was acknowledged that the result is a more professional dispatch operation and there were no specific complaints against the dispatchers or the service they provide.

One crucial issue that colored their experiences was the difficulty in implementing their CAD software. Other jurisdictions looking at consolidation could avoid the mistakes and headaches that were experienced by Pearl Street, with more careful planning.

Advice

Focus group participants were asked what advice they would have for others considering a similar type of consolidation. Many of the respondents simply said it would be better to forego the multi-county consolidation and focus on improving services within the county boundaries. Others had the following points to consider:

- Hire an administrator who can facilitate the transition and provide ongoing communications and coordination. Ideally the administrator should have public safety, fire, and dispatcher experience.
- Conduct a detailed assessment of service levels and protocols in each jurisdiction before the consolidation and establish clear and realistic expectations for the consolidated PSAP. Service standards should be clear, specific, and measurable so that performance can be objectively monitored based on established standards and expectations.
- Conduct a pre-consolidation job audit of dispatchers so that the non-dispatch duties they perform are clearly defined and accounted for in the consolidated PSAP.
- Facilitate a solid rapport between dispatchers and the personnel in the field. This includes early planning to work out changes in protocols that will result from consolidation and ongoing efforts to promote "off-line" communications among field and dispatch personnel through joint training, "user groups" or other means.
- Establish a responsive and trusted method of addressing complaints from field staff or dispatchers, regarding their communications and mutual work.

[41] Joint Powers Agreement for the Consolidation of Public Safety Answering Points – Rice and Steele Counties, March 11, 1997.

- Consult with properly credentialed technical specialists and scrutinize their advice. Also, become familiar with consolidations that have already been done and recognize that major innovations involve increased risk in unexpected costs and implementation delays. Be visionary, but not utopian.
- Consolidate in stages and celebrate incremental success. For example, the components of radio and CAD, staff consolidation, records management, installing mobile data terminals, remodeling a facility and so on can be broken down into discrete steps and stages so that implementation problems can be more easily isolated and resolved. Celebrating successes can balance the inevitable problems and help avoid conversations about "guess what is not working now..."
- Plan for and conduct a public information campaign that will clarify how the public may be affected by the changes and how they can best interact with the new 911 services. This would be especially important for communities that will no longer have 24-hour "walk-up" services, or in cases where citizens have not yet become familiar with new address systems.

Red River Regional Dispatch Center: A Case Study

Description

The Fargo-Moorhead Metropolitan Area consists of Cass County, North Dakota (population 123,138) and Clay County, Minnesota (population 51,229), with primary population centers in Fargo, North Dakota (pop. 90,599) and Moorhead, Minnesota (pop. 32,177).[42] The metro area covers 2,811 square miles.[43]

The Red River Regional Dispatch Center serves the cities of Moorhead and Fargo, as well as Cass County, North Dakota and Clay County, Minnesota. The city of West Fargo, North Dakota (pop. 14,940) operates its own dispatch center.

The regional dispatch center is the first dispatch center in the country to cross state lines. The governmental entities that consolidated the dispatch services entered into a Joint Powers Agreement for dispatch services in August 2001 (amended in March 2002). The parties established a joint board responsible for administering joint dispatch, with two appointed members each from Fargo and Moorhead, one member each from Cass and Clay counties, and one non-voting member from F-M Ambulance Services, Inc., a private EMS provider.[44] Although it is not required by the terms of the agreement, all of the currently appointed members work for organizations that form the client base for dispatch services – police, fire and emergency medical services.

[42] U.S. Census data (2000) found at http://factfinder.census.gov/home/saff/main.html?_lang=en. Minnesota Demographic Center data was not used because it doesn't include North Dakota counties, for obvious reasons. 2000 Census data were used for Clay County, MN, for consistency with the North Dakota numbers.
[43] U.S. Census data (2000) found at http://www.ci.fargo.nd.us/Planning/data.htm
[44] Amended Joint Powers Agreement – Joint Dispatch, March 11, 2002, Page 2.

Drivers for consolidation

A project team member met with the joint board and the director and assistant director of the joint dispatch center on December 16, 2003, to discuss their experiences with consolidation. Board members said their initial motivation was to enhance officer safety and to provide as good, or better, service from dispatch. While they understood there would be short-term start up costs, they were also looking to achieve cost savings in the long term. The police chiefs of Moorhead and Fargo and the Cass County administrator initially spearheaded the discussion of options for joint dispatch, motivated primarily to help coordinate public safety response to events between the two cities, or as the police chiefs described it, to recognize that "criminals don't stop at the [Red] River." Board members indicated that they and the community were satisfied with the dispatch operations of the various communities – their task was not to fix something that was broken, but to take operations that were already working well and make them work better and more cost effectively. They also found that some communications systems were at the end of their useful life, providing an opportune time to consider combining new systems together.[45]

Key steps in the evolution of joint dispatch

Although they had been discussing joint dispatch for many years, most of the planning and implementation has happened in the last four years. The dispatch center has been jointly managed since March 2002 and dispatchers have been working in one facility since October 27, 2003. The key steps were:

- They hired a consultant to conduct a feasibility study, which was completed in January 2001. This study considered communications equipment needs, costs, facility requirements, and operational issues and also included a management assessment to assist in framing the organizational and political issues involved.[46]
- With their feasibility study in hand, city and county officials considered their options and four of the entities (Fargo, Moorhead, Cass County and Clay County) decided to proceed with the consolidation while West Fargo opted out. They formed their joint powers board and resolved their governance and cost-sharing issues by August 2001. When they signed their agreement, members were expecting to spend around $700,000 in start up costs for a joint center that would cost about $1.3 million a year to operate,[47] compared to $1.5 million for the centers separately.

[45] Lesmeister & Associates and PSC Alliance Inc., Dispatch Consolidation Analysis for City of Fargo, North Dakota; City of Moorhead, Minnesota; City of West Fargo, North Dakota; FM Ambulance and Cass County, North Dakota; and Clay County, Minnesota (FMCCJD Committee) Public Safety Dispatch Consolidation, January 15, 2001, Page 8.

[46] Lesmeister & Associates, op. cit., Page 1.

[47] Erin Hemme Froslie, "Dispatch center will become official today," Fargo Forum, Tuesday, August 7, 2001, p. A4. The $1.3 million figure includes West Fargo, which eventually opted out, so currently anticipated cost savings may be less.

- The board's first task was to hire an administrator. After conducting a national search, the board hired the manager of the Joint Moorhead/Clay County Dispatch Center as director in February 2002. The Communications Center Supervisor for the Fargo/Cass County Communications Center was hired as the assistant director.
- The new administrators immediately worked on employee issues from March to December 2002. These were even more challenging than the typical issues that need to be resolved with any operational consolidation (wages, benefits, work schedules, training) because of the cross-state nature of the consolidation. Significant differences in labor laws between the states required a coordinated team of county and city attorneys to consider and resolve.
- The next task was to work on financial issues – starting from scratch. Staff analyzed individual operating budgets for the two sites and then developed a budget for the consolidated site.
- Around the same time, they considered physical relocation plans and site development, and completed a cross training project to get the two groups of dispatchers familiar with the other's operations and protocols. Neither the Fargo or Moorhead locations could accommodate the consolidated center without a major remodel. A site in Fargo, only about three blocks from the Red River, was selected.
- By June 2003, they ordered their equipment, and installed systems, equipment and furniture.
- Staff began operating in a single location in October 2003.

Post-consolidation assessment

The study team member visited with the board and toured the facility only six weeks after they had begun operating as one joint center both physically and operationally. They reported that their final start-up costs were in the neighborhood of the feasibility study estimate – from $700,000 to $800,000. Understandably, it was too early to ask for a post-consolidation assessment of the quality of services and long-term operational cost savings. Yet things were operating smoothly, and they were already seeing the benefit of having dispatchers from Fargo and Moorhead sitting next to each other, particularly when it came to performing "look ups" on both states' criminal justice information systems (CJIS and NDLETS). The board and staff were optimistic that their consolidated services would provide the service and cost savings benefits that had been anticipated.

Advice

Board members and center managers were asked to provide their advice for others considering consolidation. They offered the following advice:

- Invest in a feasibility study. The partners spent $55,000 to obtain analysis, estimates and advice from a consulting firm with experience in PSAP consolidation. They believed the process gave them credibility and convinced their elected officials that the consolidation would work.

- Proceed slowly and with deliberation. Their feasibility study consultant advised that "many past projects have either suffered significant cost overruns, extended implementation cycles, or sometimes failure because the driving actors tried to undertake too much change too quickly."[48] Major planning and implementation tasks were taken on one at a time, whenever possible.
- Keep your board small to keep the size manageable. Represent the key players. Each board member needs to devote time to communicating with other stakeholders to include their input.
- Focus on a "from the ground up" process. Board members believed that consolidations fail when they are imposed from the top down, over the objections of the law enforcement operators of dispatch. Because law enforcement wanted the consolidation, there were no saboteurs.
- Build upon an existing culture of cooperation. Joint dispatch should not be the first thing attempted with a partner agency. Fargo, Moorhead and the surrounding areas had a tradition of working together as a metropolitan area. They suggest coordinating other efforts such as mosquito control and transit before dispatch.
- Attend to employee issues. Make the jobs at the joint facility attractive for current dispatchers to retain experienced employees.
- Consolidate a practical geographic area that the dispatchers already know. The center consolidated with dispatchers from the previous two centers who knew the geography. The dispatchers from Fargo and Moorhead continued to dispatch for the areas they knew and are being cross-trained.
- Maintain ownership and control over your own dispatch. The group spent a year sorting out their governance issues.
- Maintain dispatch as a physical 'cog' of activity. They chose to locate their center right next to the river – close to each city. The officers still know the dispatchers.
- Hire people who can pull it together. Good managers are key, and manager selection was the first thing the board did once it was formed.
- Don't spend too much time bringing people into the fold. Even if there are estimated cost savings, some potential partners may choose not to participate for a variety of reasons. Partners need to be committed to making the change to make it work.
- Know and exercise your local authority. Board members discovered that a state-level blessing was not necessary; joint powers provided them with the needed legal authority, and county and city attorneys could perform needed legal analysis.

Case example: St. Louis County

Description

St. Louis County (population 199.805[49]) includes primary population centers in Duluth, Hibbing, and Virginia. Covering 7,092 square miles, it is Minnesota's largest county.[50] Its consolidation occurred in the mid-80s.

[48] Lesmeister & Associates, op. cit., Page 3.
[49] Minnesota State Demographic Center, 2002 data.
[50] Found at http://www.co.st-louis.mn.us/

St. Louis County's 911 Emergency Communications Department operates and maintains two PSAPs in Duluth and Virginia. The division answers more than 138,000 911 calls annually, according to survey responses, and dispatches for 185 public safety agencies.[51] The division takes calls for the entire county, and provides dispatching services for all but two agencies – the Hibbing and Ely Police Departments. Among the state's PSAPs, the division's two communications centers together process the fifth largest volume of 911 calls in Minnesota.

While almost all Minnesota counties outside the seven-county Twin Cities metro area have consolidated PSAP operations at the county level, St. Louis is a special case among them for two reasons. First, the communications department reports directly to the County Administrator and County Board rather than to the Sheriff's Office, an atypical reporting relationship. Second, the large size of the county makes it an interesting example of a PSAP that manages a challenging geographic area.

Drivers for consolidation

A project team member met with the department director and a sheriff's deputy to discuss their PSAP operations and their learning and experiences with consolidation. The main driver for the St. Louis County consolidation of its dispatch operations was the need to implement the 911 system on a county-wide level in the mid-1980s. Before consolidation, 911 calls were answered in Duluth only and dispatched by the Duluth police department, while the St. Louis County sheriff's office was handling seven-digit calls and dispatch for the sheriff's office and most rural police departments. The county sheriff at the time believed that the best way to facilitate 911 operations on a county-wide level would be to bring the different services together under one management, reporting directly to the county board with the advice of a user board representing all types of dispatched services.

Key steps in the evolution of joint dispatch and post-consolidation assessment

Because St. Louis County consolidated its services 17 years ago, simultaneous with the implementation of statewide 911, many of the implementation steps, costs and benefits relate to its evolution from a *non-911* system to a *911* system.

Advice

St. Louis County officials offered the following observations and advice:

- Governance issues and structure are pre-eminent during the initial stages of planning, when decisions need to be made on finances and investments in a consolidated service. The county's two advisory user boards, with representatives from public safety, fire and EMS, were formed at the same time a management structure was being put in place. The boards were actively engaged on policy matters that would affect operations. Now, 17 years later, most of these issues have been settled and the user boards do not need to meet as often, and will likely be consolidated into one board.

[51] Found at http://www.co.st-louis.mn.us/911.htm

- Effective dispatching for a large geographic area requires a combination of dispatcher comprehension, local knowledge, and computer aided dispatch – you need all of these to get the right agency to the right address. Although CAD is an aid, their centers cannot be 100 percent dependent on it. The department also relies on paper maps to find addresses and locations, and the division hopes to enhance its mapping software upon implementing Phase Two wireless. The local responding agencies are also relied upon for their geographic knowledge. A good rural addressing system is also necessary, which is in place, and managed by the communications department.
- They cautioned entities to be careful in promising cost savings with consolidation. Unanticipated practical matters come up during implementation and make the project cost more than projected. Study your options and put your best effort in, but recognize the unforeseen cost factor.
- Don't forget to factor in the cost of arranging for a backup location. In the case of St. Louis County, no PSAP in the region had sufficient equipment and staff on call to take over their call volume in the event that their PSAP was suddenly not available. They built in their own backup by creating two communications centers capable of backing each other up.

GREATER MINNESOTA – GENERAL FINDINGS and THEMES

The study's findings include themes that were particularly important to the Greater Minnesota respondents. These themes are not entirely distinct from those identified in the Twin Cities metro area. The themes include:

Current level of consolidation

The Greater Minnesota respondents repeatedly emphasized that they had already done a great deal of consolidation within the county boundaries and that local officials and citizens were satisfied with consolidation at the county level. They distinguished this situation from the Twin Cities metro area, saying that a number of the municipalities within the Twin Cities metro counties continue to operate their own PSAPs.

Sense of local responsibility and accountability

As described in the reports section, "Overview of PSAPs in Minnesota," counties are assigned the statutory duty of operating and maintaining local 911 services. Recognizing that 911 systems would grow over time and that multi-jurisdictional models may be desired, the Legislature emphasized local government's authority and responsibility in the planning and designing multi-jurisdictional 911 services.

"The 911 systems may be multijurisdictional and regional in character provided that design and implementation are preceded by cooperative planning on a county-by-county basis with local public safety agencies."[52]

[52] *M.S. 403.01, Subd. 2.*

Over time, Minnesota counties have designed local 911 services that meet state standards, and – just as importantly – meet local citizens' standards and expectations for services that are tailored to reflect unique local characteristics and resources. Throughout Greater Minnesota, locally elected officials (county sheriffs in particular), expressed a strong sense of responsibility and accountability for providing 911 services in way that met local citizens' expectations and preferences.

This sense of responsibility partly explains why focus group respondents and interviewees in greater Minnesota often said they doubted that regional and multi-jurisdictional models could offer the same level of accountability and quality of service to local citizens. They also doubted consolidation's potential to reduce costs, citing their need to have staff in their facilities around the clock, and the need for other dispatcher responsibilities to still be completed in the absence of dispatchers. The need to backfill for these needs was seen as canceling out other efficiency gains. The specific reservations and perceived disadvantages of regional consolidation in greater Minnesota, however, were many and are discussed in more detail later in the report, particularly in the section on public safety, beginning on page 70.

Confusion and skepticism toward the State's interest in consolidation

Many of the Greater Minnesota respondents said that they were confused as to why the state would take a particular interest in PSAP consolidation. They emphasized that local officials commonly cooperate across county boundaries in a number of areas. Examples included mutual aid agreements in fire, hazardous materials, search and rescue, and emergency medical services; joint gang strike forces and SWAT teams; and broader and more formal joint powers agreements in the area of corrections. Respondents were skeptical of state incentives for consolidation and stressed that local consolidations have already been done, and would be done in the future, when justified by local needs.

Respondents expressed strong concern that the PSAP consolidation study was a precursor to a state "take over" of local PSAPs. This appeared to bias the responses toward strong opposition to further PSAP consolidations in greater Minnesota. Questions regarding "advantages" of PSAP consolidation obtained little response. Questions about the "disadvantages" of PSAP consolidation received extensive response. The respondents concerns regarding consolidation were usually supported by practical case examples and anecdotes.

CONSOLIDATION MODELS INVOLVING THE STATE PATROL

Because of the concern that the purpose of the consolidation study was to force local government PSAPs to be dispatched by the State Patrol regional PSAPs. As such, it was difficult to get solid, unbiased, information on the strengths and weaknesses of any consolidation model involving the State Patrol. When the subject came up, or was brought up, it was usually to mention that it made more sense for county PSAPs to dispatch for the State Patrol.

That said, any consolidation between the State Patrol and local government would face the same challenges as any local government consolidation (communications, records management, oversight, transition, training, etc.), plus additional obstacles:

- Substantial technological disparities in most of Greater Minnesota between local government and the State Patrol.
- State Patrol district and station boundaries are not the same as county boundaries. This poses coordination challenges.
- The State Patrol only receives wireless calls directly, and has additional dispatching responsibilities for MnDOT and the DNR. Local governments receive mostly wireline calls and also frequently dispatch for local public services other than police, fire, and EMS.

As is described elsewhere in this report (under the sections on Anoka County, Pearl Street, and the Red River Dispatch Center), governance structures for consolidated PSAPs are quite flexible, and there is no reason why a consolidated regional PSAP that included the State Patrol, if attempted, would have to be under any one party, rather than under a joint powers governance structure.

COSTS and BENEFITS

INTRODUCTION

The study team relied on several sources of data to answer the Legislature's question about the costs and benefits of consolidation:

1) A survey of Minnesota PSAPs, which asked several questions about operating costs, as well as operations.

2) Budget documents from Minnesota PSAPs

3) Operational cost savings and expenditures in PSAPs that have recently consolidated

4) Interviews with Minnesota PSAP supervisors and other stakeholders

5) Interviews and reports regarding PSAP consolidations in other states (these findings are discussed in the section on "Best Practices")

The three categories of costs and benefits that were examined were operating costs savings from any increased efficiency in a consolidated PSAP, capital equipment cost savings from spreading fixed costs over a higher volume of activity, and the transition costs required to consolidate. Each of these cost categories will be covered in turn.

OPERATING COSTS

Operating costs consist of the day-to-day costs of running a PSAP. The combined operating expenses of our survey respondents who were able to report at least some of this information (105 out of the 119 PSAPs in Minnesota - covering 94 percent of the state's population) added up to $66 million. Most of that amount is local government spending. $5 million is the PSAP budget for the Minnesota State Patrol. Additionally, $6 million collected by the state from the 911 telephone surcharges is given to local PSAPs in the form of grants, some of which would be included in the $66 million if spent on operating costs (although it is restricted in that it cannot be spent on staffing). By far the biggest operating cost was the expense of the employees working in the PSAP, including salaries, overtime, benefits, and training. According to the PSAP survey, employee costs averaged 86 percent of a PSAP's operating expenses. Employee costs ranged from $62,000 to just over $4 million.

Employee expenses were the most consistently reported expenses in the survey. While several smaller PSAPs were unable to separate PSAP employee budgets from the overall law enforcement or jail budget, the vast majority of respondents were able to provide estimates. Equipment and maintenance expenses were another 11 percent, and miscellaneous expenses accounted for the remaining 3 percent. Equipment, maintenance,

and miscellaneous expenses were much more variable, as needs changed from year to year, or equipment was leased (showing up as an operating expense) rather than purchased outright (making it a capital expense), or else capital equipment such as computers were sometimes purchased out of the operating budget. As such, expense categories other than employee expenses suffered from serious "apples and oranges" comparison problems.

One expense category that proved difficult to estimate was facility expense. Although a few PSAPs paid rent for their facilities, the vast majority paid none, so facility costs could not be consistently accounted for. As such, the study team decided to exclude facility cost information from the operational cost totals in this report (including in the totals mentioned above), and instead discuss them under capital costs.

Theoretical Potential for Cost Savings

There are two theoretical reasons why PSAP consolidation could result in operating cost savings, mainly through the need for fewer employees.

1) Minimum Staffing. A PSAP obviously cannot be staffed with less than one employee. If call volume and dispatching duties are not sufficient to keep that employee busy, other duties are added, or an employee could theoretically end up with spare time. Potentially, a PSAP could make better use of any excess staffing capacity through consolidation with other PSAPs, allowing two employees, in a consolidated center, to do the work of four employees in four unconsolidated centers. Similarly, because most small PSAP only have the option of one or two employees on duty at one time, these PSAPs could easily find themselves in the position of having ideal staffing in between one and two employees, requiring the PSAP to choose between overworking one employee or underworking two employees. If the decision to underwork is made, there is another possibility for cost savings to be achieved through consolidation.

2) Staffing to the peaks. PSAP activity can vary widely from minute to minute. One incident, such as a car accident on the interstate, can generate a dozen 911 calls leading to a flurry of activity in a PSAP that quickly dies down. However, in order to ensure that an unrelated, but important, 911 call does not get lost amidst such a flurry of calls, a PSAP may choose to increase staffing to better handle the call loads at such peak times, such as rush hour, even if that leaves staff with less to do during the common times of little or no activity. In larger centers, these flurries of activity may average out into a steadier stream of activity, where staff are busier, yet very few callers have problems getting through quickly. As such, larger centers may potentially achieve more consistent and therefore, more cost effective, levels of staffing. As an example, based on the survey, small centers would have to increase staffing 100 percent (from one to two) to cover a busy period. In larger centers, like Minneapolis, the increase to cover peaks would be from 12 to 13, or eight percent.

Data from the survey

The study team relied primarily on the survey data to determine whether these theoretical sources of cost savings had any potential to be real. The goal was to see whether cost efficiencies of PSAPs increased as PSAPs got larger, and if so, to what extent. For costs, the team looked solely at employee costs. As mentioned previously, these were the most consistently defined cost for each PSAP, and averaged out to be 86 percent of the total operating budget. However, these reported costs required some adjustment to account for additional duties performed by PSAP personnel.

Seventy percent of the PSAPs that completed the survey reported that dispatchers and operators had additional duties on at least one shift. Examples of these duties are records management, clerical tasks, or being a receptionist or jailer. If dispatching and call-taking were consolidated, these additional duties would still have to be done, requiring replacement staffing or the shift in responsibilities of someone else in the department. This could mitigate the potential cost savings of any consolidation.

In order to address this issue, the study team asked the PSAPs to estimate the extent to which other duties were performed. Reported staffing levels and employee budgets were adjusted according to the amount of additional work estimated. The cost data shown in this report reflects this adjustment.

In practice, most operators and dispatchers spent most of their time on PSAP duties. In only 16 percent of PSAPs did dispatchers spend more than half of their time, on average, on other duties.

To approximate the size of the PSAP, we explored several different possible indicators of size: number of 911 calls, number of all incoming telephone calls, number of events resulting in the dispatch of law enforcement units, the number of law enforcement units managed, the size of the population served by the dispatch, and several other indicators. Although not every PSAP was able to report on every possible indicator, and most could only report on a few, we found that all of the major indicators were highly correlated with each other, and with PSAP staffing. The two best indicators of PSAP activity (based on interviews with stakeholders, consistency of definitions and responses, and statistical correlations) were the number of 911 calls and the number of events resulting in the dispatch of law enforcement units.

The total number of 911 calls reported by survey respondents for 2002 was 2.6 million. The total number of events in the same time period, available for a smaller number of PSAPs, was 3.3 million. There are several reasons why there can be substantial differences between the number of 911 calls and the number of events requiring the dispatching of law enforcement units:

1) Many calls requiring dispatch come on administrative or non-emergency lines.

2) Some events requiring dispatch are generated by law enforcement units or from people coming to the law enforcement center.

3) Not all 911 calls require the dispatching of a response unit. Many are related to the same event as a previous call, and some are follow-ups to previous calls, accidental calls, hang-ups, cancelled calls, or are referred to other organizations, such as Poison Control or Animal Control.

4) The event number relates solely to law enforcement units, as fire and EMS response was tracked less consistently.

Other indicators, such as the number of administrative calls, correlate strongly with the volume of 911 calls and events. A PSAP with a high volume of 911 calls is almost certainly going to have a high volume of administrative calls as well.

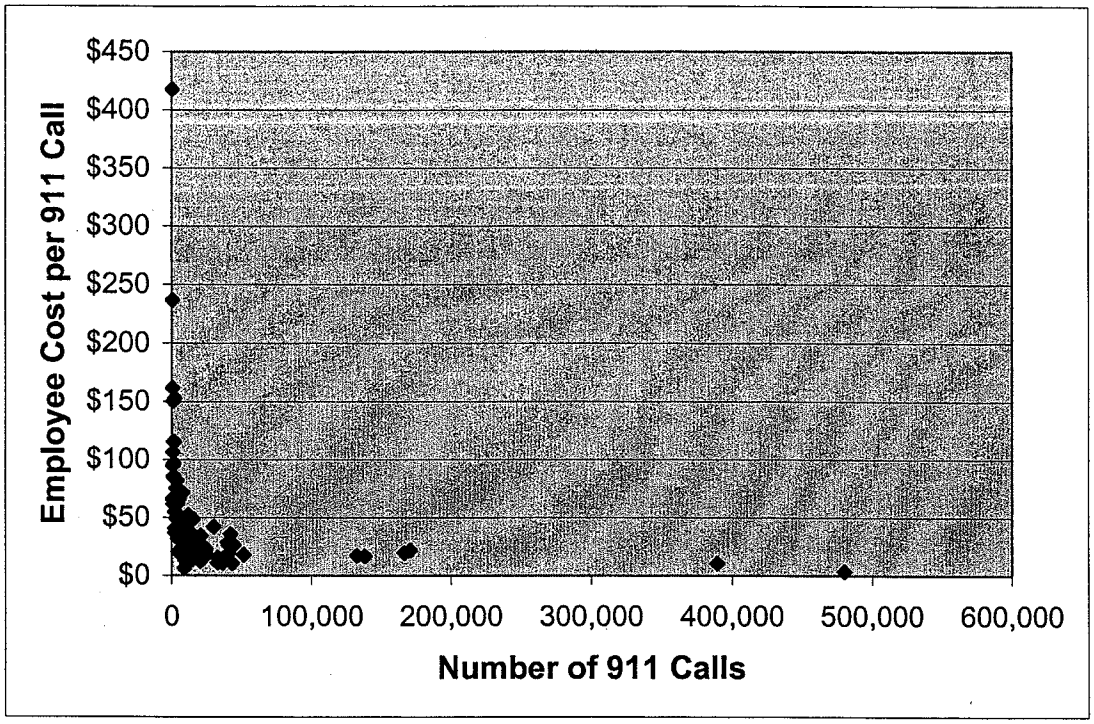
Cost per 911 call

The study team divided the employee cost estimates (adjusted for reported time actually spent doing PSAP duties) by the number of 911 calls to get the cost per 911 call. The methodology is described in more detail in the appendix.

One important point in discussing these efficiency measures is that a cost of $20 per 911 call or $15 per dispatched event does **not** mean that it costs $20 to handle a 911 call or $15 to dispatch an event. The purpose of using numbers such as cost-per-call is to show the relationship between an indicator of the efficiency of PSAP operations to an indicator of PSAP size, not to show how much it costs to handle a 911 call.

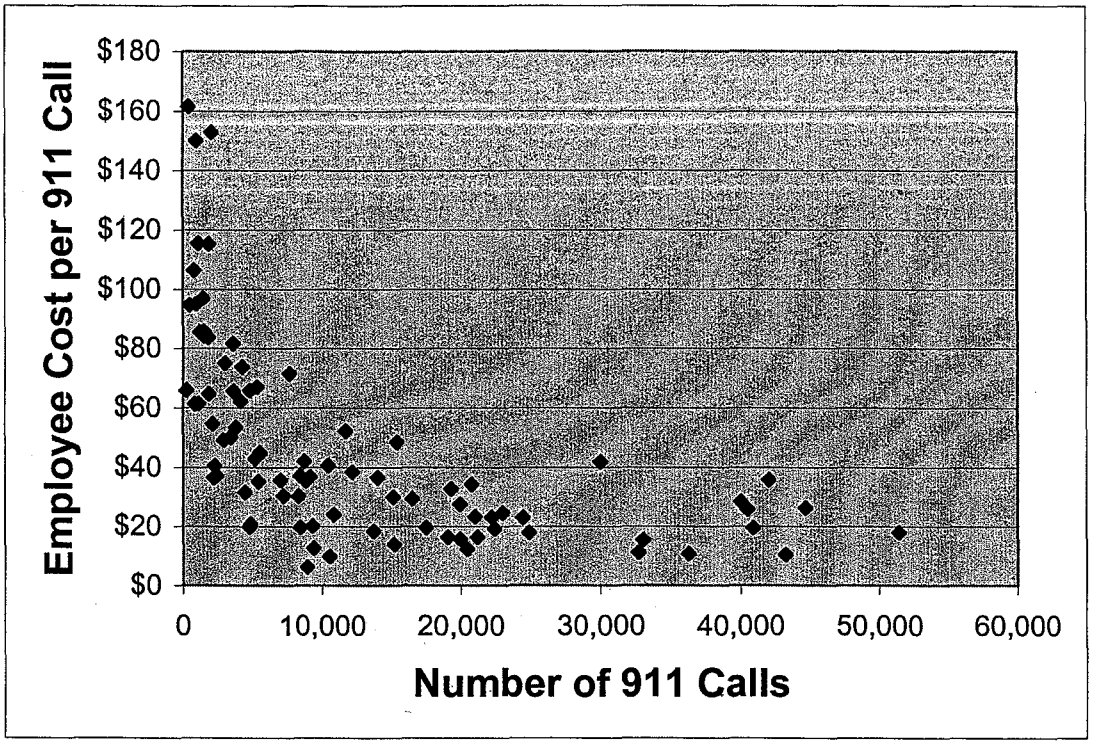
The following chart shows the relationship between the employee cost per 911 call, and the number of 911 calls that the PSAP received in 2002. The chart contains data for the 93 out of 119 PSAPs for which both employee budget and 911 call data were available.

Figure 2: Relationship between 911 call volume and cost per 911 call



The trend line in this chart is quite sharp, but the extreme data points at the far ends of each scale make it difficult to see what is happening with the bulk of the data in the middle. The following chart only looks at PSAPs with less than 100,000 calls in 2002, and with a cost-per-call of less than $200, in order to get a better look at what is happening in most PSAPs. Only 8 PSAPs are excluded. Note that this changes the scales on the graph.

Figure 3: Relationship between 911 call volume and cost per 911 call - cropped



The relationship shown in these graphs is stark. The cost per call of PSAPs with low call volumes (less than 6000 calls or so per year), is considerably higher than that of PSAPs with larger call volumes. The following table shows how the average cost per 911 call changes by call volume, sorted by decile groups.

Table 2

Call Volume Range		Average cost per 911 Call (unweighted)
The 0-9th.	percentile	$138
10-19th	percentile	88
20-29th	percentile	56
30-39th	percentile	72
40-49th	percentile	39
50-59th	percentile	28
60-69th	percentile	27
70-79th	percentile	22
80-89th	percentile	21
90-99th	percentile	18

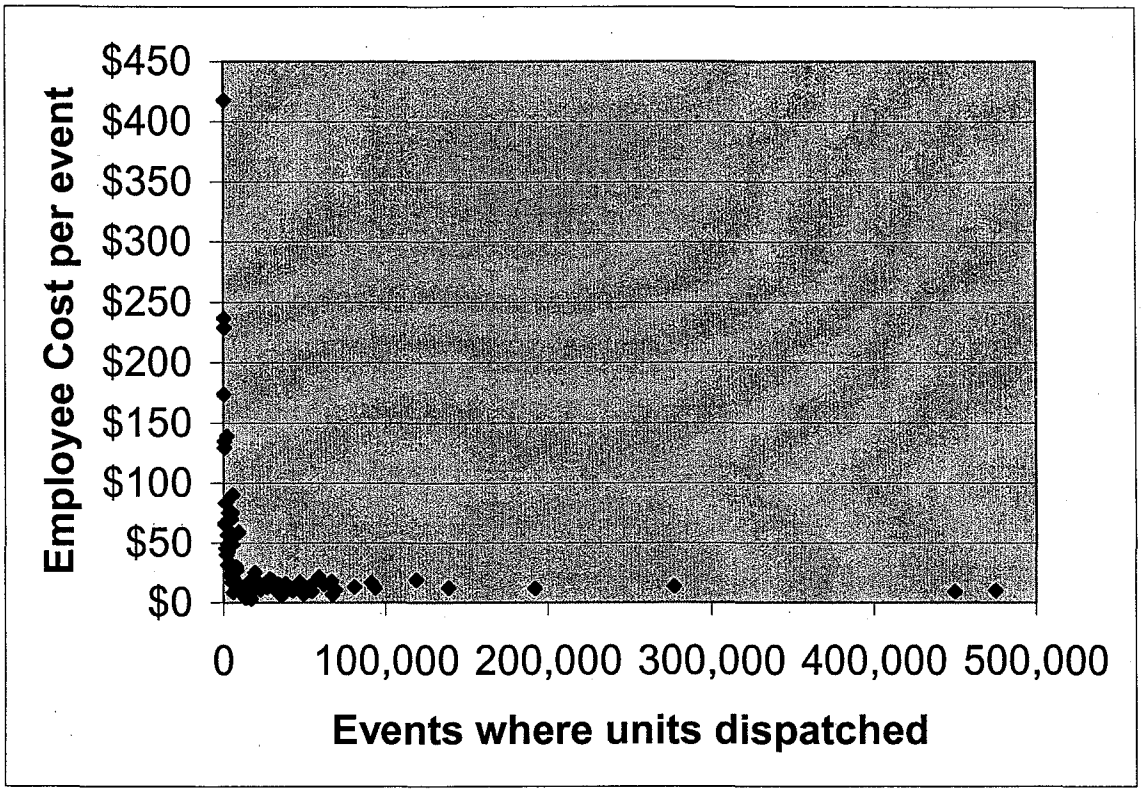
These charts and the table also show that while potential cost savings continue to exist for larger PSAPs, the potential is less pronounced once a PSAP reaches a certain size, although cost effectiveness does continually increase as PSAPs handle more calls.

It should also be noted that there are numerous exceptions to the trend – smaller PSAPs with cost per call numbers comparable with much larger PSAPs. Looking at the data in more detail, this is largely driven by staffing choices. Many of these exceptions report that their PSAP personnel spend 50 to almost 100 percent of their time on other duties. Others seem to be close to the maximum desirable call level for one-person staffing, where the PSAP has a choice between having one overworked dispatcher or two underworked ones.

Cost per Event

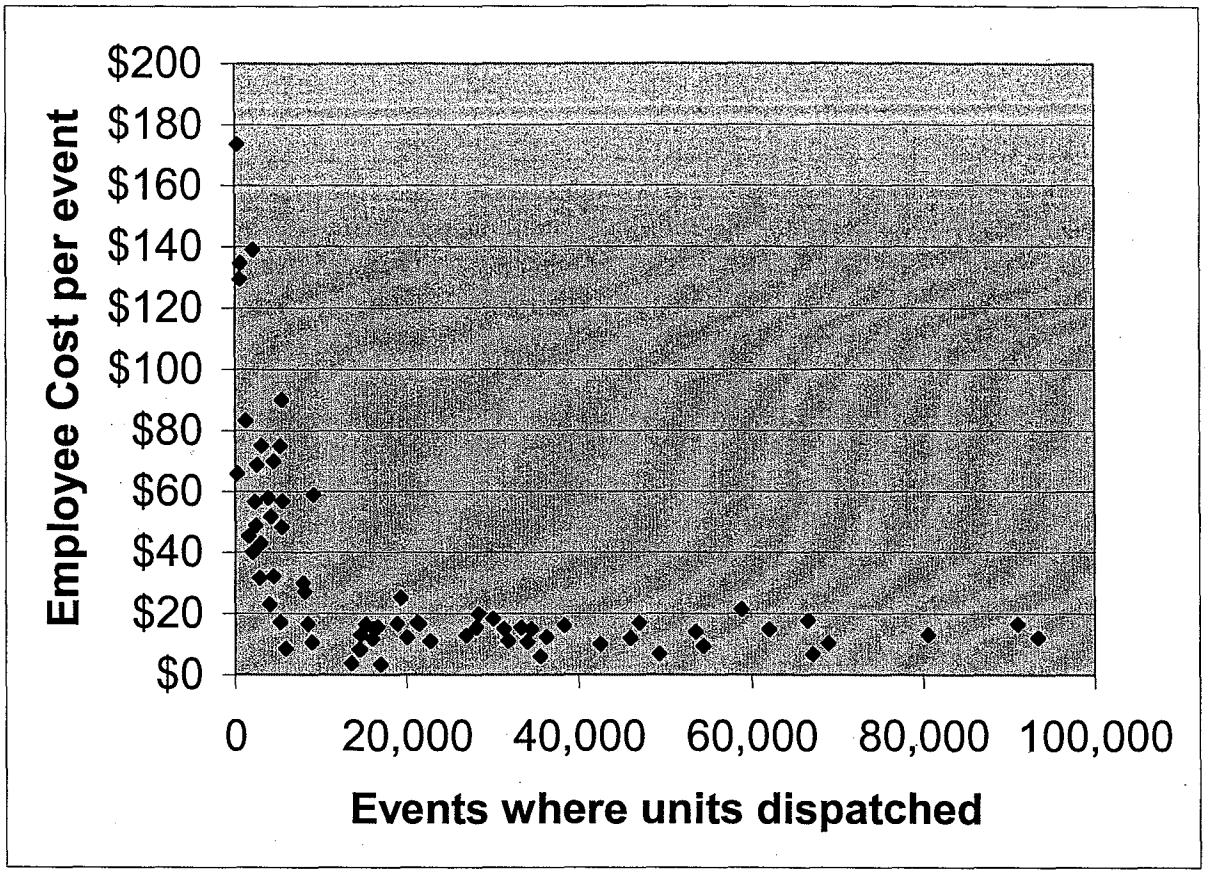
The following chart shows the relationship between costs and size, using events where law enforcement units were dispatched as the indicator of PSAP size. The data on the chart is for the 80 PSAPs for which both cost and the number of events were available.

Figure 4: Relationship between cost per event and volume of events.



The next graph excludes PSAPs where costs were more than $200 per event, and where the number of events was greater than 100,000, in order to get a better look at the bulk of the data that isn't in the extremes. Note that this changes the scales on the graph.

Figure 5: Relationship between cost per event and volume of events – cropped.



The averages for different sizes of PSAPs are summed in the table below:

Table 3

Event Volume Range	Average cost per Event (unweighted)
The 0-9th percentile	$173
10-19th percentile	62
20-29th percentile	50
30-39th percentile	29
40-49th percentile	17
50-59th percentile	13
60-69th percentile	15
70-79th percentile	12
80-89th percentile	13
90-99th percentile	13

The same relationship exists, with average costs dropping rapidly as the number of events increases, at least to a certain point, after which cost reductions are minimal. In the case of 911 calls, the potential for cost reductions continued to exist throughout the range of data. In the case of events resulting in the dispatch of law enforcement, further cost efficiencies diminish rather quickly.

Minimum Staffing

To a significant extent, the cost-per-call and cost-per-event data verifies one of the potential theoretical problems with small PSAPs that could result in cost savings from consolidation – minimum staffing requirements. One-person PSAPs, defined as a PSAP that regularly doesn't staff more than one person, had higher cost-per-911-call numbers than PSAPs with larger staffing requirements. The average cost per call was $87 in one-person PSAPs, and $33 in PSAPs with more staff. This is not to say, however, that one-person PSAPs automatically have higher cost-per-911-call numbers. There are several one-person PSAPs that handle a considerably higher amount of activity than PSAPs that usually staff two or even three people.

Another way to explore the question of minimum staffing is to examine the following table, showing the average call-to-FTE ratio, and the average number of FTEs, in PSAPs of different sizes, ranked by number of 911 calls received, for the 98 PSAPs that reported both the number of 911 calls and the number of FTEs. FTE numbers are adjusted for the amount of time that employees spend on PSAP responsibilities.

Table 4

911 call Volume Range	Average # of FTEs	Average Calls per FTE
The 0-9th percentile	3.9	219
10-19th percentile	5.7	314
20-29th percentile	5.4	598
30-39th percentile	6.1	794
40-49th percentile	6.1	1,414
50-59th percentile	6.9	1,867
60-69th percentile	9.5	1,943
70-79th percentile	9.1	2,610
80-89th percentile	14.1	2,862
90-99th percentile	46.6	4,162

A similar comparison was made using the number of events, for the 84 PSAPs that submitted information on both events and FTEs.

Table 5

Event Volume Range	Average # of FTEs	Average Events per FTE
The 0-9th percentile	3.1	222
10-19th percentile	5.7	566
20-29th percentile	6.6	852
30-39th percentile	6.0	1,333
40-49th percentile	6.2	3,958
50-59th percentile	6.3	3,326
60-69th percentile	10.2	3,065
70-79th percentile	9.5	4,461
80-89th percentile	14.8	4,630
90-99th percentile	51.6	4,249

These tables show that although the average amount of activity per FTE increases more or less continuously, the average number of FTEs at the PSAP increases only slightly until you get to the largest PSAPs in the state. While no conclusions can be drawn from this table about the point at which PSAP staff become overworked at the higher end of the table, the implication is that employees in smaller PSAPs are capable of handling a higher volume of activity than they currently manage.

Hypothetical Potential for Cost Savings

In looking at the data above, it is hard to determine the total potential for cost savings. The PSAPs with the highest cost-per-call numbers are small PSAPs, with few calls, which may not add up to much potential savings, even if (and this is a major "if") cost savings would exist in reality. Larger PSAPs have high call volumes, but tend to have low cost-per-call numbers, so the charts and tables don't clearly indicate how much potential exists for cost savings from consolidation.

The study team thought it might be helpful to provide some perspective on the maximum potential for employee cost savings that could be obtained from consolidation. The purpose is to place an "upper bound" on savings.

These numbers are given with caution, however. Actual savings would be lower, probably much lower, and possibly non-existent, because of obstacles to cost savings that are documented in coming pages.

In order to put the preceding cost numbers in context, the study team created a hypothetical scenario in which every PSAP was able to get down to a cost-per-call or cost-per-event number on par with the PSAPs that had the lowest numbers. Using a $20 cost per 911 call, a cost level already achieved by 25 PSAPs of all sizes in the state, the

statewide potential employee cost savings would be less than $10.5 million in the 93 PSAPs that reported both 911 and cost data. Total employee costs reported on the survey (adjusted for time spent on additional duties) were slightly under $50 million. Total employee costs reported on the survey for the 68 PSAPs with reported cost-per-911 call numbers greater than $20 were $26 million. **Again, this is a hypothetical scenario that is probably not achievable in reality.** But it does help put the preceding cost numbers into perspective.

Using a $13 cost per event where law enforcement units were dispatched, a level achieved by 26 PSAPs of various sizes in the state, the potential savings were just under $8 million for the 80 PSAPs that reported both event and cost data (the total employee costs for the PSAPs over $13 per event was $24 million). **This is also a hypothetical scenario that the study team does not feel is attainable,** but helps put the cost numbers in perspective.

The next section discusses why the team believes that these costs savings would not be achievable.

POTENTIAL OBSTACLES to OPERATING COST SAVINGS

Four potential obstacles could reduce or prevent cost savings.

24-Hour Buildings

A common issue that was brought up in interviews with PSAP stakeholders was the need for law enforcement buildings to be staffed 24 hours a day, seven days a week. In a substantial number of PSAPs, particularly smaller ones, the dispatcher is the only staff person who is always in the building on a particular shift – particularly the night shift, but even during the daytime as well.

Two things drive the need for 24/7 staffing: the presence of inmates in the jail or holding cell, and the desire of law enforcement to offer walk-up law enforcement service to the community. In either situation, the consolidation and relocating of PSAP operations would require either a replacement staff person to be hired (negating cost savings for that shift), or the jail or police station would have to be closed down during certain times of the day. In the case of jails, this would require consolidation as well, but that issue was beyond the scope of this study.

Survey respondents were asked whether dispatchers handled jailing duties while also being the only staff in the building. This condition existed in at least one shift in one quarter of the PSAPs that responded to the survey. This percentage was higher for smaller PSAPs, exceeding 50 percent for the ten PSAPs that received fewer than 1000 calls per year.

Back-filling

As mentioned previously, many PSAP personnel fulfill duties additional to those required for PSAP operations, such as jailer duties, records management, or work as a receptionist. While the survey results indicate that the amount of additional work usually isn't large, this varies from PSAP to PSAP, and in all smaller PSAPs the amount of additional work is at least a mitigating factor. Without analysis of the time and nature of these additional duties for specific PSAPs considering consolidation, such a consolidation could potentially end up costing money, or diverting other staff away from current responsibilities.

Desire to avoid layoffs

In several instances where consolidation has occurred (Rice and Steele Counties, and the now-defunct Maplewood-Ramsey consolidation), a specific "no layoff" goal was set. That is almost all of the staff in the consolidated facilities was offered employment at the new facility.

But as can be seen from the above cost analysis, it is almost impossible to reduce operating costs without reductions in staffing. Savings in operating costs might be deferred until attrition results in staff reductions, or they might never occur. In one example, a consolidated PSAP doubled staffing to deal with the increased call load, but when the consolidation later failed, the PSAP maintained the new staffing levels rather than go back to the staffing level that preceded the consolidation.

PSAP operating costs hidden in other budgets

Hidden costs were a particular problem in the Pearl Street consolidation in Rice and Steele Counties. Pearl Street discovered that the dispatchers in the PSAPs prior to the consolidation had been receiving considerable off-budget support. For instance, police officers or deputies would assist the PSAP during times of high call volume, or in the event of a dispatcher illness or vacation. After the consolidation this was no longer possible because the greatly increased computerization of dispatching required a high level of training to use the dispatch equipment. What this meant in practice is that the Pearl Street PSAP needed more dispatchers after the consolidation than were projected prior to the consolidation, in order to handle the call volumes and cover the necessary shifts.

While this problem may have been extreme in Pearl Street (the number of dispatchers prior to the consolidation was low compared to the sizes of the populations covered and when compared to minimum staffing requirements), similar "off budget" costs are likely in other PSAPs. In larger PSAPs, clerical workers and technical support often appear on the PSAP budgets, according to the survey. In smaller PSAPs, this is less common, but the clerical work and technical support are still costs that will have to borne in any consolidated PSAP. For instance, for the ten largest PSAPs in Minnesota (by number of 911 calls reported), eight have clerical and/or technical support staff. For the ten smallest PSAPs, only two have clerical or technical support staff.

The survey asked only about budgeted costs because of difficulties in accurately counting such "off-budget" costs. Any PSAP considering consolidation would have to keep this in mind, and examine the potential for such costs, as part of a consolidation feasibility study.

However, it needs to be noted that the problem here is with **expected** savings in specific accounting categories. A shift of costs from off-budget to on-budget may make a PSAP more expensive than was expected, but it also could result in an equal amount of resources being **saved** by the organization that was initially supporting the PSAP. For instance, while additional dispatchers were needed in Pearl Street to cover for the support they previously received from law enforcement officers, those same law enforcement officers were freed from dispatching responsibilities – a resource savings.

This is essentially the flip side of the issue with PSAP staff being occupied with other tasks that would still have to be done by someone else in the organization. In many cases, a consolidation would also result in some work done by other staff being shifted to the PSAP. The implication here is that the savings from PSAP consolidation may show up as costs elsewhere than in the PSAP budget.

REGIONAL DIFFERENCES

The following two charts show the relationship between PSAP size and efficiency in the Twin Cities metro area and in Greater Minnesota:

Figure 6: Metro cost efficiencies

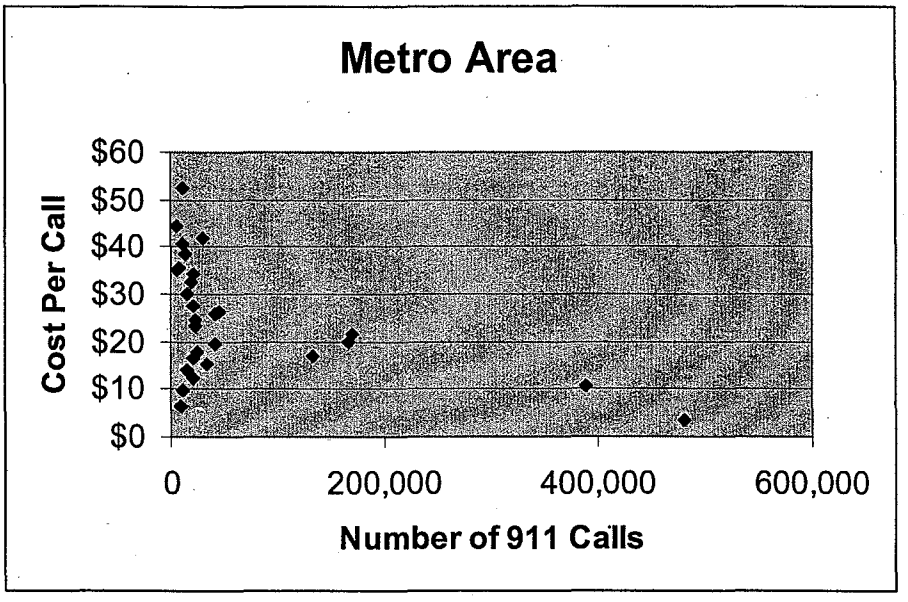
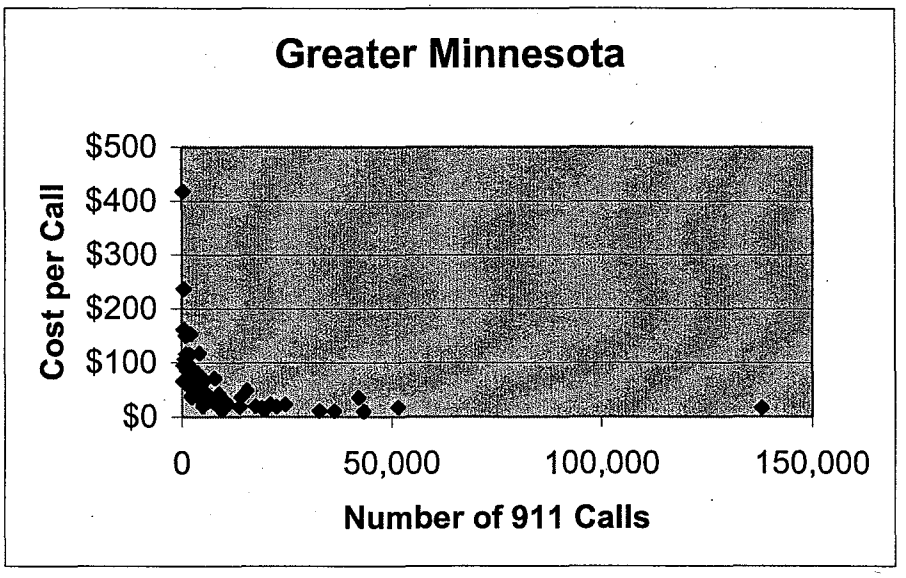


Figure 7: Greater Minnesota cost efficiencies



Note that the scales on both axes are different between the charts.

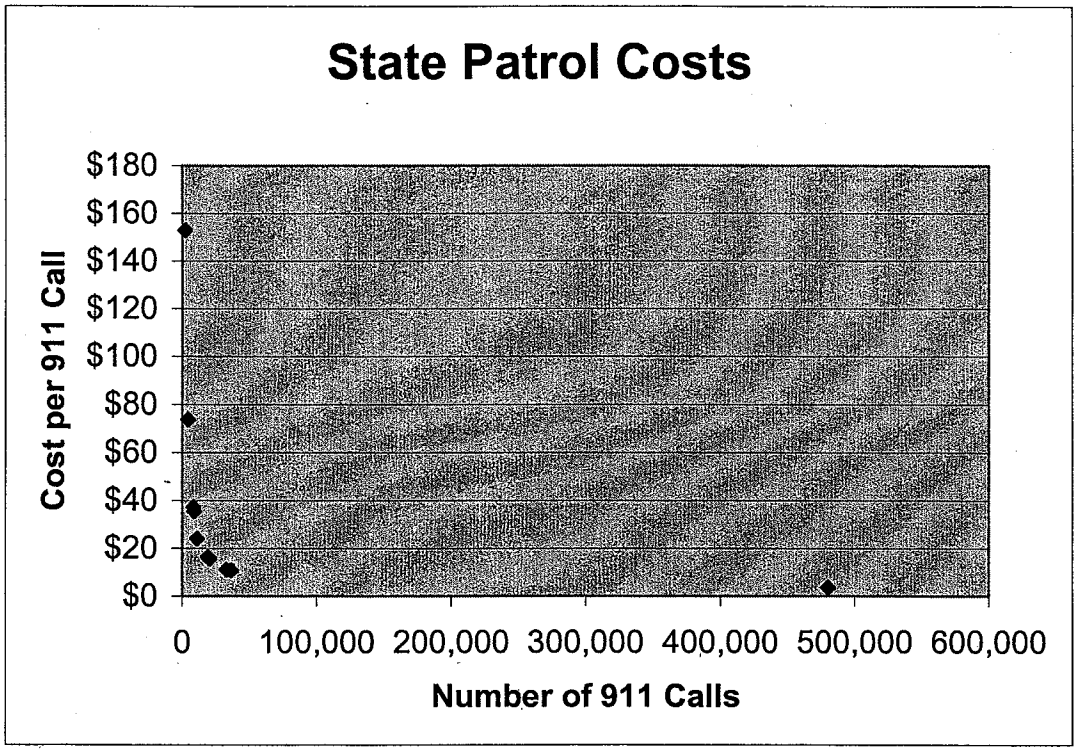
These charts show that while the trends described above are stronger in Greater Minnesota than in the Twin Cities metro area, the sizes of the PSAPs involved (and therefore the larger budgets) are larger in the Twin Cities metro area. The results are similar if the number of events is examined instead of the number of 911 calls.

The State Patrol

As mentioned previously, in our interviews and focus groups in Greater Minnesota, participants frequently mentioned that a good candidate for consolidation would be State Patrol PSAPs.

Although this sort of "consolidation makes no sense here, but it might make a lot of sense over there" argument was extremely common in every region of the state that the team visited, the following chart does show that the cost trend for State Patrol PSAPs is very similar to the trends shown on the other charts.

Figure 8: State Patrol cost efficiencies



Note that the scales on this chart are different from previous charts.

CAPITAL COST SAVINGS

PSAPs require capital investments in order to operate. While there is quite a bit of variance in the capital equipment we found at PSAPs, a typical PSAP has a 911 trunked phone system capable of taking multiple calls at the same time, a radio system capable of

communicating with multiple public safety units on multiple channels, a computer system for receiving name and address information from incoming calls and for doing data queries, and a call recording system. More technologically advanced PSAPs have other tools, such as CAD software, capable of tracking the status of public safety units and communicating with them electronically, or a computerized radio and phone systems where connections were made by mouse clicks. A handful of PSAPs have fairly uncommon tools like mapping software that automatically zooms in on the geographic location of the incoming call.

These capital expenditures are another potential source for cost savings from consolidation. It is possible that PSAP consolidation could allow certain capital costs to be spread over a larger volume of activity.

Unfortunately, however, it proved impossible to get the same quality of information for capital costs as for operational costs. Capital expenditures are less consistent and there is a serious problem with comparing apples to oranges. For example, the largest PSAPs tend to have equipment with more features, so it is hard to compare a computer system in one PSAP with another.

That said, the PSAP survey did ask about certain types of capital equipment, and the team was able to get some capital cost information in interviews, in talking with technical experts, PSAP managers, sheriffs, and chiefs of police who have undergone recent major capital improvements.

In three recent examples of major PSAP capital upgrades (Maplewood, Pearl Street, and Red River) the capital costs of the upgrade ranged from 54 percent to 118 percent of one year's operating cost (the specifics of the upgrades varied widely). As major capital upgrades are only done rarely, these examples indicate that in the long run capital costs are considerably smaller than operating costs.

Economies of Scale

The study team looked at specific capital costs to see the extent to which they were spread over larger call volumes in larger PSAPs. Capital costs are of two different types, fixed and variable:

Fixed capital costs are the same for all but the very largest PSAPs in the state. Examples are the 911 system (which costs around $150,000[53]), the central radio electronics (which costs around $75,000[54]), facility space, and LAN servers. In a consolidated center, these fixed costs would spread over a larger amount of activity.

[53] This figure comes from several interviews with PSAP managers who had recently upgraded their 911 systems or were planning to do so.
[54] This figure comes from an interview with Ron Vegemast, Consulting Engineer for the Metro Radio Board.

Variable capital costs are spent per each answering position in the PSAP. Examples are radio transmitters (which cost $22,000[55]), and computer workstations. If a specific consolidation didn't require additional answering positions, the costs would be spread over a larger amount of activity. If the consolidation **did** require additional answering positions, any cost savings would be accordingly less.

Capacity

For many smaller PSAPs, it is likely that another PSAP could handle their call volumes without substantially increasing the amount of capital capacity. For instance, almost every PSAP in the state has at least two answering consoles, even if only one position is used at any given time (the second is a back up, or used for occasional peak staffing needs). On average 187 PSAP staff are on duty at any one time, but there are 388 answering consoles in the state. While some of these back-up consoles are low-tech, or used for training purposes, their presence indicates that there is capacity in the facility for another staff position. Assuming that the consolidation of small PSAPs would not tax the capacity of their radio, computer, or 911 systems, necessitating major upgrades, in many cases these capital equipment costs could indeed be spread over a large volume of activity through consolidation.

For the consolidation of larger PSAPs, extra capacity isn't as common as it is for smaller PSAPs, but it can still be found. The city of Minneapolis is a major example, having considerable extra capacity for call-taking and dispatching. Minneapolis could potentially dispatch for several other metro-area cities, spending minimal amounts on capital equipment to do so.

Where extra capacity does not exist, the potential for savings on capital equipment would be lower. If the phone and computer system has the capacity to handle more calls and more stations, such a consolidation might only require spending $50,000-100,000 each on additional answering consoles. But if there is no more room for additional positions, or if the computer and phone system cannot handle the load, capital cost savings might be impossible to achieve.

It also needs to be noted that capital savings are an **avoided** cost. A city would save nothing on capital equipment if it threw away perfectly functional and high quality PSAP equipment in order to consolidate with a neighbor with excess capacity. As such, capital cost savings are a consideration only when major equipment upgrades are needed, and if by consolidating a PSAP would avoid or share such costs.

TRANSITION COSTS

A third category of costs for PSAP consolidation are transition costs, including feasibility studies (costing in the tens of thousands of dollars), planning time and expenses, installation of radio equipment to allow transmission on additional channels, the purchase of radios, laptops, and software, systems development, data migration, facility design and

[55] *Ibid.*

construction, furniture, and training. While these costs are important, they are extremely situational. For instance, two PSAPs using the same records management and CAD systems would find it easier to consolidate, and have lower transition costs, than two that were not.

In practice, however, PSAP consolidations often occur simultaneously with the upgrade of capital equipment, and the two different categories of costs are difficult to disentangle. As such, the transition costs of the Pearl Street and Cass/Clay consolidations are simply a portion of the upgrade costs mentioned previously, plus the cost of the feasibility studies.

COST SAVINGS in REALITY: THE PEARL STREET CASE STUDY

The following table shows the employee costs of dispatching in Rice and Steele counties in 1993, before the Pearl Street consolidation, predicted costs after the consolidation, and current 2002 costs.

Table 6

Scenario	Costs	Costs in 2002 dollars[56]
Actual staff costs – 1993	$429,000[57]	$534,000
Predicted staff costs – after consolidation	350,000	435,000
Actual costs - 2002	920,000	920,000

This situation is quite interesting and relevant, as it shows the predicted cost savings weren't realized, and in fact costs can be much greater than were expected.
In this case, even adjusting for inflation, annual staff costs were more than twice what was expected.

What happened?

1) As mentioned on page 61, it appears that the budgets of unconsolidated PSAPs were subsidized by law enforcement officers providing frequent dispatch services. The PSAP consolidation therefore resulted in the work of these officers being shifted over to the Pearl Street PSAP budget. It should also be noted that dispatchers had additional duties that were absorbed by the law enforcement agencies after consolidation occurred. This is an additional cost of consolidation, and is not included in the PSAP budget.

[56] Adjusted using the Bureau of Labor Statistics inflation calculator, at http://data.bls.gov/cgi-bin/cpicalc.pl
[57] Historic actual and predicted costs obtained from "Consolidating Public Safety Dispatch Services for Le Sueur County, Rice County/City of Fairibault, Steele County, City of Le Sueur, City of Northfield," W.M. Montgomery and Associates, 1995. Current costs were obtained from survey responses.

2) Not only were costs twice as high in 2002, so are the number of events requiring the dispatching of response units. Some of this increase in the number of events is due to population growth in Rice and Steele Counties, but based on interviews, incidents were tracked manually prior to the consolidation, and these numbers were less reliable. As such, it is quite likely that pre-consolidation dispatchers were handling higher volumes of activity than was thought at the time.
3) Pearl Street's current cost effectiveness numbers are quite low, both on cost per call, and cost per event ($18 and $15, respectively). Therefore, the current evidence doesn't indicate that Pearl Street became inefficient as a result of the consolidation.

The moral of the story is that either erroneous numbers or an already overworked PSAP can result in cost savings being more elusive in practice than they are on paper.

However, Pearl Street is presented as a case study, not necessarily as a typical example. Other consolidation efforts mentioned in this report (St. Louis Park/Golden Valley, Robbinsdale/Hennepin, Maplewood/Ramsey for as long as it lasted) did result in cost savings and avoided costs. Additional examples of consolidations in other states, some of which yielded cost savings, are discussed in the appendix.

CONCLUSIONS

1) Larger PSAPs have lower cost-per-911-call and cost-per-event numbers than smaller PSAPs, indicating potential for cost savings from consolidating smaller PSAPs.
2) Based on 911-call- and event-per-FTE numbers, the potential for cost savings in smaller PSAPs seems rooted in minimum staffing requirements.
3) These potential operating cost savings from consolidation quickly diminish above a certain level of activity (20,000 911 calls and 10,000 events per year).
4) The potential for capital cost savings also exists when a neighboring PSAP has excess capacity, a PSAP is in need of significant capital upgrades, and the necessary transition costs are sufficiently low.
5) The potential cost savings may not be achievable, in some PSAPs, due to minimum around-the-clock staffing needs of jails and law enforcement centers.
6) Actual PSAP consolidations have not always resulted in cost savings. The reasons for this include: the PSAPs already had relatively high efficiencies prior to consolidation; no positions were eliminated out of the desire to avoid layoffs; backfilling of prior dispatcher responsibilities was required; costs previously not on the PSAP budget were now included on that budget.
7) The likelihood of cost savings, and their magnitude, for any specific proposed consolidation, would have to be determined as part of a feasibility study that looked very closely at job responsibilities and minimum staffing requirements.

8) The cost data indicates the cost-saving potential for consolidation of State Patrol PSAPs as much as it indicates the potential for local government PSAPs. Although the feasibility of any specific consolidation needs to be determined by looking at specifics, the State would have more credibility in encouraging local government to consolidate PSAPs if it conducted a specific study on the feasibility of consolidating State Patrol PSAPs.

REALITY CHECK

Given the potential for cost savings, it is worth asking why smaller PSAPs have not already been consolidated, and why there is opposition to the idea in Greater Minnesota, even given times of lean local government budgets. Interview and focus group results go a long way in answering this question.

PSAP managers, sheriffs, and police chiefs offered three common responses when asked about the potential for cost savings from consolidation. These responses, and the study team's assessment of the extent to which they were confirmed by the data, follow:

1) Cost savings will not result because of the need to keep the building staffed 24/7. Law enforcement agencies would just have to hire a replacement person to staff the jail or law enforcement center, and this person would have less to do.

The survey indicates that this is an important issue in some PSAPs. In order to achieve cost savings in these circumstances, local units of government would have to either consolidate other services such as jails, or abandon 24/7 staffing. Although these changes might be possible, whether or not they were worth the potential cost savings involved was beyond the scope of this study.

2) Cost savings will not result because of the need to backfill the other responsibilities of PSAP personnel.

While these duties are very common in PSAPs, according to the survey they rarely add up to sufficient time to do more than slightly reduce the potential cost savings from consolidation.

3) Consolidation could potentially save money, but it would also result in a loss of service to the community, a loss of service to public safety agencies, and losses in public safety. The loss of service and safety was also an argument raised by those who did not believe cost savings would result.

These arguments are fleshed out in more detail, and the evidence for or against them, is described, in the next section.

PUBLIC SAFETY IMPACTS

The public safety impacts of PSAP consolidation, and the public safety impacts of PSAP operations in general, proved very difficult to quantify. The study team found that "hard" indicators of public safety, such as consistent measures of dispatch times, answer times, and customer satisfaction, were only sporadically collected by PSAPs, if at all. As such, while there is some data from the survey results, this section relies heavily on information gleaned from interviews and general observations.

Challenges

Several challenges came up in trying to understand the impact of consolidation on public safety.

THE DISTRACTION PRESENTED by CONCERNS over a STATE TAKEOVER

The study team found a prevalent concern among local officials that the state was conducting this study as a precursor to a state takeover of 911 operations from local government. Specifically, they were concerned that the state wanted to operate large regional districts along the lines of State Patrol or sheriff's districts. Most local officials interviewed in the course of this study thought that a consolidation on such a large scale would be disastrous for a variety of reasons. They also felt that there was no policy-based or operations-based rationale for the state to assume this local function. It was often difficult to put this specific model of state-managed consolidation aside and discuss other models of local consolidation, such as cross-county, city-within-county, or city-to-city.

PUBLIC SAFETY and "OTHER" IMPACTS

When asked about public safety impacts of PSAP consolidation, people gave us feedback about a variety of types of impacts. Other impacts are summarized here, but are delineated by type using the following operational definitions. Impacts can be positive or negative.

Public safety impacts affect the health or physical safety of citizens and communities. An example would be increasing or decreasing response time for paramedics or first responders on a cardiac arrest call.

Responder safety impacts affect the health or physical safety of police, fire or emergency medical officials as they perform their daily work. An example would be the ability of the call-taker to recognize that an address for a cardiac arrest call was for a known "meth house," and send along a police escort for the EMS units.

Public service impacts affect citizen and community perceptions about how well they are served in ways other than protection of their health and safety. An example would be the promptness of public safety response on a call with no immediate public safety issue, such as a fender-bender car accident in a parking lot.

Customer service impacts affect the quality of service received by police, fire or emergency services from dispatch. An example would be the speed and thoroughness with which dispatchers ran routine identification checks, although this can overlap with officer safety issues as well.

This delineation is important because many of the concerns raised by local public safety agencies were issues of service rather than safety. For instance, a commonly expressed concern by law enforcement about consolidation in smaller PSAPs was that the dispatchers would no longer perform miscellaneous duties such as copying and filing, building security, or act as receptionists. However, while many expressed concerns were of this nature, there were also concerns about how consolidation could have a negative impact on public safety.

VARIATION in SERVICE

There is no "standard" service level provided to the public or to dispatched services. While there may be less variation between PSAPs in how they respond to high priority calls, there can be a lot of variation in the timeliness and type of response to low priority calls. Community culture and differences in policies and procedures drive much of this variation. So when a customer of one PSAP expresses concern about losing or degrading a particular service that is important to their community, a customer of another PSAP may not have this service or may not view it as a high priority.

VIVID EXAMPLES

The experiences of PSAP personnel and public safety officers present them with many examples where actions or quick thinking by a call-taker or dispatcher saved lives, or else where miscommunication and mistakes cost lives. It is very common for these stories to come up in discussions about consolidation. For example, opponents of consolidation will cite examples where specific local knowledge by a dispatcher who grew up in the area saved lives, and proponents of consolidation will cite examples where the presence of better technology and information systems in a consolidated PSAP allowed an officer to identify and arrest a wanted fugitive. It is easy for any discussion of consolidation to come down to dueling anecdotes. To avoid this, several things should be kept in mind.

1) Many anecdotes seem to be apocryphal upon closer examination. For instance, the study team heard from multiple sources that one of the main reasons for the failure of the Hutchinson-McLeod consolidation was that McLeod County dispatched a wireless 911 call to the wrong park in Hutchinson, resulting in a possibly avoidable death of a child. Hutchinson police were unfamiliar with any

such event, and denied that it played a role in the collapse of the consolidation. No mention of such an incident for the time period in question was found after an Internet search of the Minneapolis Star Tribune, The St. Paul Pioneer Press, and the Hutchinson Leader. Many horror stories we heard were second-hand, of the "I heard this happened over there" variety.

2) Vivid examples highlight "what happened" more than they highlight what didn't happen. That is, while there are vivid examples of where a 911 call-taker gave the caller bad advice, resulting in injury, fatalities, and/or lawsuits, there are no vivid examples of how a life could have been saved if a PSAP offered pre-arrival instructions, but a death occurred because organizational liability, cost, and training concerns persuaded the PSAP not to offer pre-arrival instructions.

3) Vivid examples are best for making it clear that PSAP operations are a critical public service, where organizational and staff decisions can have life or death consequences. The study team kept this in mind in making its recommendations in this report.

POSITIVE IMPACTS on PUBLIC SAFETY

Most of the positive impacts of consolidation involve benefits derived from pooling resources, creating a larger organization or covering multiple jurisdictions. Many interviewees noted that there are many ways to achieve the positive impacts detailed below besides consolidating PSAPs. For instance, the benefits of the consolidation of records management systems could be obtained without consolidating operations.

Cross-jurisdictional benefits

Interviewees from already-consolidated PSAPs, reported that consolidation across jurisdictions allows for easier dispatching when events move across jurisdictional boundaries, such as during a high speed pursuit, or when events require a regional response, such as for a five-alarm fire. Although many jurisdictions noted that they already have agreements and procedures in place to cooperate with each other in these instances (mutual aid agreements for fire response, shared radio channels), interviewees from consolidated PSAPs reported cooperation is simply easier to do when one dispatcher or a team of dispatchers in the same location are tracking calls related to an event and dispatching the resources to respond – they can accomplish more seamless handoffs than dispatchers in separate locations.

Consolidation often creates greater compatibility of computer systems, records and equipment, which can also make cross-jurisdictional communication and cooperation easier, and improve the integration of statewide records. For instance, jurisdictions that share the same records management system can have better information on criminal histories, and investigators can better make connections between events that might not be otherwise apparent. Information sharing and systems interoperability can happen without consolidation, but this benefit usually comes along with consolidation.

Staffing benefits

Interviewees from larger dispatch centers reported that staff cross-training and back-up is facilitated by a larger organization. They also reported that consolidation reduces the amount of "additional" services performed by dispatchers, such as receptionist or jailer duties, freeing them to focus on core dispatch functions. They felt that this gave them exposure to more experiences and better on-the-job training which would give the dispatcher greater familiarity with a variety of emergency situations. Similarly, the larger staffing pool makes it easier to cover for vacations, illness, or job vacancies.

Smaller PSAPs often did not always see the reduction in additional duties as an advantage, however, and managed shift shortages through using law enforcement officers, many of whom had previous dispatch experience.

Additionally, because of higher staffing levels in large centers, there is less of a chance for a given call center to be overwhelmed in an emergency. For instance, it was commonly said that one car accident could generate a dozen 911 calls. A larger PSAP would be better able to handle such a spurt of activity with reduced risk of a caller on a separate simultaneous incident having difficulty getting through, not to mention the added responsibility a dispatcher in a one-person PSAP would have in managing radio traffic and dispatching response units.

The higher volume of activity in larger centers also gives the call-takers and dispatchers more experience, and thus they are more prepared when a life-or-death situation arises, than a call-taker or dispatcher with the same number of years experience in a less active PSAP. One interviewee who had law enforcement experience in both large and small PSAPs stated that for the bulk of calls it didn't matter, but when a medical call came, you wanted the dispatcher with more experience. Data from the survey supports this argument that dispatchers and call-takers in larger centers manage a higher volume of activity, and are therefore more experienced, as seen in Tables 4 and 5 starting on page 58.

An occasional counter-argument was heard that employees in larger centers suffer from a higher amount of "burn out". Survey data addresses the "burn out" question in two different ways:

1) There was no relationship between PSAP size and turnover rate. The 25 smallest PSAPs had an average turnover rate of 15 percent. The 25 largest had a turnover rate averaging 14 percent. Using statistical techniques to examine for correlation, no significant correlation is detectable.[58]

[58] The correlation coefficient between the number of 911 calls and turnover rate, for the 98 PSAPs reporting both numbers is –.028 indicating a very slight negative relationship, although this number does not approach any standard level of statistical significance. A correlation coefficient of 1 is a perfect correlation, and a coefficient of –1 is perfect negative correlation.

2) The percentage of employees who reportedly left for stress-related reasons is not noticeably higher for larger PSAPs. It was 1% for both the 25 largest and 25 smallest PSAPs in the state. Again, there is no detectable statistical relationship.[59]

Hypothetical examples of staffing benefits often involved PSAPs that only staffed one person at a time. Having only one person in a PSAP presents potential problems in the case of illness, the need for breaks, or dealing with call loads. Such staffing increases the chances of a PSAP being overwhelmed if two events occur simultaneously. These PSAPs do have solutions to these problems, usually involving having another dispatcher or law enforcement officer (some of whom have previous dispatcher experience) come in to the PSAP, but this can take time.

Service provision benefits

Different jurisdictions can partner to improve services by pooling their resources and talent. Services that are facilitated by advanced technology and dispatcher specialization include the ability to provide pre-arrival instructions, and to have dispatchers specialize in fire and EMS calls. These are described in more detail later in this section. Survey data does support the claim that larger centers find it easier to offer these services.

Better Equipment

As was shown in the section on economies of scale on page 65, consolidation can cause fixed capital costs to be spread over a larger number of calls. This means, in practice, that larger PSAPs can generally afford better equipment. For instance, according to the survey, it was about five times as likely for the dispatch centers in the largest quartile of PSAPs to be able to communicate with law enforcement unit's via mobile data terminals in addition to radio, when compared with the smallest quartile of PSAPs.

However, it does need to be noted that some of this equipment is more necessary in the largest PSAPs, because of the greater organizational challenges.

Management Information

The study team generally found that larger PSAPs have better operational data. For instance, they are more likely to have reporting software that can tell them the distribution of calls and incidents throughout the day, the speed with which calls are answered and dispatched, and the priority and type of response that was required. These PSAPs are capable of using this data to determine optimal staffing levels per shift, recognize performance deficiencies, and better manage organizational performance. As an example, in survey responses many smaller PSAPs were unable to even estimate the number of 911 calls they received, or the number of events requiring dispatching.

[59] The correlation coefficient was –.018. Again very low, and not significant.

Mentoring and Supervision

Larger, more consolidated, PSAPs also relied more heavily on shift supervisors – very experienced staff who could be called upon if a dispatcher or call-taker didn't know what to do. Although the study team found no evidence that staff in larger centers had more years of experience, dispatchers in larger centers were more likely to have a supervisor on duty with them – something smaller PSAPs could not often afford to do. This is not to say that a dispatcher in a smaller PSAP would have no resources available in case advice was needed, but that the advice and supervision would often be by phone, rather than in person, as dispatchers in smaller PSAPs are often alone in the building, according to the survey.

Reduction in Transfers

Wireless calls are currently routed to each PSAP on the basis of which tower the call is coming from. However, this routing system doesn't always result in the call arriving at the PSAP that serves the caller's location. Until individual selective routing of such calls becomes more feasible over the next several years with the completion of enhanced wireless 911, this method will continue to result in many calls arriving at a PSAP in a different dispatching jurisdiction than the caller. During site visits and "sit-alongs", the study team saw these calls and transfers occur several times. These transfers cause delays from the caller having to repeat themselves, and the time it takes to transfer and for the other PSAP to pick up the calls. Occasionally, the PSAP may misroute the wireless call through a misunderstanding of where the caller is located, and the caller may have to be transferred a second time.

Although some transfers are unavoidable, a smaller number of PSAP jurisdictions would reduce the number of transfers necessary, cutting response time on some calls. This transfer problem will fade as location information from wireless phones becomes more widely available.

NEGATIVE IMPACTS

The reported negative impacts were that larger centers lose personal familiarity with the local geography, personnel, protocols, and the public. Although larger centers reported that databases, mapping software, and other aids help compensate for the loss of personal familiarity, many smaller centers viewed such claims with skepticism.

Varying service levels

Services provided by local police, fire and EMS agencies vary by locale. In some cases, responding agencies do not dispatch personnel in response to a call – they refer the caller to private or other community resources. For example, in some communities, police officers or community service officers respond when people are locked out of their cars, while in other communities 911 call personnel refer callers to private locksmiths. Other private- and community-based resources that callers might be referred to include taxicab services, county social services, legal aid, educational institutions, and clinics.

Interviewees were concerned that the more agencies a PSAP services, the less personally familiar the dispatcher can be with each agency's procedures on the circumstances under which a resource should be dispatched or referred elsewhere.

Larger centers deal with this problem in a number of ways, each of which has an up side and a down side.

- They can standardize response to events and levels of service across responding agencies, which makes the job of call triage easier and service levels more consistent, but limits local agencies in deciding what public services they want to provide to their communities. Difficulties in this regard were an important factor in the failure of the Maplewood – Ramsey consolidation.
- They can pass calls along to the responding agencies without referring callers to other private or public resources. This allows each agency to tailor its response to community expectations, but this places a workload burden on the responding agency to call the person back if they want to refer them to another resource. Police agencies in particular see this as a loss in both the customer and public service categories.
- Dispatchers can accommodate different response protocols by memorizing different protocols for a variety of different jurisdictions (alternative, different response protocols can be written down for reference). There is a limit to how much this can be done, however, and the more demands in this regard that are placed on call-takers and dispatchers, the greater the possibility for error and delays.
- Larger centers reported that local agency variations in response can be programmed into CAD systems, with question trees that tailor dispatch decisions to the caller's local area. This can work well, but there is a limit to the number of variations on the question trees that can be accommodated without confusion.

In practice, the PSAPs serving multiple jurisdictions that were visited by the study team dispatch for multiple jurisdictions use a mixture of these options.

Although some flexibility can be managed, consolidation, in practice, results in either standardization between districts, or in referrals being handled to a greater degree by law enforcement. Minimally, the PSAP would have to standardize its internal operations considerably. For instance, radio codes and call signs would have to be standardized, and the PSAP probably won't perform additional services for some of its clients and not for others.

Concerns over the way a PSAP would deal with variation in services are greater when consolidated entities have very different community expectations and public services. Wide variations may be difficult for one PSAP to easily accommodate. For example, a wealthy community where local police, fire and EMS agencies respond to every call with the utmost attention (and have the budget to do so) may have difficulties consolidating with a city that is accustomed to heavily prioritizing response agency resources.

Municipalities and counties considering consolidation of their PSAPs should discuss service provision similarities and differences at the outset of planning.

It does need to be said, however, that the vast majority of PSAPs in the state already provide services for a variety of different public safety agencies. A typical county PSAP provides services for the sheriff's office, plus several cities within the county that have their own police force, plus many volunteer fire departments. In other words, this is a problem that almost every PSAP already has, and has handled. For instance, a serious obstacle faced by the Ramsey-Maplewood consolidation was that Maplewood was one of the few cities in the state that uses police paramedics as first responders. This led to specific differences in dispatching protocols that both Ramsey and Maplewood interviewees described as difficult for the consolidated PSAP to handle. However, it needs to be noted that police paramedics are also dispatched as first responders in the city of Woodbury, by Washington County, to the mutual satisfaction of both the city and the county.

This is not to say that varying levels of services aren't important, but that in practice many service problems can be satisfactorily resolved.

Loss of Critical Information

Another common concern, often expressed by staff in smaller PSAPs, was that information could get lost more easily in a large PSAP. Very large PSAPs (usually those with more than four staff on duty at any given time) operate differently from smaller PSAPs. In smaller PSAPs, the staff share call-taking and dispatch duties. The person who receives a call requiring the dispatch of public safety units also dispatches it. In larger centers, these tasks are divided. Several call-takers move from one call to the next, typing the information into a computer and sending it to one of several dispatchers, who then assigns the call to the relevant unit. The two types of dispatching are usually called "one stage" and "two stage."

Each method has its strengths and weaknesses. In one-stage systems, there is the risk of an individual being distracted from radio communications by call-taking duties, and being distracted from a call by radio traffic. In two stage systems, distractions are very much reduced, but there is a slight response time delay during the transfer, and the potential loss of information on every call, as the dispatcher is only looking at an abbreviated text description of the call.

From interviews and site visits, it is unclear whether the potential for information loss in larger two-stage PSAPs is greater than the potential for information loss in one-stage PSAPs. In any event it isn't necessary for most PSAPs to move to two-stage dispatching in order to consolidate.

Geography

Negative impacts of consolidation on dispatcher knowledge of the geographic area covered by the PSAP were mentioned often. Interviewees described geographic knowledge as a blend of the personal knowledge of staff, supplemented with resources such as paper maps, mapping software, geographic information systems, ANI/ALI information (phone number and caller location information coming from the phone company) and CAD information. Interviewees were concerned that PSAPs covering

large or geographically complex areas would have trouble locating the source of calls or providing agency personnel with good directions to the appropriate address, particularly when the technological systems were "down" or providing inaccurate or conflicting information. Stories about dispatchers sending response personnel to wrong addresses were given as reasons not to consolidate, as were anecdotes about how excellent geographic knowledge by a dispatcher saved a person's life.

While maps, software, and ALI information from the phone company make geographic knowledge less essential on many calls, the continually growing use of wireless phones, and holes in the ALI system (some commercial phone systems, internet telephones, and data errors), still make geographic knowledge important.

As interviewees described it, the need for knowledge of local geography is uneven between areas of the state – there is not a "right size" for a PSAP to cover, because the strength of geographic challenges depends on a few factors, including: The geographic complexity of jurisdictions containing many lakes (for instance, there are 12 "Long Lakes" in Otter Tail County); tourists unfamiliar with local geographical names; nicknames, used by longtime community residents, that may not match up to any names on maps; duplicative street names (Oak Park, Oak Terrace, Oak Street, Oak Place, etc.); and rapid growth resulting in new streets being added.

To some extent, concerns about learning local geography are temporary – all PSAPs have to train new staff in local geography, and as staff gain experience and become familiar with new geography, these concerns subside. But fears about inadequate geographic training and rushed implementation of expanded geographic coverage were widespread among interviewees, and the study team talked to several dispatchers who said they were "thrown in" to a consolidation arrangement where they felt they didn't have an adequate opportunity to learn the local geography.

Accountability and Responsibility

Interviewees were concerned about "losing control" of the types of services offered by dispatch and the quality of service provided if their services were to consolidate with others, and that consolidated PSAPs are less accountable to the public and dispatched agencies. This concern was heard across the board, but seemed stronger when groups were considering the feasibility of large regional models of consolidation or cross-county models of consolidation. The concern was voiced most strenuously by sheriffs, who felt that state statute, county and local residents, and local agencies currently hold them accountable for the services offered by PSAPs. Many sheriffs believed that if their PSAP services were consolidated into a separate governance organization, that they still would be "the complaint department," – held managerially and politically accountable for the service, yet their ability to control it would be diluted via a joint powers board or other governance structure. A law enforcement manager who did not have direct control over his PSAP gave one specific example, where one of his officers and the dispatcher both made a mistake in handling a call, and he disciplined his officer but the dispatcher only received a verbal reprimand.

Basic principles of good government operations recommend that accountability and responsibility for public services be located in the same place. Few things provoke more anxiety for government managers than being held accountable for public services over which they have little or no control. As such, accountability is a valid concern. However, hundreds of police chiefs in the state are held responsible for the quality of services their forces provide when dispatched by the sheriff's office, and the study team commonly found police chiefs that were satisfied with county dispatching. This indicates that this accountability problem is solvable, and that the sheriffs themselves have often solved it. In practice, arguments similar to those made for consolidation in this report have occasionally been used to push for consolidation of dispatching **within** a county.

Effective Working Relationships Between Dispatchers and Officers

The potential loss of working relationships between dispatchers and officers was mentioned as a risk of consolidation. The study team heard this concern from law enforcement more so than from fire or EMS personnel. In a physical site consolidation, the PSAP staff is removed from at least one location, which is often within a local law enforcement facility. Several benefits of physical co-location were mentioned:

- Officers and dispatchers who work in the same facility get to know each other personally and have a personal investment and involvement with each other. Some officers said they felt more physically secure with a close friend "watching their back" as they respond to calls.
- Day-to-day performance feedback and complaint resolution are easier when all the employees work in the same place. The feedback can occur immediately and between the officer and dispatcher, rather than more formally through management channels.
- Law enforcement personnel can provide dispatchers with quick information by walking over to the dispatch area.
- With personal knowledge of the backgrounds and subject-area strengths of different officers, dispatch staff can make better decisions in dispatching specific officers to respond to specific incidents.

Some detriments of physical co-location were also mentioned:

- Foot traffic and conversations in the dispatch center can distract staff from listening for the phones and radio traffic. Having dispatchers and officers share a common break room and common area, but keeping the dispatch center quiet was seen as a nice compromise even in co-located arrangements.
- Co-location makes it more likely that officers will pressure dispatchers to do clerical work for them, distracting them from their PSAP responsibilities. Several interviewees noted a power imbalance between officers and dispatchers making it difficult to refuse such requests even if PSAP management has decided that it will not perform such tasks.

Most local police departments, almost all fire agencies and almost all EMS agencies do not have personal contact with their dispatchers. There is still day-to-day contact in the few cities that have their own dispatch – but there are only 19 of those in Minnesota.

There is still contact in county law enforcement agencies, but that is only for sheriffs' offices, not the local police departments. Close working relationships have their benefits, but the vast majority of response agencies in the state do not depend on them to accomplish their tasks.

Community Knowledge and "Personal Touch"

Interviewees were concerned that staff in consolidated centers would not be residents of the communities they dispatch for. This concern was voiced more often in rural areas than in urban or suburban areas. Community residence was seen as having public safety and public service advantages. Dispatchers who live in the community were seen as having a better understanding of local culture and local trouble spots. In very small rural centers serving 5,000-10,000 people, interviewees reported that dispatchers were likely to personally know the caller or someone in the callers' family, and that this level of familiarity was important to community residents. Given that some small communities are very close-knit, interviewees expressed concern that people may not call for important but non-emergency events if they knew the call was going to be answered outside the community.

There is mixed evidence that the community deems this sort of personal contact with the PSAP to be important. In at least one instance where consolidation was discussed, Cottage Grove in the early-90s (Cottage Grove was, and still is, the only independent PSAP within Washington County), there was considerable community backlash to the notion of Cottage Grove police being dispatched out of the Washington County PSAP in Stillwater. Community activists also got involved in Maplewood, during the consolidation with Ramsey County, and negative community reaction was a factor in the collapse of the recent West Saint Paul consolidation discussions. However, Pearl Street, Cass and Clay Counties, and various consolidated jurisdictions in Hennepin and Dakota County report little community reaction one way or the other. In such cases, interviewees said that the callers don't care where the PSAP is so long as the response gets there quickly. As such, all that can be said is that in some communities this seems to matter, in other communities it doesn't, and it is hard to tell which is which in advance.

Redundancy

With some extra capacity built into the system, PSAPs are capable of backing each other up in the event of a natural disaster or a technology failure. One potential disadvantage of consolidation is the loss of excess capacity. For instance, a common problem, particularly in Greater Minnesota, was construction work accidentally severing the phone lines to the PSAP. In order to make sure that critical 911 services were not lost in such instances, all PSAPs have a back-up plan. For very large centers, it is occasionally a back-up facility located in a different location, but most PSAPs in the state, including some of the largest centers, have arrangements with neighboring PSAPs to take over dispatching. The study team found in interviews that these arrangements have usually been used at least once within recent years. A concern expressed by both Ramsey County and St. Paul personnel, about the current consolidation discussions, is that the two PSAPs currently back each other up in the event of failure, and both mentioned a recent incident where an accident in

St. Paul caused 911 services to be taken over by Ramsey County for a couple of days. Contingency planning for such events would need to be done as part of any consolidation, and may entail some additional expenses which would count against any cost savings from consolidation.

SPECIFIC SERVICES

As part of the survey, the study team was able to collect information on the provision of two specific and important services of PSAPs, related to EMS and Fire: tactical fire dispatching and emergency medical dispatch.

Tactical Fire Dispatching

In interviews and focus groups with fire chiefs, firefighters, and representatives of firefighter's associations, it came across very clearly that firefighters want and need a dedicated tactical fire dispatcher at times of a major fire incident. The tactical dispatcher quits taking other calls and hands off other dispatching duties, devoting themselves to monitoring the fire channels and making sure that important pieces of communication are not lost amidst all the noise and tumult of a major fire. For example, a firefighter may report that the building is about to collapse, but due to the distractions and noise at the scene, many firefighters may miss this important transmission. The tactical dispatcher, however, who is listening only to fire communication and is well experienced at listening to and deciphering radio communication, would repeat the warning to help ensure that all firefighters knew to leave the building.

The following table shows the relationship between PSAP size and whether or not the PSAP offered a tactical fire dispatcher, as reported on the survey.

Table 7

PSAP size (measured by number of 911 calls)	Percent offering tactical fire dispatcher
Smallest Quartile	42%
2nd Quartile	52%
3rd Quartile	48%
Largest Quartile	67%

Dedicated tactical fire dispatchers are considerably more common in larger facilities. This makes sense, as it is hard for a single-person PSAP to offer such services, as they are obligated to take other calls and dispatch to other events. In fact, it is almost certain that the number of smaller PSAPs offering this service is overstated, as many of these PSAPs do indeed have only one dispatcher on duty. Although some PSAPs do call in for back-up in such events, there can be a considerable time delay for this to happen. It was also possible that some of the smaller PSAPs completing the survey misunderstood the question if they were not familiar with what having a tactical fire dispatcher means in practice.

Additionally, the actual practice of a tactical fire dispatcher differs in PSAPs of different sizes. In the larger PSAPs visited by the study team, such as Minneapolis, St. Paul, and

Ramsey and Anoka Counties, individuals had the specific assignment of being the dispatcher for Fire and EMS. While they might also take 911 calls, call-taking was something they could quickly hand off to another person. Medium-sized PSAPs such as St Louis Park and Maplewood try to do tactical fire dispatching when possible, but if call volumes get too high, or another major incident occurs at the same time, the dispatcher's attention is divided.

As such, there is a continuum regarding tactical fire dispatching, with the larger PSAPs coming increasingly close to what firefighters say they want from a tactical dispatcher.

This is not to say that firefighters are generally supportive of consolidation. In interviews and focus groups with fire chiefs and firefighters, the addition of a tactical dispatcher often came up as an advantage of consolidation, but in some cases, firefighters were worried about losing the tactical dispatcher they had in their local PSAP, or else other concerns about consolidation were deemed more important than their desire to have a tactical dispatcher.

Medical Pre-arrival Instruction

A common best practice for PSAPs is medical pre-arrival instruction, giving guidance to the caller about how to handle the medical emergency they are facing, and relaying relevant information to the paramedics and emergency medical technicians who are en route to the scene via ambulance. Pre-arrival can be offered in a variety of ways. The two most common models in Minnesota are:

1) The PSAP itself offers pre-arrival services, relying on dispatcher training and/or a set of written instructions for the dispatcher for the most common medical emergencies, such as heart attacks.

2) The PSAP transfers calls to a private ambulance service, which provides pre-arrival services.

However, some PSAPs do not offer pre-arrival instructions. In such cases, the call-taker will still dispatch paramedics and relay information between the caller and the ambulance, but will generally refrain from giving pre-arrival instructions. The reasons pre-arrival is not always done are liability, training, and potential staffing problems. For instance, a PSAP with one dispatcher might be faced with the difficult choice of having to put a CPR call on hold or ignoring another incoming 911 call.

One question the study team looked at was whether larger PSAPs were more likely to offer pre-arrival. The following table shows the results.

Table 8

PSAP size (measured by number of 911 calls	Percent offering pre-arrival
Smallest Quartile	78%
2nd Quartile	70%
3rd Quartile	84%
Largest Quartile	92%

Although a substantial majority of PSAPs of all sizes offer pre-arrival, it is more common in larger PSAPs. Also, in some of these PSAPs, coverage for pre-arrival instructions is not complete. A caller in one city served by the PSAP might find themselves getting pre-arrival instructions because that city is covered by an ambulance service which offers pre-arrival, whereas another caller from a different city might not get pre-arrival if their local ambulance service doesn't offer it. For instance, North Ambulance provides ambulance services and pre-arrival for only parts of Crow Wing and Mille Lacs Counties.

Although the study team was unable to objectively measure the quality of the pre-arrival provided, it should be noted that in most of the PSAPs in the Twin Cities metro area and in the larger communities in Greater Minnesota, pre-arrival is done by very reputable hospital/ambulance services with extensive training programs. Gold Cross, for instance, is operated by the Mayo Clinic and provides services for Duluth, Rochester, and Mankato, and has all of its dispatchers undergo a 12-week training program and be certified as both Emergency Medical Dispatchers (EMDs) and Emergency Medical Technicians (EMTs)[60] (this latter certification process is regulated by the State). Although there are some exceptions, few PSAPs providing their own pre-arrival services require or obtain this level of training from their dispatchers. Emergency Medical Dispatching certification was common, but EMT certification was very rare.

It should be noted that private ambulance services that offer pre-arrival do not offer coverage everywhere, but when they do, pre-arrival services are free to the PSAP (compensation to the ambulance service for pre-arrival is part of their bill to the patient). In areas where ambulance services are provided by the fire department (in almost all small communities in Greater Minnesota, and even in some larger metro cities like St. Paul), the PSAP would have to either pay for EMD/EMT training itself, or pay for pre-arrival instructions to be given by a private ambulance service. Contracting for pre-arrival has been done in some parts of the state, but it does cost money.

Additionally, a smaller PSAP that wished to have their own staff be trained EMDs or EMTs doing pre-arrival instructions would have to train all staff in order to have a qualified person on during every shift, whereas a larger PSAP would only have to train sufficient numbers of staff to handle the call volume.

Contracting for pre-arrival instruction would probably be less expensive for more consolidated PSAPs, according to interviews with EMS providers. Part of the price they would charge would be to set up the necessary systems infrastructure, which would be cheaper for one PSAP than for two.

[60] http://www.mayomedicaltransport.com/mmt/ecc.html

CONCLUSIONS

1) Local public safety stakeholders who see themselves as the potential targets of consolidation (smaller county PSAPs in Greater Minnesota and smaller city PSAPs in the Twin Cities metro area) are intensely skeptical about any potential public safety benefits. In fact, they strongly believe that consolidation will cause them to compromise public safety services. The concern and skepticism about consolidation by many local public safety officials, particularly sheriffs and dispatch supervisors in Greater Minnesota, cannot be overstated.
2) In consolidations, and in larger PSAPs that face many of the same challenges of a consolidated PSAP, almost all of these concerns have been solvable through careful planning and implementation, or can potentially be offset by public safety benefits.
3) Just because these concerns **can** be solved does not mean that they **will** be solved, and in some consolidations, they have **not** been solved.
4) As such, while many of the concerns of local public safety officials can be successfully addressed in a skillfully planned and executed consolidation, these officials have reason to be skeptical that they **will** be successfully addressed.
5) Accountability and responsibility concerns by the current local law enforcement operators of PSAP services should be taken seriously, listened to, and clearly addressed in the governance structures and daily operations of PSAPs. The study team found some instances where these accountability concerns were dismissed or criticized as "whining," "fear of change," "turf-fighting," and the like. Rather, these are legitimate management issues.
6) The extent to which public safety would be affected by consolidation depends substantially on the quality of the consolidation, and the extent to which potential problems are effectively handled. The study team found a few instances where the relationship between a consolidated PSAP operation and its dispatched services could be described as "tense," as well as operations where local agencies expended a lot of effort to work out their governance structures, roles and responsibilities, and day-to-day feedback mechanisms, and where relationships were more collegial. In practice, solving problems seems to go more smoothly when key local stakeholders, such as public safety officials, support the consolidation, and tends to go badly more often when there is considerable opposition.
7) Overall, the study team finds that while the potential problems of consolidation and of larger PSAP operation are solvable and have been solved with good management and oversight, the intrinsic problems faced by smaller PSAPs, particularly one-person PSAPs, are more intractable. For instance, while it is possible for a consolidated PSAP to have superb geographic knowledge through training, databases, and mapping software, it is more difficult for a smaller PSAP to overcome the various difficulties of only having one dispatcher on duty (the risk of simultaneous public safety crises, the danger of the dispatcher falling

victim to illness while on duty, the difficulties in offering tactical fire dispatching, etc.). However, operational specifics are very important. A loss in training, experience, geographic knowledge, and management quality resulting from a poorly planned consolidation could outweigh any public safety benefit of adding an additional person on duty at all times.

8) This report makes **general** statements about PSAP efficiency and public safety, but because of the importance of local operational details, management, and relationships in any PSAP operation, it does not draw specific conclusions about individual PSAPs. The above conclusions point mainly to potential given a well-managed consolidation, and to what has succeeded elsewhere. Determining whether a consolidation would be wise for any given selection of PSAPs would require a specific study on the operational details of those PSAPs as well as community needs and requirements.

TRADE-OFFS between COSTS and PUBLIC SAFETY

When cost and public safety are considered together, several additional findings and conclusions emerge.

1) Many of the smaller PSAPs that may seem at first pass to have the lowest levels of cost-efficiency are in very sparsely populated regions of the state, consisting of large amounts of forest or farmland, with few large cities. While combining a few of these very small PSAPs **may** yield operational cost savings, obtaining cost-per-911-call efficiencies similar to those considerably larger PSAPs would be difficult without creating a PSAP covering a large geographic area (for instance, in the northwest region of the state). It is not clear whether such a large area can be effectively managed by one PSAP. As such, an attempt to reach high cost-effectiveness in such areas could be futile, or could result in negative public safety impacts.
2) As mentioned previously, the largest PSAPs often **require** better technology to solve the greater organizational difficulties that result from increased size. For instance, dispatchers in a small PSAP can share information easily by being right next to each other, and by having overlapping shifts. Recent events and problems are discussed during slow times. In larger centers, this becomes more difficult, and better information technology is a requirement in order to reduce the loss of knowledge. For example, a larger PSAP may require information on problem addresses to be kept in their CAD database, whereas a smaller PSAP would solve the same problem with the dispatchers over-hearing each other's calls, or talking during slow times. As such, in order to consolidate without compromising public safety, it may be necessary to spend money on capital and information improvements. Any such expenditure could potentially diminish any operational or capital cost savings from consolidation.
3) When it comes to any perceived trade-off between cost and public safety, the local public safety officials interviewed by the study team would uniformly choose public safety. It was a commonly expressed concern from these officials that any attempt to save money through consolidation would unduly compromise

public safety. If support for consolidation is sought from local public safety officials, they will have to be convinced of the public safety benefits before they would support consolidation

BEST PRACTICE MODELS in PSAP CONSOLIDATION

The term "best practices" has many definitions. Generally it is considered to be organizations or practices that have received awards, publicity or acknowledgement from experts in the field as being superior in some aspect of performance. It is also considered to be an organization or practice that is in the top 20 percent of performers in a specific category. Unfortunately hard data to document this is usually unavailable. The study team has found in previous studies that valuable lessons can be learned from other organizations whether a particular practice is considered "best practice" or not.

State and national authorities in 911 services recommended most of the state and local PSAP programs selected for best practice research in this study. Others were selected because interviewees stated that a particular program was innovative, controversial or instructive for Minnesota.

The information and findings in this report represent the perspectives of PSAP leaders, managers, and customers who are experienced with consolidation. The conclusions and lessons are based on an assessment of these best practice findings. The appendix provides case studies that flesh out details supporting the material in the text of the report.

BEST PRACTICES RESEARCH METHODOLOGY

Best practice interviews were conducted in four levels (The appendix contains a full list of interviewees):

1) Advice from Minnesota officials on 911 services

2) National organizations that work with many state and local 911 programs.

3) State and local PSAP officials throughout the country

4) Organizational customers of consolidated PSAPs – police and fire departments

Experts were asked to identify issues significant to PSAP consolidation, what the research should cover, which PSAPs might offer "best practice" models, contact information and for any relevant studies.

State and local interviewees were asked open-ended questions on their operations, trends, and notable practices. They were asked for documentation of the impacts, costs, benefits, and performance measures of their consolidations.

Organizational customers were asked to evaluate the consolidated PSAPs with which they were participants. This provided a double check on the interviews with managers of the consolidated PSAPs.

Written research was also studied and specific materials are included in the best practices bibliography in the appendix of this report.

MAIN FINDINGS

State government involvement in consolidation at a statewide level is minimal; State government influence at the local level is often indirect.

Most states contacted are playing little or no direct role in implementing consolidation at the state level (Connecticut, Iowa, New Jersey, Oregon, South Dakota, Texas, Wisconsin). New Hampshire is one exception. It has consolidated all call taking into one state PSAP that transfers calls to 96 local dispatching centers.

Oregon and Connecticut have tried to directly influence more local consolidations – Oregon through a state legislative mandate, and Connecticut through grants to study and implement consolidations involving three or more single, freestanding PSAPs. Oregon reported an unsuccessful and acrimonious attempt beginning in 2001 to mandate consolidations in counties with more than one PSAP. The mandates were finally repealed in 2003. Connecticut is beginning to find success with several groups of PSAPs applying for consolidation grants, with proposed consolidations in various stages of implementation.

The State of Oregon had other policies that influenced local consolidation. These included requirements for minimum 911 coverage and training, local property tax limits and substantial financial assistance and technological standardization.

Other states have little or no role in influencing local or regional consolidations or play an indirect role (examples include Iowa, New Jersey, South Dakota, and Texas). The indirect roles include creating a technological, legal, and financial environment making consolidation more convenient and practical. This includes removing barriers and giving local jurisdictions tools to raise revenue that can fund consolidation.

Interviewees generally believed states could not play a significant role in influencing consolidations unless they had significant financial participation in the funding of PSAPs or consolidation efforts. As noted in this report, the State of Minnesota's financial contribution to local PSAP operations is less than 10% of annual operating costs.

Local and regional consolidations are driven by tight budgets and occur at a slow pace.

One primary underlying factor is driving consolidations throughout the country: tight budgets. This is influencing local jurisdictions to look at consolidation in order to save money, even without external incentives.

Consolidation is often triggered by the need to upgrade service and equipment. Jurisdictions feel they cannot afford these upgrades without consolidation. It appears to be happening at a slow pace within a few jurisdictions in each state. But interviewees reported an increase in interest in consolidation. States may have a significant influence in these circumstances if they provide various kinds of assistance.

Some consolidations save money and others do not.

There was no consensus among interviewees on whether or not consolidations save money. Most believe consolidation achieves economies-of-scale. Some consolidations occur in combination with improving services or forming new organizations (examples include Nashville, Tennessee, and New Hampshire). In these cases new capital investment is required and economies of scale don't fully compensate for these extra costs. These may make service enhancement more affordable, and may **avoid** costs, by spreading costs among more jurisdictions but they are not likely to result in annual budget reductions.

The consolidations most likely to save money are ones where one or more PSAPs join an already existing PSAP that has compatible technology and excess capacity in facilities, personnel and/or telecommunications equipment. In these cases, new capital investment is minimal and economies of scale are likely to occur (examples include Washington County, Oregon, St. Louis County, Missouri, and the West Central Communications Center, Illinois). The same PSAPs reported they could add more PSAPs with only ½ to 2/3 of the staff used by the pre-consolidation.

While the motive to consolidate is often to save money, the outcome is sometimes not direct savings but avoided costs and improved service.

A variety of methods have been tried or are being used to facilitate consolidations or provide incentives.

Financial Methods

1) Provide grants to study/plan and implement consolidation

Connecticut has offered grants to plan and implement consolidation since 1996. Only groups of three or more single, freestanding PSAPs are eligible.

The grant gives $20,000 for each group application plus $5,000 for each PSAP over three. It recently gave a study grant of $105,000 to a consortium of seventeen PSAPs to study/plan consolidation. The program will also give implementation grants and ongoing support. Two groups of PSAPs are submitting implementation grant requests in the range of $1 million to $1.5 million each.

Connecticut PSAPs have decreased in number only from 108 to 107 since 1996. However, the State Emergency Telecommunications Director reported that two groups of five PSAPs each are far along in the process of consolidating. He expects the total number of PSAPs to go down to 97 soon. The proposed 17-PSAP consolidation, if implemented, would further reduce the number of PSAPs in Connecticut.

The Director believes the participants "wouldn't even consider" consolidation without this incentive. He said the groups are "on the verge [of consolidation]... because the incentive is available." Further, he reports that tight budgets are giving financial officials in local systems more say within their jurisdictions in service delivery arrangements.

2) State surcharges – permanent

States use surcharges to fund a variety of efforts that facilitate consolidation such as providing standardized equipment to local PSAPs, giving grants to study and implement consolidation, and training and certifying 911 staff. Comparisons with other states show that at $.40 per line per month, Minnesota's surcharge is towards the lower end among all states for both wireline and wireless surcharges[61].

3) Local surcharges – permanent and temporary

Consolidations sometimes require capital investment in facilities and equipment and additional on-going costs to maintain equipment and fund staff. PSAPs in some states can assess a local surcharge on phone service that would help with these costs.

Iowa, Illinois, Indiana, Michigan, Missouri, and Wisconsin allow local governments to impose a permanent local surcharge on lines in their jurisdictions. All but Illinois and Indiana make the local surcharge subject to local referenda. The jurisdictions may use either permanent or temporary surcharges or both.

By their nature, permanent surcharges would pay for ongoing operations, and temporary surcharges would pay for capital equipment.

4) Other local resources

Some jurisdictions use local tools to accomplish things that directly or indirectly set the stage for consolidation. For example, Washington County, Oregon passed two levies for facilities and capital telecommunications equipment including CADs and Mobile Data Terminals. It gave the equipment to all county PSAPs whether or not they were part of the consolidated county PSAP. The levies covered different costs:

- The first $16 million levy paid for enhanced 911, CAD, relocation to a new building, an 800 MHz radio system, a mobile data terminal (MDT) system ($6 million) and the new building itself ($1.7 million).

[61] A list of states and telephone surcharges is contained in the appendix.

- The second $13.1 million levy added three sites to its radio system, remodeled the dispatch floor for expansion, and added automatic vehicle location to the CAD.

Providing these enhancements to other PSAPs made consolidation much easier to accomplish because operations and technology were more compatible and interoperable. It reduced the eventual need for capital investment to consolidate, reducing barriers to consolidation.

Mandate consolidation

In 2001, the Oregon Legislature passed legislation mandating one PSAP per county. Oregon communities had already done a lot of local consolidation without a mandate – "when it made sense," according to the State Emergency Management Director. The state went from 274 dispatch points in 1981 to 57 PSAPs by 2000 (these figures include secondary PSAPs that dispatch but do not receive calls, and are therefore not directly comparable to numbers for Minnesota used in this report, which are all primary PSAPs that both receive calls and dispatch).

The counties objected to a state mandate and to the specific mandate of only one PSAP per county without regard to local factors. Several plans were written and three consolidations actually took place. However, the state director thinks these three consolidations would have happened anyway. The state repealed the mandate in 2003.

Interviewees in other states believe mandates are likely to be counterproductive. They believe consolidation participants must be willing and open-minded. They can sabotage efforts to force consolidation when they don't see it as a positive move.

Review funding requests for reasonableness and cost effectiveness.

Wisconsin recently enacted a law to fund wireless 911 equipment from a state wireless surcharge. The Public Service Commission (PSC) is charged with distributing the money upon submission of a grant application from the counties. The law allows local jurisdictions to opt out of the county systems but they still have to apply to the PSC to get their share or "grant."

The law also authorizes PSC to promulgate rules to give money only to plans that are reasonable and cost effective. It has not used this rule option yet, but could in the future to make consolidation or planning for it part of the criteria. This review authority, then is a potential tool to encourage or require consolidation. As such this new law falls short of a strict mandate, but raises the possibility of financial penalties for not consolidating. This has sparked a controversy over the law in the state.

Make consolidation more convenient through technology improvements

As exemplified above with Washington County, Oregon, some jurisdictions give equipment to local PSAPs to upgrade equipment and services. This makes equipment in different PSAPs more compatible and interoperable.

Another example is New Hampshire. When New Hampshire formed a statewide call-taking PSAP, it gave free CAD software and equipment to any jurisdiction that requested it, along with free maintenance and upkeep. The number of local dispatching centers has gone from 108 to 96 since the state PSAP was implemented in 1995.

A third example is Oregon, which found interoperability improvements to be a key factor in local consolidations. It achieved this by giving the same technology to all PSAPs in the state.

Other significant issues

Generally interviewees did not have comparative numerical data to document performance improvements or cost savings. Some interviewees described process improvements that should have a positive impact on public safety such as eliminating steps in processing 911 calls, expansion of services, cross-jurisdictional response, enhancement in system capability, or employee training and expertise.

Models

Research found full or partial consolidations that may take several forms:

- Forming a new, independent entity from several single PSAPs
- Absorbing smaller PSAPs into larger ones
- Purchasing services such as call taking or dispatching from a larger PSAP
- Sharing resources such as facilities, infrastructure, technology, staff, or maintenance and repair from a central service organization

An example of a central service that shares resources is the Marion County Emergency Communications Agency (MECA). MECA is a telecommunications central service for 85 public safety agencies and seven PSAPs in Marion County/Indianapolis Indiana, and surrounding counties. It was formed to bring interoperable telecommunications for public safety to the metropolitan area.

MECA provides the communications infrastructure to all its members. This infrastructure includes:

- A facility in which member PSAPs may locate if desired
- CAD software and equipment
- Consoles with end user equipment
- A common radio platform
- System maintenance and repair
- Mapping and licensing
- A records management system

Governance and member concerns

Governance of consolidated PSAPs and the influence of its members on the consolidated entity emerged as an important issue. Similar to what the study team found in Minnesota, potential consolidation members in other states often have concerns of losing control over

matters critical to delivering effective services and keeping the public safe. In addition, members sometimes have concerns about things that are more a matter of good customer service or convenience rather than the public's health and safety. Some of these concerns were labeled "protecting turf" by many interviewees.

Interviewees strongly emphasized that to be successful a consolidated entity must take the needs and uniqueness of its members into account and address them whenever feasible.

They reported that independence of the consolidated entity is important – being free from the control of particular jurisdictions and specific agencies. Members invariably have different protocols, procedures and priorities such as defining emergencies, responding to them, and handling non-emergency calls. Member PSAPs and jurisdictions need influence in resolving differences and pursuing common standards. Some consolidated PSAPs have both governing boards and user boards to assure member influence and resolve issues.

PSAPs that bring in smaller PSAPs or provide services on a purchase-of-service basis need to pay attention and respond to the needs of their members. Some fear their own needs will be shuffled aside or carry less weight in a larger organization. They fear the ability of an outside organization to be responsive will be compromised.

Some fear that an outside organization will have less familiarity with the geography of their area and people and may direct responders to the wrong locations. However, best practices interviewees insisted that technology, training, and procedures can handle this in a consolidation.

The way these different practices and fears are managed is critical to members' willingness to consolidate and to the success of the consolidation.

Education

Another potential state role is education. There are many issues and problems to address with consolidation. Best practice research found that a lot of these issues can be solved in the planning stage by consolidation structures, procedures and technology. However, these solutions are often not well understood and need to be explained.

Speakers are available from police and fire department personnel or consolidation coordinators to talk on these topics. They bring a "real world" perspective and can discuss problems and solutions as peers. The state could have a role in promoting education and bringing these speakers together with corresponding local groups. Many of the successful consolidations in this study were predated by months or years of discussions and education over coffee and lunches.

Startup problems from inadequate planning

Despite current satisfaction with consolidated entities, interviewees reported early startup problems. These ranged from equipment not working properly, employee turmoil, workload problems, procedure problems and budget miscalculations. These were significant at the time but were eventually worked out. They believe these issues reflected lack of adequate planning and the need for adjustments in training.

While many or most startup problems can be overcome, they are critical issues because they reflect on the participating responder agencies and may affect public safety, even if only temporarily.

Most of the consolidation interviewees reported that the consolidations took several years to put together. More than one took a decade or longer. The slow pace was because of the time it took to build trust, gain agreements and cooperation, and plan all the details of implementation as well as financial and legal arrangements.

SUMMARY

These are the primary actions that have been taken by other states to facilitate consolidations:

- Passing legislation allowing local governments to assess phone line surcharges that can be used for operating expenses and temporary surcharges for capital expenses. Local surcharge increases or limits may be subject to referendums.
- Passing legislation that would remove any legal barriers to consolidation and/or authorize particular governance structures
- Providing grants to study, plan, and implement consolidation
- Making consolidation more convenient through interoperability improvements. This includes giving equipment to local PSAPs that improves services and enhances interoperability. These make consolidations more convenient and affordable, and have public safety benefits as well in improving communication and the availability of data.
- Increasing state line surcharges to pay for any state actions that need funding
- Facilitating education and trust throughout the PSAP system

CONCLUSIONS AND LESSONS FOR MINNESOTA

1) **Mandates to consolidate appear to be ineffective and may be counterproductive.**

- The evidence is limited, but where it is available, it does not indicate that mandates work. Consolidation is not the right answer for every jurisdiction.
- According to best practice interviewees, consolidation participants must be willing and open-minded. They can sabotage efforts to force consolidation when they don't see it as a positive move.

This together with the experience of Oregon suggests that state mandates may be counterproductive. This lesson suggests that Minnesota would be better off to avoid absolute consolidation mandates.

2) Performance and standards requirements have a positive impact on consolidation when accompanied by state funding and assistance in meeting the requirements.

Consolidation sometimes is the best way to meet the requirements because it shares the costs of upgrading equipment. Requirements that have had this effect elsewhere include:

- Minimum staffing to cover a minimum number of console positions
- Training and certification of 911 staff
- Provision of pre-arrival instructions
- Minimum service and technology standards

The lesson for Minnesota is to be aware that common technology standards and requirements for improved service could well have the affect of encouraging consolidation. These may be most affordable through cost sharing. The state might well need to provide financial and technological resources to accomplish these technology and service improvements.

3) The state's optimal role is to create a "consolidation friendly" environment.

It appears from the best practice research that to influence consolidations the optimal role for the state would be as a facilitator – making the environment "consolidation friendly." Based on interviews inside Minnesota, the current fiscal environment in Minnesota is causing an increase in jurisdictions considering consolidation.

Research indicates that states need to have a financial role in financing PSAPs or they are not likely to have much direct influence on consolidation. It also indicates that when local governments consolidate or consider consolidation they avail themselves of tools made available by state action.

4) Education is a critical factor influencing consolidation.

Research shows education and trust building are important elements influencing consolidation. Education is usually done in peer-to-peer discussions over coffee and luncheons over a long period of time. It allows participants to understand each other's needs and explain how consolidation can possibly address these needs. Some successful local consolidations in this study were accompanied by a decision to consolidate followed by hiring someone with experience and success in consolidation to educate, build trust and plan.

The education role for the state could be to provide technical assistance to local governments and PSAPs to enable consolidations. This could come by hiring experienced consolidation directors to work for the state and making their services available to local jurisdictions. It would work best for these people to have a track record of credibility with fire and law enforcement communities. Examples of what they would do include:

- Promoting peer-to-peer information exchanges and discussions on consolidation
- Providing technical assistance in planning consolidation
- Providing boilerplate language for formation of consolidated 911 entities

INTEROPERABILITY

INTRODUCTION

Interoperability is often equated with "the ability of two or more organizations to communicate and share information (voice, data, images, and video) in real or near real time."[62] The lack of interoperable communication is cited by some national and state public safety and emergency response organizations as a persistent problem in emergency response and disaster planning. They mention many factors that create this problem, such as incompatible radio frequency bands, incompatibility between equipment from different manufacturers, age of radio equipment, and the lack of funding to update equipment.

NATIONAL EFFORTS

There is a national focus on this interoperability problem. Various national programs including the Association of Public Safety Communications Officials (APCO), Public Safety Wireless Network (PSWN) (a joint program of the Departments of Justice and Treasury), the National Institute of Justice's AGILE (Advanced Generation of Interoperability for Law Enforcement) Program, the National Conference of State Legislatures, and many others, are working to address interoperability issues from a national perspective.

MINNESOTA EFFORTS

Minnesota has also worked to address this interoperability issue. The Metropolitan Radio Board was created in Minnesota Statute in 1995 as the first step in implementing a region-wide public safety radio system communication plan in the Twin Cities metropolitan area. In the fall of 2002, the system began operation with participating agencies being the State of Minnesota, Hennepin and Carver Counties, the City of Minneapolis, the City of Richfield, North Memorial Medical Transportation, Metro Transit, and Metro Mobility.[63] In the next few years more jurisdictions in the metropolitan area are scheduled to become part of the region-wide public safety radio system.

[62] Brenna Smith and Tom Tolman, "Can We Talk? Public Safety and the Interoperability Challenge." *National Institute of Justice Journal*, April 2000.

[63] Metropolitan Radio Board, "Transition Plan and Report to the 2002 Session of the Minnesota Legislature," February 1, 2002, Page 5.

Funding can be one of the major problems in developing the system. Funds for the first phase of the system were provided through revenue bonds, direct state appropriations, user fees, and federal grants. The 2003 Legislature authorized an additional $45 million in revenue bonds to encourage local enhancements and begin the expansion of the basic communication and interoperable infrastructure statewide. Of the $45 million, $18 million provides assistance to local governments in building subsystems and other local enhancements. In addition, $27 million was appropriated to the Commissioner of Public Safety for the next phase (the Rochester and St. Cloud regions) of the public safety radio communication system.

The expansion of the radio system into Greater Minnesota is now known as the Allied Radio Matrix for Emergency Response (ARMER). Its purpose is to design and implement a digital trunked radio system throughout Minnesota. ARMER is designed to provide interoperability between various public safety and other government agencies by making statewide radio coverage available. Implementation is planned in six phases. Phase 1 was the backbone in the Twin Cities metropolitan area. Phase 2 included the local subsystems in the metro area. Phase 3, as mentioned earlier, is anticipated to begin this year and will focus on the Rochester and St. Cloud regions. Later phases will extend the system to the rest of the state.

The plan is for the state to establish the backbone of the radio system by purchasing the land, building towers, and establishing the communication linkages. Local governments could provide subsystems to connect to the backbone as they consider replacing existing systems. Cost is a problem for both state and local governments. Some federal monies have been and are expected to be available to local units of government to assist with some of these costs. Funding options beyond Phase 3 are under discussion, but no action has been taken to secure monies to complete the system.

INTEROPERABILITY SOLUTIONS IN PRACTICE

A number of people the study team interviewed discussed other measures local emergency response agencies in Minnesota currently take to communicate with each other. Even with various radio systems, local emergency response agencies are currently able to talk to each other. Agencies often work out their interoperability issues by sharing channels, creating a patch between the various communication systems, or by simply carrying multiple radios. While this works in some fashion, these options are less than optimal and may have limited application as the scope of an incident expands.

Nationally, various solutions to interoperability are being used. PSWN identifies fifteen various technical solutions, including the ones mentioned above, plus solutions such as mutual aid channels, multiband/multimode radios, and voice-over Internet Protocol.[64] All options have advantages and disadvantage regarding cost, security, ease of implementation, spectrum efficiency, overall coordination, and other items.

[64] http://www.publicsafetywins.gov 3/31/03 (Feb. 5, 2004)

INTEROPERABILITY'S IMPACT ON PSAP CONSOLIDATION

Interoperable communications between the various emergency response agencies may enhance the opportunity for PSAP consolidation. Interoperable communication between jurisdictions removes the barrier of different PSAPs using different radio systems. With compatible radio systems between neighboring jurisdictions, one PSAP could communicate with and therefore dispatch to multiple jurisdictions with less difficulty.

As mentioned previously, users currently do provide some level of interoperability at a reasonable cost to the local unit of government; having a common radio system is not a prerequisite to PSAP consolidation. Various agencies can consolidate with a PSAP capable of transmitting on all of their channels, and rely on patches when manual communication is needed. Although this may not be an optimal approach, it will address immediate needs and may lead to consideration of more interoperable systems in the future.

One other benefit of having interoperability is the ability of PSAPs to work together in sharing or assisting with the workload. A small volume PSAP could shut down for the night and have its calls routed to and dispatched by another neighboring PSAP. This may be an interim step toward ultimate consolidation (however, it should be noted that the facility that closes down would no longer fit the 24-hour operation criteria in the statutory definition for a PSAP). Similarly, if a PSAP becomes overwhelmed because of a critical incident, it could route calls to a neighboring PSAP, allowing all calls to be handled in a timely fashion. While these benefits are not directly related to consolidation, they could become the groundwork for better understanding and working relations between PSAPs and the involved public safety agencies. The result would be improved public safety and eventual solutions to better management of PSAP operations including possible consolidation.

PSAP CONSOLIDATION'S IMPACT ON INTEROPERABILITY

The consolidation of PSAPs, in and of itself, creates a level of interoperability between the various jurisdictions dispatched by the PSAP. The more jurisdictions served by the PSAP the greater the interoperability between those jurisdictions. The PSAP becomes the communication hub for the communities it serves and has the ability to establish a common communication link between multiple emergency response units. To address interoperability beyond a PSAP's jurisdiction, the PSAP and its public safety agencies generally will need a radio system that is compatible with neighboring PSAPs or public safety response agencies, or it will have to consider methods to selectively patch communication systems together when the need arises. If PSAPs are consolidated without taking this into account, the consolidated PSAP will have to rely on other methods (such as patches) to communicate with agencies outside of its jurisdiction.

As PSAPs consider consolidation, one critical element that needs to be addressed is how the various users will be linked together by the new PSAP. One alternative is to consider replacing the existing radio system with a common radio system specifically for the various jurisdictions involved in the consolidation. Consideration of neighboring

jurisdictions may also be appropriate. In these considerations, the funding opportunities available through the Metro Radio Board and ARMER Program for participation in the statewide public safety radio system may be relevant. Funding of radio control stations has also been available through the Department of Public Safety in order to provide basic interoperability to the statewide public safety radio system by patching systems together. This may provide another option for jurisdictions considering PSAP consolidation to upgrade their communications to digital trunked radio communication.

Further, with consolidation of PSAPs, cost saving may result from having to purchase fewer components to connect the PSAP to the interoperable radio system. The study team reviewed the Metropolitan Radio Board budgets for the metropolitan jurisdictions that are planning on being, or have been, connected to the State's digital trunked radio system. On average, they had budgeted between $500,000 and $800,000 for equipment to connect to the system. The cost incurred for purchase of radios, however, would not change because they need to be purchased for each individual officer or vehicle. Based on these numbers, if consolidation reduced the number of PSAPs in the metro area, it could also save money by reducing the number of connections to the digital trunked radio system.

The dollar figure per PSAP connection to the digital trunked radio systems only applies to the metropolitan area. The costs to connect with an interoperable or digital trunked radio system for agencies that decide to participate in the system in Greater Minnesota are still undetermined. The study team heard cost amounts ranging from $100,000 to $500,000 to connect to the digital trunked radio system as part of a total replacement. It should be noted that a basic connection to the statewide radio system to provide a patching capability to their existing system could be accomplished more economically by installing a radio control station at a cost of approximately $10,000. Some cost for connection to an interoperable system like ARMER's digital trunked radio would be likely but the impact on consolidation is undetermined.

The larger concern in Greater Minnesota is the potential overall cost of the digital trunked radio system versus the perceived benefit. The cost of Phase 1 of the metro system for the backbone was approximately $36 million. The Metropolitan Radio Board reports an additional cost of $31 million for the various subsystems in the Twin Cities metropolitan area.[65] Although the metropolitan numbers cannot be applied to Greater Minnesota, the size of the numbers causes concern to those considering a digital trunked radio system. There is an additional concern about the $2,000 to $5,000 per radio price range for a portable digital 800 MHz radio, which is higher than the $700 to $1000 for a VHF analog portable radio, commonly used today in Greater Minnesota.

CONCLUSIONS

Public safety entities across the country and the State of Minnesota are working to craft solutions to interoperability issues in an attempt to improve public safety. Interoperability would make PSAP consolidation easier by removing communication barriers, as well as

[65] www.metroradioboard.org/faq.htm (1/21/04)

Issues and concerns identified by the committee are that some PSAPs might incur costs to develop the standards for their operation and then additional costs to meet these standards. They discussed that most PSAPs in Minnesota already have something in place for personnel requirements, but some PSAPs may have to review and change their requirements to meet the new statewide standard.

The models the committee reviewed regarding these standards include Commission on Accreditation for Law Enforcement Agencies; Association of Public Safety Communication Officials; National Emergency Number Association; and Minnesota Dispatch Skills Task Force.

The committee recommends these key personnel standards for adoption in Minnesota:

- **Hiring qualifications will be developed to include background investigations; knowledge, skills and abilities; psychological pre-employment screening; and physical requirements**
- **Minimum staffing levels will be determined to meet performance standards**

3) Training Standards for PSAP Personnel

The PSAP Advisory Committee discussed, at length, the development of training standards for PSAP personnel. They noted that training standards would provide a higher quality of 911 service by insuring 911 personnel have the fundamental knowledge to perform required tasks with an increased level of competency and professionalism. Further, they discussed that minimum training standards will reduce liability exposure and insure a consistent level of knowledge for all PSAP communications personnel in Minnesota.

The committee identified major issues with training standards as being the cost for training personnel and the development of training courses either for basic skills or to meet individual agency operational requirements. The PSAP Advisory Committee further discussed the need for certification of PSAP personnel based on training standards. While most of the committee agreed that certification would be valuable, the issue became the cost involved in such a program, how it would be administered, and who would enforce the certification program. The committee concluded that because of these issues, a certification program was not appropriate at this time but would be a likely next step in developing training standards and moving toward certification of PSAP personnel.

The models the committee reviewed regarding these standards include Commission on Accreditation for Law Enforcement Agencies; Association of Public Safety Communication Officials; Minnesota Dispatch Skills Task Force; and Minnesota Legislative Auditor Report.

The committee recommends these key training standards for adoption in Minnesota:

- **A standard shall be developed for all entry level 911 personnel to complete a basic telecommunicator training course**
- **Minimum of "X" hours continuing education required annually**

Additional Training Standards recommendations

To provide some accountability for the training standards the committee recommended:

- **The PSAP must certify whether PSAP personnel have met the training standards for that year and this can be submitted to the Minnesota Department of Public Safety along with the PSAP annual audit regarding 911 program funds**

One other recommendation from the committee that crosses several of these areas but also impacts training is:

- **PSAPs shall make available medical pre-arrival instructions either directly or by a third-party provider**

There was a discussion about whether this should be a standard or a best practice. The primary issue was the impact on jurisdictions that currently did not provide pre-arrival instructions. Ambulance companies in the state do provide this service, which many PSAPs use, but it comes with a cost that may be higher than some jurisdictions want to pay. The decision was split on whether this should be a standard or best practice because of the cost, but the committee fully agreed that it was a very important topic and should be pursued in some form.

4) Standards for PSAP infrastructure

The PSAP Advisory Committee stated that infrastructure standards would create a secure 911 network and PSAP environment with diverse and redundant equipment, power, and facilities. The infrastructure standards are designed to minimize vulnerability to any single point of failure. Further, the standards will make the PSAP able to support staff operations for extended periods of time without requiring staff members to leave the immediate emergency communications area.

The committee noted that for a few PSAPs infrastructure standards may increase the costs to implement and maintain the 911 network and PSAP facilities.

The models the committee reviewed regarding these standards include Commission on Accreditation for Law Enforcement Agencies; Metro 911 Board rules; Minnesota rules; National Emergency Number Association; National Fire Protection Association; and Network Reliability and Interoperability Council.

The committee recommends these key infrastructure standards for adoption in Minnesota:

- **Limit access to the PSAP – secure from the public – limited to authorized access**
- **Secure communication equipment to prevent unauthorized access**
- **Sufficient 911 facilities to provide P.01 grade of service, or equivalent (currently in Minnesota Rules 1215.08, Subpart 1.)**
- **Redundant power source capable of providing continuous power for a minimum of four hours**
- **Diverse 911 location databases**
- **Redundant 911 answering equipment (minimum of 2 answering positions)**
- **Ability to transfer and receive a 911 call to/from another PSAP, with location data**
- **Network standards shall be developed to ensure that 911 calls are not disrupted**
- **Develop standards for new PSAP facilities based on model specifications and/or best practices**

5) Standards for Administration of PSAPs

The PSAP Advisory Committee said standards for the administration of PSAPs would provide a consistent level of administrative oversight for all PSAPs in Minnesota. Further, they noted PSAPs would have a framework for administrative policies and procedures that enhance public safety communication services and manage liability.

The committee mentioned that a concern with these standards would be their scope and/or depth. The standards need to be basic enough to be attainable by all PSAPs in a diverse state like Minnesota while at the same time they need to maintain integrity of services for PSAPs. Other concerns raised were development costs for these standards, including staff time. Further, the committee noted that the variations in PSAP governance structure could delay implementation of the standards.

The models the committee reviewed regarding these standards include Commission on Accreditation for Law Enforcement Agencies; Metro 911 Board rules; and National Academies of Emergency Dispatch.

The committee recommends these key administration standards for adoption in Minnesota:

- **A written records retention schedule and data practices policy**
- **A written personnel policy, agency-wide or specific to PSAP**
- **A written policy for addressing MSAG/911 database discrepancies to include a periodic reconciliation of 911 records to service address/location**
- **A written training plan/manual for calltaker/dispatcher/supervisor**
- **A written business continuity plan for 911/radio/telephone/data communications**
- **A written policies and procedures to ensure facility security**

- **A written interoperability plan listing communications resources in common with co-located agencies and neighboring jurisdictions**
- **A record-keeping system that allows for retrieval of call/incident data for analysis/review**
- **A written standard operating procedure for communications personnel**
- **A written policy describing radio system configuration, performance, and maintenance**

6) Standards for PSAP governance

The PSAP Committee said standards for PSAP governance would provide clear definitions for authority, obligations, representation and accountability for agencies and organizations that are part of the PSAP jurisdiction.

The committee identified the concern with loss of control and equality of representation of all entities on a governing body to be major issues. Further, they also raised concerns about the time it would take to obtain consensus by the governing entity coupled with the lack of flexibility that would exist with trying to systematize service and operation provisions. Finally, the committee noted the creation of a governance structure could create more bureaucracy in a time when less bureaucracy is more popular.

The models the committee reviewed regarding these standards include Commission on Accreditation for Law Enforcement Agencies; Various Joint Powers agreements in Minnesota: Pearl Street, St. Louis County, Minneapolis Emergency Communication Center, St. Louis Park, and Anoka County.

The committee recommends these key governance standards for adoption in Minnesota:

- **There shall be a written legal agreement (for example, MOU, contract, etc.) of the parties (representative of the area agencies served) that delineates geographic boundaries, participation, financial support, obligations, organizational structure, levels of cooperation, and scope of authority**
- **There shall be written policies defining policy development, operational standards, decision-making process, command protocols, service priorities and dispute resolution determined by a collaborative process of the parties**
- **There shall be an audit and review process defined that deals with governance structure, policy, financial, methods and procedures, and service priorities**

Connection to Legislative Auditor Report

The PSAP Advisory Committee's recommendations on standards development are comparable with the best practices identified in the report by the Minnesota Legislative Auditor. The Office of the Legislative Auditor, in a 1998 Best Practices Review Summary on 911 Dispatching identified seven actions and best practices for effective and efficient 911 PSAP operation. The seven actions are:

- **Develop and use standard operating procedures**
- **Support a trained and qualified work force**
- **Maintain adequate communication and network equipment**
- **Consider opportunities for coordinating the use of dispatching equipment and for cooperative dispatching**
- **Keep records and measure performance**
- **Promote information exchanges among public safety response agencies**
- **Educate** the public on the 911 system and services[66]

All of the action areas identified by the Legislative Auditor, with the exception of educating the public, are included in the standards. The PSAP Advisory Committee's efforts build upon previous work to accomplish the same goal of providing effective and efficient 911 PSAP operation.

Possible Funding Incentives for Consolidation

BACKGROUND

The PSAP Advisory Committee, pursuant to the statutory language calling for the study and the advisory committee's charge outlined in the proposal, discussed various options for incentives to consolidation, both financial and otherwise. The committee discussed the definition of consolidation for purposes of incentives. The strictest definition focused on reducing the current number of 119 PSAPs down to something lower. This would require an almost complete consolidation of activities between two or more existing PSAPs.

The other definition is more flexible, but more difficult to define. It would be either the complete consolidation as defined above or the sharing of services between two or more PSAPs. Examples of such sharing are: using the same CAD system, developing and sharing a mapping system and software to implement it, and the cost to integrate various systems in the PSAP so that one PSAP could take over another PSAP's duties at night or at times of low call volume.

The committee opted for the more flexible definition of consolidation to include the sharing of services between PSAPs. Because of lack of time, the committee did not develop criteria for selecting which shared services would be covered by the incentives and which would not. This would need to be determined by the entity administering an incentives program.

[66] 9-1-1 Dispatching: A Best Practice Review, Office of the Legislative Auditor, 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf

INCENTIVES SELECTED by COMMITTEE

The Committee discussed specific incentives for PSAP consolidation. They developed responses to the question: *What financial incentives would encourage PSAP consolidation or the sharing of PSAP infrastructure?* The incentives that the committee selected include:

The State of Minnesota should pay the cost for part, or all of, PSAP consolidation including:

- **Planning grants for local governments for study of options to pursue PSAP consolidation**
- **Implementation grants for all, or a portion of, the capital costs to establish a center or sharing PSAP infrastructure including costs from construction of facility through software purchase**
- **Provide a sales tax exemption for all items included in the consolidation or sharing infrastructure of PSAPs**

A key non-financial incentive was to provide for a three-to-five-year transition period for consolidation of PSAPs. The committee felt that with the speed of technological change a longer period for consolidation would not be beneficial and would be caught up in the next generation of new technology. This could lead to inaction with jurisdictions waiting for the "next" innovation before they consider consolidation.

Another non-financial incentive was to provide access to statewide mapping data. This incentive could be problematic for some PSAPs because of software and/or formatting issues but with time these could be overcome and a uniform mapping system would be available for use statewide.

MANAGEMENT ANALYSIS DIVISION RECOMMENDATIONS

1) The study team concludes that PSAP consolidation is feasible in Minnesota, and has the potential to offer cost saving and public safety benefits when the circumstances are right. The study team recommends that PSAPs examine their operations to see if these circumstances exist, and if so, to consider consolidation as a means to save money and/or improve public safety. The circumstances that make a consolidation more feasible are where:
   - PSAP operating costs, per 911 call or per event dispatched, are relatively high when compared to larger PSAPs in the state (see Tables 2 and 3, on pages 55 and 57 for comparisons with other PSAPs)
   - The PSAP is in need of capital upgrades that could be avoided through consolidation
   - Willing consolidation partners can be found in other PSAPs

- Public safety agencies and other key stakeholders are willing participants in the consolidation, or are at least not hostile to the notion. One way to get the support of public safety agencies is to allow them to use all, or a substantial portion of, the savings from consolidation for other public safety needs
- A satisfactory arrangement can be made regarding PSAP governance, accountability, service, standards, and control
- A PSAP has only one dispatcher covering some or all shifts
- The transition costs would be low relative to the potential for operating or capital cost savings
- A feasibility study has verified the potential for operational, cost, or public safety benefits within the specific consolidation on the table. Such a feasibility study should investigate operational data, and determine the way PSAP resources are actually allocated, particularly in the smaller PSAPs where dispatchers commonly perform multiple duties and have their shifts occasionally covered by officers on a different budget

2) The study team recommends that the State of Minnesota **not** mandate or coerce PSAP consolidation. Although the study team has not had any indication that policymakers are considering this as an option, local PSAP stakeholders are concerned about state mandates. The study team sees several reasons why mandates would be a mistake:
   - The likely success of PSAP consolidation, as well as the likelihood of cost savings, is highly contingent on local factors, such as working relationships, staffing, trust, and specific local service needs.
   - The functional and statutory responsibility for public safety rests with local government in Minnesota, and decisions about how to carry out that responsibility should be left to local government.
   - When state governments have tried to mandate consolidation there has been political backlash. In Oregon, for instance, the backlash resulted in the mandate being overturned. The study team's sense from its visits and focus groups across the state is that this is a very important issue for local public safety agencies, and a similar reaction to that in Oregon would be possible.

3) Any PSAP consolidation needs to be well-planned, and allow adequate resources for training and transition. This may seem obvious, but consolidations in Minnesota have occasionally been rushed, with insufficient training or planning.

4) In supplement to the PSAP Advisory Committee's recommendations of funding incentives, the study team recommends that funding incentives for consolidation, including feasibility studies and implementation grants, be structured around cost-savings and public safety, not consolidation as an end in itself. It is quite possible to have a consolidation that is a net financial loss and worsens public safety.

Examples of such funding incentives would be:

- Fund implementation grants for consolidation only after a feasibility study has shown potential gains in cost savings and/or public safety.
- Fund items that would remove barriers to consolidation, such as shared radio and records managements systems (in our interviews, the potential consolidation or interfacing of record management systems was widely seen as a benefit even if PSAP consolidation never occurred as a result).

5) The study team recommends that jurisdictions exploring consolidation consider a governance structure that includes representatives from the public safety agencies that use the services of the PSAP. Governance structure models that might be considered by PSAPs considering consolidation are those used by Anoka County and the Red River Dispatch Center in Fargo, ND.

PSAP Advisory Committee's Response to Recommendations

Pursuant to the committee charge outlined earlier in the report, the PSAP Advisory Committee reviewed, discussed, and accepted the five recommendations identified above.

APPENDICES

Appendix A: PSAP Advisory Committee roster

	Committee Member and Alternate	Representing
1.	Tim Leslie, Chair of Committee Assistant Commissioner Minnesota Department of Public Safety 651-296-6642 Tim.Leslie@state.mn.us	Department of Public Safety State of Minnesota
2.	Jim Beutelspacher 911 Program Manager Minnesota Department of Public Safety 651-296-7104 Jim.Beutelspacher@state.mn.us	911 Statewide Program Manager Department of Public Safety State of Minnesota
3.	Pete Eggimann, ENP President, Minnesota Chapter of NENA Metro 911 Board 651 603-0104 peggimann@mn-metro911.org Alternate: Diane Lind City of Burnsville 952-895-4613 Diane.Lind@ci.burnsville.mn.us	Minnesota Chapter of National Emergency Number Association (NENA)
4.	William Mund Fire Chief, St. Cloud Fire Department 320-650-3516 bmund@ci.stcloud.mn.us	Minnesota Fire Chiefs' Association
5.	David Thomalla Maplewood Police Chief Maplewood Police Department 651-249-2602 David.Thomalla@ci.maplewood.mn.us	Minnesota Police Chiefs' Association
6.	Michele Tuchner Captain Minnesota State Patrol 651/582-1514 Michele.Tuchner@state.mn.us	Minnesota State Patrol Department of Public Safety State of Minnesota

	Committee Member and Alternate	Representing
7.	Sheriff Pat Medure Itasca County Sheriff's Office 218 326-3477 Pat.Medure@co.itasca.mn.us Alternate: Sheriff Randall Willis Stevens County Sheriff 320-589-2141 RandyWillis@co.Stevens.mn.us	Minnesota Sheriffs' Association
8.	John Tonding, ENP Manager Anoka Co. Central Comm. 763 323-5822 John.Tonding@co.anoka.mn.us Alternate: Linda Hanson Anoka County Central Communications PSAP Coordinator 763-323-5826 Linda.Hanson@co.Anoka.mn.us	PSAP Manager Anoka County
9.	Heather Alex, ENP PSAP Manager St. Louis Park Police Department 952 924-2122 halex@stlouispark.org	PSAP Manager City of St. Louis Park
10.	Pat Wallace 911 Dispatcher Supervisor Blue Earth County 1-507-387-8725 pwallace@city.mankato.mn.us	PSAP Manager Blue Earth County
11.	Rick Juth President, Minnesota Chapter of APCO Minnesota State Patrol 651 582-1515 Rich.Juth@state.mn.us Alternate: Sgt. Anne Ness Hennepin Co. Sheriff's Office Communications Div. 763-525-6228 Anne.Ness@co.hennepin.mn.us	Minnesota Chapter of Association of Public-Safety Communication Officials (APCO)

	Committee Member and Alternate	Representing
12.	Lt. Jay Henthorne Richfield Dept of Public Safety 612-861-9828 jhenthorne@ci.richfield.mn.us Alternate: John DeJung Minneapolis 911 Director (612) 673-5909 John.DeJung@ci.minneapolis.mn.us	League of Minnesota Cities PSAP Manager City of Richfield
13.	Nancy Pollock, ENP Executive Director Metropolitan 911 Board 651 603-0106 npollock@mn-metro911.org	Metropolitan 911 Board
14.	Norman Foster Minnesota Department of Finance 651-215-0594 Norman.Foster@state.mn.us	Department of Finance State of Minnesota

Appendix B: List of PSAPs and population served

The following table lists all PSAPs in Minnesota, and lists the population size served by the PSAPs. The population numbers were for 2002, obtained from the State Demographer's Office. For PSAPs that cover an entire county, the population served equals the county population. For a PSAP that covers a county except for a few cities that have their own PSAPs, the population covered by the city PSAP was subtracted from the county numbers. This is most notable for counties like Hennepin, Dakota, and Ramsey.

It should be noted, however, that PSAP coverage areas are not always quite as clear and distinct as county or city boundaries. For instance, some PSAPs provide fire dispatching service for fire departments that are located in jurisdictions served by another PSAP for police services. While the study team tried to subtract out populations that were served by another PSAP when we discovered them, this was an incidental part of the study and it is quite possible that some jurisdictions were missed.

It should also be noted that in some PSAP jurisdictions, there are also "secondary PSAPs" that are not the first point of contact for 911 calls, but are transferred calls from the primary PSAP for dispatching. Examples include Hibbing and Ely in St. Louis County.

Table 9

PSAP	Area covered	PSAP population
Minneapolis	City	382,700
Hennepin	County, except Airport, U of M, and 9 independent city PSAPs	360,071
Anoka	County	308,171
St. Paul	City	288,000
Washington	County, except Cottage Grove	179,740
Clay	County, dispatched jointly with Cass County, ND	175,162
Ramsey	County, except 3 independent city PSAPs	154,315
Stearns	County	149,039
St. Louis	County – Both PSAPs in Virginia and Duluth	199,805
Olmsted	County	129,804
Scott	County	99,488
Wright	County	98,410
Rice/Steele	County	93,643
Bloomington	City	85,400
Eagan/Rosemount	Cities	80,810
Dakota	County, except 5 independent city PSAPs	75,604
Carver	County	75,312
Sherburne	County	65,474
St. Louis Park/Golden Valley	Cities	65,380
Burnsville	City	60,900
Lakeville/Farmington	Cities	60,540
Otter Tail	County	57,992
Crow Wing	County	57,132
Blue Earth	County	57,053

Eden Prairie	City	57,000
Minnetonka	City	51,440
Winona	County	49,623
Apple Valley	City	47,761
Edina	City	47,570
Maplewood/North St. Paul	Cities	47,559
Goodhue	County	45,070
Chisago	County	44,780
Itasca	County	44,191
Kandiyohi	County	41,307
Mower	County	38,940
Beltrami	County, except Red Lake Reservation*	35,797
Mahnomen	County	35,500
Richfield	City	34,575
Douglas	County	33,795
Isanti	County	33,757
Carlton	County	32,547
Morrison	County	32,356
Freeborn	County	32,206
West St. Paul	City, plus Mendota Heights, Mendota, and Lilydale	32,058
Polk	County	31,253
Cottage Grove	City	30,984
Becker	County	30,646
Nicollet	County	30,471
Benton	County	29,831
Brooklyn Center	City	29,185
Cass	County	27,825
Pine	County	27,340
Brown	County	26,740
Le Sueur	County	25,987
Lyon	County	25,294
White Bear Lake	City	24,874
Todd	County	24,465
Mille Lacs	County	23,531
Meeker	County	22,875
Wabasha	County	21,883
Fillmore	County	21,418
Nobles	County	20,532
Houston	County	19,907
Waseca	County	19,541
Dodge	County	18,575
Hubbard	County	18,480
Hopkins	City	17,559
Renville	County	17,076

* The Reservation's entire population of 5,162 was subtracted from Beltrami's population. The reservation does extend into Clearwater County, but the study team was unable to find reservation population by county, and most of the Reservation, and the largest cities on it, are in Beltrami County.

Redwood	County		16,519
Roseau	County		16,251
Faribault	County		15,975
Aitkin	County		15,495
Kanabec	County		15,468
Sibley	County		15,435
Koochiching	County		13,990
Wadena	County		13,674
Pennington	County		13,563
Hutchinson	City		13,403
Chippewa	County		12,994
Cottonwood	County		12,026
Watonwan	County		11,789
Swift	County		11,556
Jackson	County		11,245
Pope	County		11,216
Lake	County		11,088
Yellow Medicine	County		10,820
Stevens	County		10,011
Martin	County		9,916
Pipestone	County		9,840
Rock	County		9,809
Murray	County		9,086
Clearwater	County		8,389
McLeod	County, except Hutchinson		7,991
Lac Qui Parle	County		7,973
Norman	County		7,326
Wilkin	County		7,020
Lincoln	County		6,299
Grant	County		6,266
Big Stone	County		5,683
Cook	County		5,223
Red Lake Band of Chippewa*	Reservation		5,162
Marshall	County		5,139
Kittson	County		5,111
Lake of the Woods	County		4,404
Red Lake	County		4,296
Traverse	County		3,965
Metropolitan Airports Commission	Airport	NA	
University of Minnesota	Twin Cities Campus	NA	

*http://www.citizensalliance.org/Reservation%20Demographics/Reservation%20Population%20by%20Reservation.htm. This cite isn't as directly authoritative as others, but it was the best estimate that could be found. The web site for the Red Lake Band of Chippewa had said the population was 5,000 when accessed in 12/03, but the site has been revamped since, and the data is no longer present.

Appendix C: Methodology

Survey Methodology

The study team's survey methodology was as follows:

1) Design survey, with input from Advisory Committee members, and using some questions from the Best Practices survey done by the Legislative Auditor in 1998.

2) Survey pre-tested with small group of PSAP managers, and revised.

3) Receive list of PSAPs, and contact names, from the Statewide 911 Program.

4) Distributed notification of survey to PSAP contacts, using the Statewide 911 Program's fax distribution list.

5) Survey mailed on November 26, 2003.

6) Each study team member was assigned a group of PSAPs. Starting December 1, all PSAPs were contacted by phone to inform them that the survey had been sent out, and that a study team consultant would be calling them again to see if there were any questions with the survey.

7) During a discussion of study at the annual conference of the Minnesota Sheriff's Association, the MSA representative on the PSAP Advisory committee emphasized the importance of the survey, and requested the sheriffs' assistance in getting the survey returned.

8) Follow-up phone calls continued for all non-responding PSAPs, roughly averaging once per week. Received 49 of 119 by 12/12. 89 by 12/19, 106 by 12/26, and 111 by 1/6/04.

9) On January 6, 2004, the study team began data analysis with the 111 surveys that had been returned – a response rate of 93 percent. Four more surveys were received after this date, but could not be included in the analysis. They are, however, included in the survey summaries elsewhere in the Appendix. The total response rate was 97 percent.

10) Surveys were entered into Management Analysis survey software as they came in. Ambiguous responses, non-responses to key questions, or responses that seemed erroneous occasionally required follow-up calls. When ranges were given for numerical responses, the study team usually entered the midpoint of the range unless a reason was given on the survey to do otherwise.

Response rates in the range of 93 – 97 percent are very high, particularly for a survey that required as much work on behalf of participants as this survey did. The study team credits the high response rates to several factors:

- Dedication and commitment of PSAP supervisors and workers. The response rate achieved by the Legislative Auditor in their 1998 Best Practice survey was similarly high.

- Substantial stake in the subject matter held by participants.

- High degree of personal follow-up by team members, via telephone.

- The work of PSAP Advisory Committee members in encouraging members of the their represented organizations to complete the survey.

The survey contains self-reported data. Given the substantial stake in consolidation held by survey respondents, and the opposition to the idea that was usually expressed in interviews and focus groups, there was occasional concern that the survey responses would not be accurate – that respondents would skew their answers to reflect disfavor upon consolidation.

While the study team could not verify every survey response, and the possibility of skewed responses in some instances cannot be ignored, the study team does believe that responses were generally accurate, for the following reasons:

1) Where independent data sources existed for a particular survey question, the self-reported survey data was reliable and unbiased in any particular direction. For instance, the study team obtained a copy of Qwest's 911 audit trail from the Metropolitan 911 Board, showing the number of 911 calls for all Metro area PSAPs except the State Patrol's. In most cases, the self-reported numbers were identical, or very similar, to the numbers from Qwest.[67] Where the numbers were substantially different, the source of the numbers was verifiable, and in some instances, it was the Qwest data that was incorrect (confirmed in a conversation with a Qwest representative). In a few other instances, the method of calculating the number of calls was very different from Qwest's. The discrepancies were not, however, biased in any particular direction, such as toward inflating the amount of activity in a PSAP.

2) The trends in the self-reported data are internally consistent, and correlate well with each other. For instance, smaller PSAPs had the highest amount of reported time spent on other duties, and were generally consistent in the amount of time spent.

3) Many stakeholders stated that the survey recipients were honest, detail-oriented people who by nature would report accurate information.

[67] The lack of a perfect match is not a great cause for concern. The study team found that measuring the number of 911 calls is not an exact science. A simple example would be a caller who calls 911, hangs up, and then calls back immediately. The Qwest numbers would only count that as one call, so long as the second call followed briefly upon the first. Other PSAP information systems might count them as two separate calls.

3) The responses from the survey were the source for much of the information in this report that presents consolidation in a favorable light. As such, it is hard to argue that responses were skewed against consolidation.

Cost Estimates

Because of their importance to the conclusions and recommendations of this report, it is necessary to discuss the methodology that the study team used to create its charts and tables on PSAP operating costs. Four sources of information went into creating these charts and tables:

1) Number of 911 calls. For most PSAPs, this was self-reported, with the occasional double-check if the numbers looked too low or high given the population served by the PSAP. For the Metro area, however, the study team had access to Qwest's 2002 911 audit trail report. Every time someone calls 911 in the Metro area, the phone number making the call is run through an Automatic Location Information (ALI) database at Qwest, which attempts to match the phone number up with a given billing address. Qwest's audit trail tracks the number of times that database is hit, and to which PSAP the calls were subsequently routed. As the methodology used in the audit trail is consistent across PSAPs, the study team determined that it would take advantage of this more reliable and consistent source of information, where it existed. However, upon closer examination, the results weren't always reliable, due to some problems Qwest had in working with the hardware in three specific PSAPs.[68] As such, the source for the number of 911 calls used by the study team were as follows:

   Greater Minnesota and all State Patrol: Self-reported on Survey.

   Metro Area, except Scott County, Washington County, and Maplewood: Qwest 911 Audit trail.[69]

   Scott, Washington, and Maplewood: Self-reported on Survey.

The use of Qwest data rather than self-reported data was not always supported by the PSAPs in question. The St. Paul PSAP, for instance, stated that their reported numbers were larger (St. Paul reported 379,436 in comparison to Qwest's 170,786) than those reported by Qwest because their information system counted a call as a new 911 call when a call was picked up from being placed on hold, or when a call was transferred. The St. Paul Emergency Communications Manager believed that including the count of transfers, in particular, were more reflective of St. Paul's workload, as transferring was often done to specific call-takers who spoke Spanish or Hmong. While the study team couldn't disagree with the impact on workload, the inability of St. Paul to distinguish

[68] The study team verified that it was the Qwest data that was in error, rather than the self-reported PSAP data, in a conversation with Keith Maxwell from Qwest.

[69] This was a sum of "base calls," "911-0000" calls, "000-0000" calls, and "911-0XXX" calls. The latter three categories usually consisted of very small numbers. Base calls were the vast bulk of the calls.

between foreign language transfers and holds, and the general purpose of the information – to do comparisons between Minnesota PSAPs, lead us to use the Qwest data because it could be more accurately compared to other PSAPs, who also placed calls on hold and conducted transfers, but didn't include those numbers in their 911 counts.

While the study team was able to find such idiosyncrasies in the calculation of the number of 911 calls in the Metro area. This was harder to do in Greater Minnesota, because of the lack of alternate sources of data. While the study team did find several examples of PSAPs (through comparing call volumes in relation to population sizes) that had reported erroneous 911 calls, or had counted the number of 911 calls in an unusual way, it is quite possible that some were missed. This is one of the reasons why this study does not look at PSAP consolidation at the microscopic level, determining which PSAPs would be good candidates for consolidation based solely on call volumes and costs. Any specific consolidation effort that is making decisions based on call volumes should be careful to ensure that those calls are being counted in similar ways. This is particularly the case in discussions between St. Paul and Ramsey County, as when call volumes are self-reported, St. Paul handles more than seven times the call volume of Ramsey County, but when 911 calls are measured using the same method, that amount drops to less than four times as much.

While questions about how PSAPs counted 911 calls indicate caution in making decisions based solely on those numbers for specific PSAPs, the overall reliability of the self-reported 911 numbers where they could be verified indicates that in the aggregate, 911 call data is accurate and useful. In other words, the trends seen in the charts and tables cannot be explained away by individual data errors.

2) Total number of events where police units were dispatched. This data was self-reported on the survey.

3) Employment cost data. As mentioned in the body of the report, these were the most reliable and consistent cost estimates, and were the only cost estimates included in the charts and tables.

4) Percentage of time occupied by other duties. In preliminary research, it was very frequently mentioned that call-takers and dispatchers in smaller PSAPs had additional duties that would still have to be done after a consolidation. The study team wanted to determine how much time that was, and whether it was sufficient to negate any potential cost savings from consolidation, so a question on the survey asked the respondents to estimate the percentage of time spent on other duties, by shift. The respondent could choose "none", "1 – 25 percent," "25 – 50 percent," "50 – 75 percent," or "75 – 100 percent."

Calculations

The study team used the information on time occupied by other duties to adjust the employment cost data in order to more accurately reflect the amount of employee costs devoted to actual PSAP duties. If the PSAP reported no time spent on additional duties

for a shift, no adjustment was made. For other categories, the midpoint of the range was chosen. For instance, if the PSAP reported 25 – 50 percent, the midpoint of that range, 37.5 percent, was assumed to be spent on other duties, and the staffing for that shift was reduced by 37.5 percent. The total amount of staffing reduction for each shift was then deducted from total employee costs.

For instance, start with a PSAP that reported 1 person working full time on PSAP duties on the day shift, two people working 25 – 50 percent on other duties on the evening shift, and one person working 50 – 75 percent time on other duties on the night shift, with a total employee budget of $500,000. The adjustment would be:

Day shift: 1 FTE times 0 percent on other duties = 0 FTE
Evening shift: 2 FTEs times .375 percent on other duties = .75 FTEs
Night shift: 1 FTE times .625 percent on other duties = .625 FTEs
Total = 4 FTEs minus 1.375 FTEs on other duties = 2.625

2.625 FTEs are a reduction of 34.375 percent from the four FTEs nominally working full time over a 24-hour period. As such, the $500,000 in employee costs would be reduced by 34.375 percent to $328,125.[67]

If the above PSAP had taken 5000 calls and dispatched for 6000 events in 2000, the cost per 911 call would have been $66, and the cost per event would have been $55.

Regression analysis

The following section is intended for those familiar with statistics and linear regression analysis. It supplements the charts and tables in the section on operational cost data, addressing the strengths and statistical significance of the relationships shown in those charts and tables.

Two regressions were run, showing the relationship between cost per call and the number of calls, and the relationship between cost per event and the number of events. As can be seen from figures 2 through 5 in the body of the report, however, the relationship between the two variables in each regression is an inverse one. As such, a data transformation was done on the independent variable in each regression (1/x) to make the relationship a linear one appropriate for linear regression analysis. The results for each are contained below.

Regression One

Independent variable: Inverse of number of calls
Dependent variable: Cost per 911 call
Number of cases: 98
Adjusted R – Square: .402

[67] The four FTEs nominally working on all three shifts is the proper comparison point, not the total number of FTEs working in the PSAP. A similar calculation could have been done using the latter number, but that would have meant we would have had to know the amount of time **each FTE** spent on other duties in order to do the adjustment. As the data we collected were "per shift," that is also how the analysis was done.

F statistic: 66.99, significant beyond the .001 level.
Beta for independent variable: 52,986
Standard error of Beta: 6,474
T score of Beta: 8.2, significant beyond the .001 level.

Regression Two

Independent variable: Inverse of number of events resulting in police units dispatched
Dependent variable: Cost per event
Number of cases: 84
Adjusted R- Square: .502
F statistic: 85.6, significant beyond the .001 level.
Beta for independent variable: 56,218
Standard error of Beta: 6,076
T score of Beta: 9.3, significant beyond the .001 level.

Conclusions

The relationships between indicators of cost efficiency and PSAP size are quite strong, and easily pass statistical significance tests, indicating that the relationships are very unlikely to have occurred due to chance.

Appendix D: Consolidation "do"s and "don't"s

The purpose of this section is to summarize the advice about PSAP consolidation that was provided by interviewees and best practices research. It is intended for government entities that are considering PSAP consolidation. Although some of this advice may appear obvious, many of these recommendations are lessons learned from actual consolidation experiences where it was only obvious in hindsight.

DO conduct strategic planning – focus on the desired ends, not the means

PSAP consolidation is a means toward a desired end, not an end in itself. PSAP consolidation can appear like one of those convenient solutions looking for a problem. Work with other local agencies to be specific about what you are trying to achieve from your 911 operations. Are you trying to save money on operations, facilities or equipment? Improve the array of services provided to dispatched entities? Track events in "real time" between jurisdictions? Share information with each other more easily? Once you are clear about your desired ends, brainstorm possible options to achieve those ends. Other solutions besides full PSAP consolidation, such as facility co-location or systems sharing, may achieve the same ends.

DON'T assume that "if it isn't broken, don't fix it"

You do not need to be dissatisfied with the cost or level of service provided by your 911 operation. Interviewees reported that they took operations that were working well and intended to help them work better.

DO identify your "champions"

A committed person or group in the community needs to be enthusiastic about planning and implementing an improvement initiative. Visionary leaders in your community will focus on the goals (see above), unite people, and keep them motivated and focused on achieving goals. It is not helpful if a champion is operationally focused on implementing "the one solution" at this point. It is very helpful if champions come from the client base of dispatching services – law enforcement, fire, or EMS.

DO invest in a feasibility study

Get a good sense of which consolidation options are feasible by sponsoring a study. Although this is not an exhaustive list, a feasibility study can examine the following:

- Provide an inventory of radio and telephone equipment at each agency
- Identify new equipment that may be required and equipment that may be re-used
- Identify candidate locations for a consolidated or co-located center
- Identify possibilities and barriers to interconnecting radio and communications systems
- Estimate the number of answering positions required to operate a shared center
- Identify candidate locations for a back-up location for a shared center
- Review compatibility of data systems such as CAD and RMS

- Determine vendors' capabilities and options for new services
- Estimate one time and recurring costs
- Identify cost sharing models
- Review personnel structures and costs at each agency; analyze the core and additional services provided by current personnel; and estimate the personnel costs for staffing a co-located or consolidated center and the cost to backfill additional services at the local agencies
- Identify political and organizational opportunities and barriers for consolidation; include case examples and lessons learned from prior cooperation efforts

DO drum up community support, but DON'T make lofty promises

If your feasibility study indicates that certain options are feasible, begin discussing options with key stakeholders such as county and city boards and their management, sheriffs, local law enforcement agencies, fire chiefs, ambulance services, hospitals, dispatchers, public employee labor unions and local citizens groups. It may be tempting at this stage to promise the outcomes you could achieve in the best-case scenario to help drum up support and enthusiasm. Those who have performed consolidations caution that unanticipated costs and consequences can occur, and projections should be realistic. They also cautioned that if you promise the best-case scenario and do not deliver it, the disappointment among the stakeholders could hamper the PSAP's efforts to serve its customers.

DO give yourself plenty of time for planning and implementation; take on one task at a time

It can take years to hammer out the details of a governance structure, cost sharing formula, facility planning, vendor agreements, systems development and personnel planning. Members of one consolidation effort that appointed committees to work on everything at once said they regretted it later because they felt too much was happening at once. Members of another effort that took on one issue at a time said it worked well for them.

Do ask for help

Other jurisdictions that have consolidated their services, or who have entered into agreements to share systems, may be willing to share their experiences and advice. APCO, NENA and the statewide 911 Program office also may provide assistance. Local organizations may also assist – for example, one consolidated service obtained help from a local university to conduct personnel planning.

Appendix E: Comparison data from other states and supplemental Best Practices information

Table 10
Maximum 911 Surcharges

(Maximum monthly 911 fee versus Wireless Enhanced 911 for states that use per-line fees.)

It is not indicated on this table, but as noted in the report, wireless and wireline fees can vary within a state, if local surchages have been allowed.

	State *	Wire-line Fee	Wireless Fee	Example Customer
1	West Virginia	$3.75	$1.43	$5.18
2	North Carolina	$4.00	$0.80	$4.80
3	Tennessee	$3.00	$1.00	$4.00
4	Virginia	$3.00	$0.75	$3.75
5	Michigan	$3.00	$0.52	$3.52
6	Kentucky	$1.75	$0.70	$3.45
7	Iowa	$2.50	$0.50	$3.00
8	Louisiana	$2.00	$0.85	$2.85
9	Alabama	$2.00	$0.70	$2.70
10	New York	$1.20	$1.50	$2.70
11	Georgia	$1.50	$1.00	$2.50
12	Pennsylvania	$1.50	$1.00	$2.50
13	South Carolina	$1.50	$0.59	$2.09
14	Idaho	$1.00	$1.00	$2.00
15	Illinois	$1.25	$0.75	$2.00
16	Maryland	$1.00	$1.00	$2.00
17	Mississippi	$1.00	$1.00	$2.00
18	North Dakota	$1.00	$1.00	$2.00
19	Alaska	$0.75	$0.75	$1.50
20	Missouri	$1.50	None	$1.50
21	Nebraska	$1.00	$0.50	$1.50
22	Oregon	$0.75	$0.75	$1.50
23	South Dakota	$0.75	$0.75	$1.50
24	Colorado	$0.70	$0.70	$1.40
25	Arkansas	$0.77	$0.50	$1.27
26	Rhode Island	$0.60	$0.60	$1.20
27	Ohio	$0.50	$0.65 proposed	$1.15
28	Delaware	$0.50	$0.60	$1.10
29	Utah	$0.53	$0.53	$1.06
30	New Mexico	$0.51	$0.51	$1.02
31	Florida	$0.50	$0.50	$1.00
32	Maine	$0.50	$0.50	$1.00
33	Montana	$0.50	$0.50	$1.00
34	Texas	$0.50	$0.50	$1.00
35	Wisconsin	$1.00	None	$1.00
36	New Hampshire	$0.42	$0.42	$0.84
37	**Minnesota**	**$0.40**	**$0.40**	**$0.80**
38	Washington	$0.55	$0.25	$0.80
39	Kansas	$0.75	None	$0.75
40	Arizona	$0.37	$0.37	$0.74

41	Indiana	Not per line fee	$0.65	$0.65
42	District of Columbia	None	$0.56	$0.56
43	Oklahoma	Not per line fee	$0.50	$0.50
44	Wyoming	$0.50	None	$0.50
45	Connecticut	$0.20	$0.20	$0.40
46	Massachusetts	Not per line fee	$0.30	$0.30
47	Hawaii	$0.27	None	$0.27
48	Nevada	Not per line fee	$0.25	$0.25
	AVERAGE PER-LINE FEE	**$1.19**	**$0.67**	**$1.69**

* Three states do not use per-line fees to fund either wire-line or wireless 9-1-1:
California uses a percentage of intrastate long distance charges with 0 percent Phase II.
New Jersey uses the state general fund, with 0 percent Phase II.
Vermont uses part of the state universal service fund, with 100 percent Phase II.

Table 11

State	PSAPs[68]	Population[69]	Pop/PSAP
New Hampshire	1/96*	1,288,000	1,288,000/13,417
Montana	58	918,000	15,828
Iowa	127	2,944,000	23,181
Massachusetts	268	6,433,000	24,004
Missouri	179	5,704,000	31,866
Connecticut	107	3,483,000	32,551
Texas	586	22,189,000	37,865
Alabama	118	4,501,000	38,144
New Jersey	213	8,638,000	40,554
Minnesota	**119**	**5,059,000**	**42,513**
Tennesee	130	5,842,000	44,938
Michigan	220	10,080,000	45,818
Virginia	137	7,386,000	53,912
Georgia	143	8,685,000	60,734
Vermont	10	619,000	61,900
Arizona	86	5,581,000	64,895
Oregon	54	3,560,000	65,926
North Carolina	125	8,407,000	67,256
Florida	197	17,019,000	86,391
Washington	59	6,131,000	103,915

[68] Most PSAP numbers were obtained from responses to a 2/04 survey request from the State of Maine to State Emergency Communication Directors or their equivalents, on an e-mail list. Exceptions are for New Hampshire, Oregon, and Michigan, which were obtained from interviews. The Maine survey requested information on both primary and secondary PSAPs. Minnesota only tracks primary PSAPs; therefore, only primary PSAP counts are included in this table. The exception is Texas, as their numbers include both primary and secondary PSAPs.

[69] US Census Bureau http://eire.census.gov/popest/data/states/tables/NST-EST2003-01.php. 2002 data were used for consistency with the data in the rest of the report. Note that the Census Bureau number disagrees slightly with the most recent estimates from the State Demographic Center, of 5,033,661, which is the number we used as the denominator for the rest of the report in discussing statewide population.

* New Hampshire has one central call-taking facility and 96 dispatching centers to which calls are referred. This setup makes New Hampshire hard to compare with other states.

The following table contains information from a variety of sources, where definitions don't exactly match. Metropolitan Statistical Area (MSA) data comes from the US Census Bureau, but the geography in the MSA does not necessarily match the geography that interviewees had in mind when answering questions about the number of cities, counties, and PSAPs in the Metropolitan areas. The Twin Cities itself provides an example of this, where the seven-county metropolitan area definition commonly used by State government (and used in this report), does not match the Census Bureau's definition for the Twin Cities Metro area, which includes 15 counties, stretching northwest to Stearns and Benton Counties (including Sherburne and Wright), north to Chisago and Isanti Counties, and East to St Croix and Pierce Counties, in Wisconsin.

As such, the numbers in these tables should be taken as very rough indicators only, helpful for providing ballpark estimates, but not useful for any precise calculations. The primary reason they are included at all is that St. Louis and Indianapolis were often mentioned as comparative metropolitan areas, and there was expressed curiosity in the PSAP Advisory Committee and among some policymakers about how the number of PSAPs in the Twin Cities metro area would compare.

Table 12

Chart of Metropolitan PSAPs				
	Population served	Number of		# of PSAPs
		Muni-cipalities	Counties	
Indianapolis MSA total	**1,537,000[a]**	**NA**	**9[a]**	**23[b]**
Indianapolis/Marion County Unigov	870,000[b]	1[b]	1[b]	1[b]
Marion County outside Unigov	68,000[b]	4[b]	0	4[b]
Indianapolis MSA Other	740,000[c]	NA	8[a]	18[b]
St. Louis Mo – IL MSA Total	**2,569,000[a]**	**97+[c]**	**12[a]**	**27+[b]**
St. Louis City	338,000[a]	1[b]		1[b]
St. Louis County (outside of city)	677,000[c]	96[b]	1	26[b]
Rest of Metro	1,554,399[c]	NA	11[a]	NA

[a] US Census Bureau.
[b] Interview
[c] Calculated field

Connecticut

Connecticut has grants for consolidation study and implementation. They are available to groups of three or more jurisdictions that want to consolidate.

- What will the grants pay for?
  - Funding for a study – $20,000 is the base amount; $5,000 is added for each town over three (if not part of a regional center already)
  - Implementing transition to a consolidated center
  - Equipment and radio but not facilities
  - Annual amount to support operations; amount is set by formula

- What conditions go with the grants?
  - The grants are only for standalone PSAPs that want to regionalize
  - A minimum of 3 single standalone jurisdictions must apply
  - Existing radio equipment must go to the regional center. A task force report said it would bankrupt the state 911 fund if it funded new radio systems as part of the consolidations.

Connecticut had 108 PSAPs in 1996 when the grant program started. Now there are 107 but several consolidations are in process and nearing completion. The state director expects the number of PSAPs may go down to 97 with formation of 2 new regional PSAPs of 5 jurisdictions each. Another larger consolidation is possible involving about 20 jurisdictions. He believes these would not have happened without grants.

Notes:

- Connecticut has few county governments and 169 municipalities
- There are 8 regional PSAPs covering 80 of the 169 towns. They range in size from 4 up to 19 towns
- Connecticut's regional PSAPs are incorporated entities that have contracts with the towns.

Line Charges

- Connecticut charges $.20 per line. It's capped at $.50 by law. It goes into a state 911 fund and the PSAPs get an annual amount from the state 911 fund
- The money will pay for network, new equipment, but also operational funds for regional centers under a formula,
- Single PSAPs get only equipment and network costs
- Cities greater than 70,000 population get more funding

Oregon

Oregon first encouraged and enabled consolidations without mandates. Oregon has the most dramatic reductions in local PSAPs of all the states in this study. It also has the most negative experience with state consolidation mandates.

- Oregon had 274 dispatch points in 1981
- There were 65 in late 80s
- There were 57 by 2000
- There were 54 by 2003

The state director credited the numerous consolidations to several factors:

- In 1983, the state required 24 hour 911 coverage (A lot of PSAPs weren't doing 24 hour dispatching.)
- The state paid for a minimum of two console positions per PSAP in order that the same level of technology would be available statewide at all PSAPs
- In 1991 the state required telecommunications certification and minimum training standards for 911 call-takers/dispatchers. DPS provided the training with a three-week course.
- In 1991 a state referendum passed to set local property tax limitations.

The system in Oregon is funded from a state surcharge of $0.75 and local general government budgets. About $0.50 of the state surcharge funds local PSAPs. Most use it for personnel.

The state uses the remaining $0.25 to fund local PSAP equipment and network database expenses but not facilities. The state paid for the local consoles and required the PSAPs to staff at least one position full time; this takes about 5.2 FTEs per position. The state-funded console equipment standardized technology throughout the state. The state also paid for the training and certification.

These factors put pressure on small PSAPs to join with others to afford the staffing complement. They made the consolidations easier through standardized equipment. The state director reported that local resistance was minimal because they understood how much the system would improve, the state gave them so much financial help and resources, and the consolidations helped them to live within the property tax limits.

The state turned to mandated consolidations.

In 2001 the Oregon Legislature passed a law to fund only one PSAP per county - in effect a mandate. PSAPs throughout the state "went ballistic" in response. Oregon communities had already done a lot of local consolidation without a mandate - when it made sense. They were angry the state was now telling them what to do and that it had to be on the basis of one per county whether that made the most sense or not.

A lot of plans were written and three consolidations took place, however, the state director believes these three would have happened even without the mandate. The law to fund only one PSAP per county was repealed under pressure in 2003.

New Hampshire

New Hampshire consolidated all 911 call taking into one statewide PSAP in 1995. It left all dispatching functions in local jurisdictions. This was the recommendation of a legislative commission studying the most efficient way to provide enhanced 911 services to the whole state.

Local jurisdictions received certain benefits from this consolidation:

- Taking 911 calls away from local jurisdictions saved them all call-taking related expenditures without decreasing revenues.
- The state gave new equipment to all local jurisdictions who wanted it – CAD software and equipment
- The state PSAP expanded service to include pre-arrival instructions for EMS calls and enhanced 911 for all areas of the state.
- All local PSAPs were able to keep their dispatch functions intact if they chose to do so although several have since consolidated dispatching with other centers.

Forming one PSAP gave the state an excellent ratio of one PSAP for 1,235,786 in population. However, 96 dispatch centers remain, giving them a ratio of one dispatch center for every 12,873 in population. See Table 9 for comparisons to other states.

The state PSAP has 130 staff including 28 dedicated to mapping. The state program is funded out of a $42/month surcharge for both wired and wireless phones. The money goes into a non-lapsing fund that can't be used for any other purpose. The local tax bases pay for dispatch costs – personnel and facilities - but not the equipment the state provides – computers and software; that comes out of the state fund.

New Hampshire characteristics that may affect transferability to other states:

- It is a small state geographically
- Its topography has hills, mountains and forests
- It has a small population
- It still has 96 dispatch centers. These may be consolidated telecommunications centers or mutual aid centers for police departments, fire departments and jurisdictions.
- New Hampshire gets 10,000,000 tourists per year. Fifty-three percent of 911 calls are placed by cell phones

Several of the larger police and fire departments around the state reported satisfaction with the current arrangement of 911 services. Despite problems in the beginning, state participants and users believe the system works well for the state now.

Given the characteristics of the state and the fact it still has 96 dispatching centers sheds doubt on whether this model would work in other states like Minnesota.

Wisconsin

Currently, PSAP wireline surcharges are a matter of local discretion; phone companies may enact wireline surcharges (up to a maximum of $1.00 per wireline) to fund the cost of the 911 network only. The actual surcharges are usually less. Milwaukee's surcharge for example is only $.14 per line. All operational and non-network capital expenses come out of local budgets

Wisconsin recently enacted a law to fund wireless 911 equipment from a state wireless surcharge. The state office expects it to be about $1.00 when implemented, although it could go as high as $2-3.00. The new law targets the money to one PSAP in each county for wireless equipment. The Public Service Commission (PSC) is charged with distributing the money upon submission of a grant application from the counties. The law allows local jurisdictions to opt out of the county systems but they still have to apply to the PSC to get their share or "grant."

There is considerable controversy between some counties and cities over how to respond to the law; cities have been fighting it according to a state official and some counties want the PSC to require opting into countywide plans. The state interviewee thinks the state's new role in wireless systems won't bring about consolidation on its own.

Some PSAPs have a wireline network only and have wireless calls transferred to them. They currently get no money from the state so wireless funds won't make or break them. Some will forgo the money, keep their wireline operations and continue to have wireless calls transferred.

Some cities have looked at the wireless funding and decided to go along with a joint city/county answering point. About a half dozen are doing this; they have shared buildings for many things.

According to the PSC interviewee, rather than being a significant influence on consolidation, the new controversial state fund will enhance the counties' role in coordinating the 911 services in their areas.

Indianapolis

There are two main structures to the Indianapolis area 911 system – the 911 PSAPs and the Marion County Emergency Communications Agency (MECA) – a central service center for emergency communications infrastructure.

The Unigov and metropolitan area PSAPs:

The city of Indianapolis and Marion County formed one "Unigov" many years ago that has one PSAP in the county Sheriff's office serving a population of 870,000. The fire department is a separate secondary PSAP for emergency fire and medical calls. It has 36 dispatchers. There are four municipalities in Marion county outside the city of Indianapolis that are independent of the Unigov and have their own PSAPs. These are the towns of Lawrence, Beachgrove, Speedway, and the Airport Authority with a total population of about 68,000.

The Indianapolis MSA also has 7 counties outside of Marion County that have 18 PSAPs serving 740,000 people.

The unigov PSAP used to be operated by an independent entity that managed the system with civilians. The city police department felt it needed more control; the service was pulled back and placed under the county sheriff's office where it is now operated with sworn law enforcement officers.

The PSAP maintains two different departmental protocols for police and sheriff. It tries to separate them by building different protocol tabs for dispatchers. It reports that it doesn't work well to make a separate tab for every difference in departments. It leads to mistakes such as:

- Not sending 2 cars on some runs where officers are concerned their safety may be put at risk.
- Sending cars on minor runs where they are not needed.

MECA:

MECA formed following a plane crash into a hotel in an area where several agencies overlap. The emergency responders were unable to talk with each other by radio. MECA was "formed to provide a standardized communications platform to Marion County's public safety agencies." It was charged with setting up a county wide 800 MHz system for all to operate on. Its charge was later expanded to enhance 911 and a countywide CAD system. It provides communications infrastructure and services including:

- A facility in which member PSAPs may locate if desired
- CADs
- Consoles with all end user equipment
- Common radio platform
- System maintenance and repair
- Mapping and licensing

- A records management system for police and fire
- Training

MECA has seven member PSAPs in the MSA as well as 85 public safety agencies in Marion County and surrounding counties. MECA is not a PSAP itself and has a commitment to staying out of policy areas. It provides the common infrastructure for members to operate their own PSAPs with their own staffs. Some physically locate in MECA's facility but have the option to locate elsewhere where MECA would set up infrastructure.

MECA is an example of a central service to PSAPs; it enables them to achieve interoperability and share capital investments and some operating costs.

Saint Louis, Missouri

St. Louis City and County have several PSAPs. The city proper has one PSAP to serve the city's population of 327,820. It has 89 staff assigned to 911 duties. It transfers 911 fire and medical calls to two secondary PSAPs that have a total of 32 dispatchers.

St. Louis County has 96 municipalities outside the city of St. Louis that have a total population of 998,809 served by 26 primary and 3 secondary PSAPs. The County's Police Department Communications Center PSAP serves most of the municipalities. It provides them with a menu of service choices that go beyond traditional PSAP services; it could be described as a full-service law enforcement services center.
For municipalities within the county it offers:

- 911 call taking and dispatching for police departments
- 911 call taking for fire departments as secondary PSAPs
- Computer Aided Report Entry (CARE)
- Centralized database for crime information
- County police response
- Investigators
- Helicopters
- Non-emergency call taking

It also offers wireless 911 call taking for many counties in eastern Missouri.

Each municipality that purchases dispatching service has its own protocols recorded in a book of protocols used by the dispatchers. The county PSAP's member municipalities change over time; some leave or form new consolidated PSAPs and others become new members or purchase some services.

CONSOLIDATION COST SAVINGS in OTHER STATES

Illinois

Illinois' West Central Communications Center (WCCC) in Cook County, is a model of a larger PSAP that absorbs smaller ones and produces a savings. Two rounds of consolidation illustrate the savings.

Prior to the first round of consolidations, WCCC served a population of about 70,000. It then consolidated with the River Forest and Oak Park PSAPs, which together had a population base of approximately 65,000. Both cities were trying to add wireless 911[70] and pre-arrival services for EMS. The extra service and call volumes from wireless would have required them to add one console position each and additional personnel to staff them. River Forest had six FTEs and would have needed ten to guarantee coverage of 2 people full time around the clock. Oak Park had 14 – 15 FTEs plus one supervisor. They would have needed 19-20 FTEs total to add one person per shift.

The two cities combined would have needed a total staffing complement of 29 –30 FTEs to add the new services. They transferred their 20 –21 employees, and the revenue to pay their salaries, to WCCC, which provided Wireless 911 and pre-arrival services without hiring any additional staff. The avoidance of 9 –10 additional FTEs saved $360,000 – $400,000 at an estimated rate of $40,000[71] per FTE including benefits. River Forest and Oak Park closed their PSAPs and saved related costs such as office space.

WCCC is currently in the process of consolidating with three more PSAPs – Elmwood Park, Forest Park, and River Grove. They have a combined population of 48,085.

Their savings will come partly from the fact that WCCC can accommodate their call volume in its current facility and with some of its current equipment. Capital investment will be insignificant.

The three cities currently have 20 – 22 FTEs operating the PSAPs. WCCC will do the same work with 9 FTEs

The director has based these projections on an analysis of staffing, call volumes and types of calls. For the first city, WCCC will need six more people to staff one additional console position. For the second it will need three more people for another console. The

[70] Prior to 911, callers in the Chicago area would dial *999. They would be hooked up to a private contractor who would route the calls to the PSAPs. When wireless arrived, it also used the *999 until wireless funding was approved by the state. River Forest and Oak Park did not have wireless 911 prior to their consolidation.

[71] The study team derived this estimate by taking the total amount of reported employee expenses in Minnesota, and dividing it by the total number of reported FTEs, and rounding off the result.

third city will be accommodated without any additional staff. When the PSAPs are separate, they must staff a minimum of one console position each. As they need roughly five FTEs to staff one position around the clock, each has excess capacity or underutilized staff.

The personnel reduction alone from 20 –22 down to 9 will save up to $440,000 to $520,000.

Nashville, Tennessee

Nashville and Davidson County formed a consolidated or unified government in 1963. It has a population of about 600,000 out of a metropolitan area population of 1,000,000. In 2002 they consolidated their two PSAPs – the Metro Police Department and the Nashville Fire Department. The two had 180 FTE prior to the consolidation. The new combined PSAP now has 183 FTE.

The PSAP director said that consolidating smaller PSAPs may save the most money because they are more likely to have underutilized resources and therefore have the most to gain in efficiency from economies of scale.

The Nashville police and fire PSAPs were already large and had fully utilized personnel, facilities and technology. What they got from the consolidation, was not cost savings, but improved service. This includes:

- ***No transfers between the two PSAPs***
- ***Completely revamped Fire dispatch to accommodate Fire Chief's request that EMS and fire be dispatched together rather than separately when one event was involved***
- ***Answering times***

Washington County, Oregon

Washington County Consolidated Communications Agency (WCCCA) provides 911 services to a population of 445,342 in the Portland, Oregon metropolitan area. A few years ago it brought Forest Grove – the county's last single freestanding PSAP – into its organization. The Forest Grove PSAP cost approximately $450,000 per year to run.

WCCCA had given Forest Grove the same technology it had (paid for out of a county levy) so the two PSAPs were compatible technologically. WCCCA charged Forest Grove $180,000 per year giving a consolidation savings of roughly $270,000 per year.

Appendix F: Bibliography and Interview List for Best Practice research

List of interviewees

Minnesota sources

1) Nancy Pollock, Executive Director Metropolitan 911 Board
2) Michelle Tuchner, Captain, Minnesota State Patrol
3) Jim Beutelspacher, 911 Program Manager, Department of Public Safety

National associations

4) APCO – Bill Cade, Association of Public Safety Communication Officials
5) CALEA – Peg Gant, Commission on Accreditation of Law Enforcement Agencies
6) NASNA – Paul Fahey, Secretary, National Association of State 911 Administrators
7) NENA – Rick Jones, Operations Issues Director, National Emergency Number Association

PSAPs

Connecticut

8) George Pohorilak, Director, Office of Statewide Emergency Telecommunications
9) Cheryl Assis, Management Specialist, Capitol Region Council of Governments, Hartford, Connecticut

Illinois

10) Greg Riddle Director West Central Communications Center, Cook County,
11) Jim Clausen, R.E.D., Regional Emergence Dispatch Center – consolidated fire dispatching

Indiana

12) Dan Hughes, Director, Department of Emergency Management, Marion County Sheriff's Department
13) Sherry Taylor, Director of Dispatch, Indianapolis/Marion County Fire Department
14) Linn Piper, Director, Marion County Emergency Communications Agency (MECA)
15) John Redfern, Assistant Manager MECA
16) John Mischler – Commander State Police Communications Division

Iowa

17) John Benson, Program Manager for E911, Iowa Emergency Mgt. Div

Massachusetts

18) Paul Fahey, Executive director of Massachusetts State 911

Michigan

19) Mary Jo Hovey, Director of Michigan Emergency Telephone Service Committee
20) Sherry Kessel, Southwest Bell Companies (SBC)

Missouri

21) Lt. Michael Lauer, Commander of Communications Unit, City of St. Louis Police Department
22) Tom McCormack, Director, St. Louis County Police Communications Center
23) R.D. Porter, ENP, Missouri Office of Administration
24) John Williams, Manager of Dispatching, St. Louis Fire Department

New Hampshire

25) Bruce G. Cheney, Bureau Chief, Bureau of Emergency Communications
26) Michael Geary Training Coordinator, Bureau of Emergency Communications

New Jersey

27) Craig A. Reiner , Director of the Office of Emergency Telecommunications Services
28) Danny Medina, Manager of 911 Office of Emergency Telecommunications Services

Oregon

29) Ken Keim, Director, Oregon Emergency Management
30) Larry Hatch, Director of Washington County Consolidated Communications Agency

South Dakota

31) Lynne Rath, Director of State 911Program

Tennessee

32) Roxanne Brown, Nashville, Director of City-County 911 Program

Texas

33) Texas Kelli Merriweather, Plans and Program Manager, State 911 Commission
34) Celeste Martinez, Senior Revenue Accountant, State 911 Commission

Wisconsin

35) Dennis Klaila – Rate Analyst, Telecommunications Division, Wisconsin Public Service Commission.

PSAP customers

36) Joe Kane, Fire Chief, Manchester, New Hampshire Fire Department
37) Rick Heiness, Dispatch Center, Lakes Region Mutual Aid Fire Department
38) Greg Dodge, Police Chief, Epping New Hampshire and President of New Hampshire Chiefs of Police Association
39) Captain Glen Vanblarcom, Forrest Grove, Oregon Police Department

Appendix G: PSAP Standards Models

Models reviewed for performance standards:

- Commission on Accreditation for Law Enforcement Agencies, Standards for Public Safety Communications Agencies, The Standards Manual of the Public Communications Accreditation Program, January 1999;
- National Fire Protection Association, NFPA Performance-Based Codes and Standards, Performance-based Goals, Objectives and Criteria, Primer #1, 1 Batterymarch, PO Box 9101, Quincy, MA, September 19, 1997;
- National Emergency Number Association (NENA), 9-1-1 Operational Standards, http://www.nena9-1-1.org/9-1-1OperPractices/index.htm, updated 11/21/03 (January 2004)
- 9-1-1 Dispatching: A Best Practice Review, Report #98-06a, Office of the Legislative Auditor, State of Minnesota, March 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf (February 9, 2004)
- International City/County Management Association, www.icma.org, 2004 (February 9, 2004)

Models reviewed for personnel standards:

- Commission on Accreditation for Law Enforcement Agencies, Standards for Public Safety Communications Agencies, The Standards Manual of the Public Communications Accreditation Program, January 1999;
- Association of Public Safety Communication Officials, Project Professional Recognition Obtainment (PRO); http://apco911.org/about/downloads/Project_PRO.ppt (February 9, 2004)
- Association of Public Safety Communication Officials, Project (40) RETAINS, http://apco911.org/about/911/retains/index.html, 2003 (February 9, 2004)
- 9-1-1 Dispatching: A Best Practice Review, Report #98-06a, Office of the Legislative Auditor, State of Minnesota, March 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf (February 9, 2004)
- Minnesota Dispatch Skills Task Force, Final Report and Recommendations, November 14, 1990

Models reviewed for training standards:

- Commission on Accreditation for Law Enforcement Agencies, Standards for Public Safety Communications Agencies, The Standards Manual of the Public Communications Accreditation Program, January 1999;
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- Minneapolis/St. Paul Area Metropolitan 911 Board, Metro Area Training Consortium Proposal, October, 2003
- 9-1-1 Dispatching: A Best Practice Review, Report #98-06a, Office of the Legislative Auditor, State of Minnesota, March 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf (February 9, 2004)

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- 9-1-1 Dispatching: A Best Practice Review, Report #98-06a, Office of the Legislative Auditor, State of Minnesota, March 1998. Available online at http://www.auditor.leg.state.mn.us/ped/pedrep/9806-all.pdf (February 9, 2004)
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- Minneapolis/St. Paul Area Metropolitan 911 Board, 911 Data Base Service Standards, updated 8/21/01, Available online at http://www.metro911board-mn.org/docs/Database_Services_Standards.pdf
- Minnesota Rules, Chapter 1215, current as of 05/30/02

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- Commission on Accreditation for Law Enforcement Agencies, Standards for Public Safety Communications Agencies, The Standards Manual of the Public Communications Accreditation Program, January 1999;
- Minneapolis/St. Paul Area Metropolitan 911 Board, Revised 911 Network Service Standards, 10/11/2000, Available online at http://www.metro911board-mn.org/docs/Network_Service_Standards.pdf
- Minneapolis/St. Paul Area Metropolitan 911 Board, 911 Data Base Service Standards, updated 8/21/01, Available online at http://www.metro911board-mn.org/docs/Database_Services_Standards.pdf
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- National Academies of Emergency Dispatch; Accreditation; http://www.emergencydispatch.org/framesetR.html; (February 9, 2004)
- City of Burnsville, Police Department, Communications Administration, Directive #81.1, 6/01/90
- Minnesota Rules, Chapter 1215, current as of 05/30/02

Models reviewed for governance standards

- Commission on Accreditation for Law Enforcement Agencies, Standards for Public Safety Communications Agencies, The Standards Manual of the Public Communications Accreditation Program, January 1999;
- Various Joint Powers agreements in Minnesota: Pearl Street, St. Louis County, Minneapolis Emergency Communication Center, St. Louis Park, and Anoka County.

Appendix H: PSAP survey, and aggregated survey results.

Due to some peculiarities in the survey software, the aggregated survey responses could not always be presented in direct connection to the questions the PSAP was answering. As such, it is highly recommended to use the copy of the survey itself as a reference point for interpreting the aggregated results.

Before looking at the results, two comments need to be made:

1) For one question, on interoperable radio, multiple responses were allowed. As such, percentages will not total to 100 percent.

2) Operational data was generally more useful than technological information. In retrospect, it appears that the technology questions were often either not clear, or were misunderstood. There are several possible reasons for this. Possibly the respondent missed that we were asking whether technological capabilities existed, and instead meant that they were doing such things manually. Possibly some of the respondents were unfamiliar with the technology in question and misunderstood what they were being asked. Ideally, these problems would have been detected in survey pre-testing, but the smaller, "lower-tech" PSAPs that were sent copies of the survey for pre-testing failed to respond, and the study team lacked sufficient time to follow-up. As a result of these problems, interpreting the responses to technological questions is problematic, as many respondents were claiming that they had technology that they are known not to have. As such, take the technological responses, beginning with the question on interoperable radio, with several grains of salt.

The survey and aggregated results begin on the next page.

2003 Public Safety Answering Points Survey

Respondent Information

(1) **Name** _____ (2) **Position** _____

(3) **Phone** _____ (4) **E-mail** _____

(5) **City, County, or District (please indicate if State Patrol)** _____

Operations Information

(6) **At the end of 2002, how many stations did your PSAP have that could accept calls *as well as* dispatch?** .....

(7) **At the end of 2002, how many stations did your PSAP have that could only *accept calls* but not dispatch?** .....

(8) **At the end of 2002, how many stations did your PSAP have that could only *dispatch*, but not accept calls?** .....

(9) **What were your PSAP's operating expenses in 2002?**

	Amount in dollars
(A) Employee salary, overtime, benefits, training, and allowances	
(B) Equipment and maintenance (including systems and software support)	
(C) Facility use and maintenance (if budgeted)	
(D) Other	
(E) Total budget	

Other, Specified _____

(10) **At the end of 2002, how many Full-Time Equivalent employees (FTEs), did your PSAP have in the following categories? How many unfilled vacancies did you have in authorized positions? (Note: these are employees paid for out of your operating budget - see previous question).**

	Number	Vacancies
(A) PSAP operators/dispatchers		
(B) Supervisors and managers		
(C) Information systems or technical support		
(D) Clerical support		
(E) Other (please specify below)		
(F) Total		

(G) Other, Specified _____

(11) **In 2002, how many PSAP operators/dispatchers did you tend to have on duty during the following times of day?**

	Number
(A) Day Shift	
(B) Evening Shift	
(C) Night Shift	

(12) **In 2002, for approximately how many total law enforcement response units did your PSAP tend to dispatch during the the following times of the day?**

	Number
(A) Day Shift	
(B) Evening Shift	
(C) Night Shift	

(13) **In 2002, approximately what percentage of the time were operators/dispatchers occupied with other duties (receptionist, jailer, clerical, etc.) during the following shifts?**

	None	1 to 25%	25 to 50%	50 to 75%	75 to 100%
(A) Day Shift	☐	☐	☐	☐	☐
(B) Evening Shift	☐	☐	☐	☐	☐
(C) Night Shift	☐	☐	☐	☐	☐

(14) **In 2002, did your PSAP operators/dispatchers also regularly serve as the only jailers *and* the only staff in the building on duty during any of the following shifts?**

	Yes	No
(A) Day Shift	☐	☐
(B) Evening Shift	☐	☐
(C) Night Shift	☐	☐

(15) **What percentage of calls were answered (that is, the time between the first audible ring and the time the operator answered) within 10 seconds, with no more than three rings, during the busy hour of an average week of your busy month in 2002?**

☐ Up to 25%
☐ 25 to 50%
☐ 50 to 75%
☐ 75 to 85%
☐ 85 to 95%
☐ 95 to 100%

(16) **How many calls did your PSAP receive in 2002? For how many events did you dispatch police or fire/EMS units?**

	Number of calls	Number of events where *police* units were dispatched?	Number of events where *Fire/EMS* units were dispatched
(A) 911			
(B) Administrative			
(C) Other (such as walk-up requests, field generated calls)			
(D) Total calls/requests			

(17) **In 2002, what was the number of working fires for which your PSAP performed dispatching?** .....

(18) **In 2002, how many PSAP employees left for any of the following reasons?**

Retired ..... ____
Job-related stress ..... ____
Pay issues ..... ____
Termination of non-probationary employee ..... ____
Terminated before completion of probationary period ..... ____
Work schedule and hour issues .... ____
Moved to another area ..... ____
Other, specify below ..... ____
Other, Specified _____

Technology and Services Information

(19) **Does your PSAP provide a tactical dispatcher dedicated to monitor communications traffic during major emergency incidents?** ..... ☐ Yes ☐ No

(20) **How were pre-arrival instructions for medical calls provided in 2002?**

☐ Our PSAP provided pre-arrival instructions
☐ We referred pre-arrival instructions to another organization
☐ Pre-arrival instructions were not offered

(21) **In general, how far have the agencies in your PSAP's jurisdiction progressed on the implementation of interoperable radio (such as trunked 800 mhz communication)? Check all that apply.**

☐ Capable of patching frequencies together
☐ Implemented with police
☐ Implemented with fire
☐ Compatible with ARMER (the state's system)
☐ Implementation is being planned within a two year time frame
☐ Implemenation is being planned beyond a two year timeframe
☐ Implementation is not being planned at this time

(22) **Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features? If it is available, is it commonly used?**

	Available?			Used?	
	Yes	No	Under development	Yes	No
Automatically communicate with your agency's incident record system	☐	☐	☐	☐	☐
Automatically query criminal justice information systems	☐	☐	☐	☐	☐
Communicate with law enforcement centers, fire stations, or ambulance stations	☐	☐	☐	☐	☐
Communicate with mobile terminals in law enforcement vehicles	☐	☐	☐	☐	☐
Communicate with mobile terminals in fire vehicles	☐	☐	☐	☐	☐
Automatically communicate vehicle location	☐	☐	☐	☐	☐
Notify dispatchers of response unit status	☐	☐	☐	☐	☐
Notify dispatchers of past # of 911 calls from the number calling	☐	☐	☐	☐	☐
Notify dispatchers of details of past 911 calls from the number calling	☐	☐	☐	☐	☐
Notify dispatchers of alerts and warnings for a particular phone number	☐	☐	☐	☐	☐
Notify dispatchers of events in proximity to each other	☐	☐	☐	☐	☐
Ability to know what call has been ringing the longest	☐	☐	☐	☐	☐
Distinctive ringing or visual indicators for 911 calls	☐	☐	☐	☐	☐
Speed dial library with ability to store at least 16 phone numbers	☐	☐	☐	☐	☐
Last number redial	☐	☐	☐	☐	☐
Show map of wireless calls	☐	☐	☐	☐	☐
Show map of wireline calls	☐	☐	☐	☐	☐
Ability to vary dispatch protocols by map location	☐	☐	☐	☐	☐
Automatically feed ALI information into CAD or other system	☐	☐	☐	☐	☐
Caller ID on administrative lines	☐	☐	☐	☐	☐
Other important feature (specify below)	☐	☐	☐	☐	☐

Other, Specified _____

Aggregated PSAP Survey Results

At the end of 2002, how many stations did your PSAP have that could accept calls as well as dispatch?		
1	14.8%	17
2	43.5%	50
3	22.6%	26
4	9.6%	11
5	1.7%	2
6	4.3%	5
7	1.7%	2
14	1.7%	2
No Answer	0.0%	0
Totals	100.0%	115
Replies		115
Mean		2.79
Median		2.00
At the end of 2002, how many stations did your PSAP have that could only accept calls but not dispatch?		
0	54.8%	63
1	20.0%	23
2	7.8%	9
3	4.3%	5
5	0.9%	1
9	0.9%	1
11	0.9%	1
No Answer	10.4%	12
Totals	100.0%	115
Replies		103
Mean		0.79
Median		0.00
At the end of 2002, how many stations did your PSAP have that could only dispatch, but accept calls?		
0	87.0%	100
1	0.9%	1
4	0.9%	1
No Answer	11.3%	13
Totals	100.0%	115
Replies		102
Mean		0.05
Median		0.00
Operating expenses: Employee salary, overtime, benefits, training, and allowances-Amount in dollars		
Replies		105
Mean		550142.88
Median		325000.00

Operating expenses: Equipment and maintenance (including systems and software support)-Amount in dollars	
Replies	98
Mean	82534.75
Median	40752.00
Operating expenses: Facility use and maintenance (if budgeted)-Amount in dollars	
Replies	44
Mean	20010.90
Median	5358.36
Operating expenses: Other-Amount in dollars	
Replies	51
Mean	38276.77
Median	8888.00
Operating expenses: Total budget-Amount in dollars	
Replies	101
Mean	656836.50
Median	428544.00
Number of PSAP FTEs at the end of 2002: PSAP operators/dispatchers	
Replies	112
Mean	9.33
Median	7.00
Number of PSAP FTEs at the end of 2002: Supervisors and managers	
Replies	110
Mean	1.55
Median	1.00
Number of PSAP FTEs at the end of 2002: Information systems or technical support	
Replies	87
Mean	0.87
Median	0.50
Number of PSAP FTEs at the end of 2002: Clerical support	
Replies	83
Mean	0.80
Median	0.00
Number of PSAP FTEs at the end of 2002: Other (please specify below)	
Replies	53
Mean	0.81
Median	0.00
Number of PSAP FTEs at the end of 2002: Total	
Replies	103
Mean	12.39
Median	9.00
Number of vacancies at the end of 2002: PSAP operators/dispatchers	
Replies	84

Mean	0.58
Median	0.00
Number of vacancies at the end of 2002: Supervisors and managers	
Replies	68
Mean	0.04
Median	0.00
Number of vacancies at the end of 2002: Information systems or technical support	
Replies	58
Mean	0.03
Median	0.00
Number of vacancies at the end of 2002: Clerical support	
Replies	59
Mean	0.03
Median	0.00
Number of vacancies at the end of 2002: Other (please specify below)	
Replies	44
Mean	0.02
Median	0.00
Number of vacancies at the end of 2002: Total	
Replies	66
Mean	0.65
Median	0.00
In 2002, how many PSAP operators did you tend to have on duty during the following times of day: Day Shift	
Replies	115
Mean	1.99
Median	2.00
In 2002, how many PSAP operators did you tend to have on duty during the following times of day: Evening Shift	
Replies	103
Mean	2.13
Median	2.00
In 2002, how many PSAP operators did you tend to have on duty during the following times of day: Night Shift	
Replies	114
Mean	1.79
Median	1.00
In 2002, for approximately how many total law enforcement units did your PSAP tend to dispatch during the following times of day: Day Shift	
Replies	114
Mean	19.30
Median	11.00
In 2002, for approximately how many total law enforcement units did your PSAP tend to dispatch during the following times of day: Evening Shift	
Replies	100
Mean	20.76

Median			10.50
In 2002, for approximately how many total law enforcement units did your PSAP tend to dispatch during the following times of day: Night Shift			
Replies			112
Mean			13.71
Median			7.00
In 2002, what percentage of the time were operators/dispatchers occupied with other duties (receptionist, jailer, clerical, etc.) during the following shifts: Day Shift			
None		33.9%	39
1 to 25%		27.8%	32
25 to 50%		20.9%	24
50 to 75%		11.3%	13
75 to 100%		6.1%	7
No Answer		0.0%	0
Totals		100.0%	115
Replies			115
In 2002, what percentage of the time were operators/dispatchers occupied with other duties (receptionist, jailer, clerical, etc.) during the following shifts: Evening Shift			
None		32.2%	37
1 to 25%		33.0%	38
25 to 50%		9.6%	11
50 to 75%		10.4%	12
75 to 100%		4.3%	5
No Answer		10.4%	12
Totals		100.0%	115
Replies			103
In 2002, what percentage of the time were operators/dispatchers occupied with other duties (receptionist, jailer, clerical, etc.) during the following shifts: Night Shift			
None		34.8%	40
1 to 25%		36.5%	42
25 to 50%		10.4%	12
50 to 75%		13.9%	16
75 to 100%		3.5%	4
No Answer		0.9%	1
Totals		100.0%	115
Replies			114
In 2002, did your PSAP operator dispatchers also regularly serve as the only jailers and the only staff in the building on duty during any of the following shifts: Day Shift			
Yes		10.4%	12
No		86.1%	99
No Answer		3.5%	4
Totals		100.0%	115

Replies		111
In 2002, did your PSAP operator dispatchers also regularly serve as the only jailers and the only staff in the building on duty during any of the following shifts: Evening Shift		
Yes	17.4%	20
No	73.0%	84
No Answer	9.6%	11
Totals	100.0%	115
Replies		104
In 2002, did your PSAP operator dispatchers also regularly serve as the only jailers and the only staff in the building on duty during any of the following shifts: Night Shift		
Yes	23.5%	27
No	73.9%	85
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
(15) What percentage of calls were answered (that is, the time between the first audible ring and the time the operator answered) within 10 seconds, with no more than three rings, during the busy hour of a		
Up to 25%	0.9%	1
25 to 50%	1.7%	2
50 to 75%	4.3%	5
75 to 85%	9.6%	11
85 to 95%	37.4%	43
95 to 100%	44.3%	51
No Answer	1.7%	2
Totals	100.0%	115
Replies		113
Mean		-
(A) 911-Number of calls		
Replies		100
Mean		26579.12
Median		7600.00
(B) Administrative-Number of calls		
Replies		79
Mean		77345.00
Median		50000.00
(C) Other (such as walk-up requests, field generated calls)-Number of calls		
Replies		55
Mean		15659.62
Median		3000.00
(D) Total calls/requests-Number of calls		
Replies		91
Mean		109363.76
Median		48931.00

(A) 911-Number of events where police units were dispatched?	
Replies	69
Mean	7790.39
Median	3000.00
(B) Administrative-Number of events where police units were dispatched?	
Replies	45
Mean	9550.49
Median	3307.00
(C) Other (such as walk-up requests, field generated calls)-Number of events where police units were dispatched?	
Replies	43
Mean	8460.46
Median	1500.00
(D) Total calls/requests-Number of events where police units were dispatched?	
Replies	87
Mean	38377.91
Median	15964.00
(A) 911-Number of events where Fire/EMS units were dispatched	
Replies	63
Mean	2357.06
Median	907.00
(B) Administrative-Number of events where Fire/EMS units were dispatched	
Replies	38
Mean	1294.42
Median	263.00
(C) Other (such as walk-up requests, field generated calls)-Number of events where Fire/EMS units were dispatched	
Replies	32
Mean	216.78
Median	30.00
(D) Total calls/requests-Number of events where Fire/EMS units were dispatched	
Replies	74
Mean	4819.77
Median	1737.50
In 2002, what was the number of working fire for which your PSAP performed dispatching	
Replies	84
Mean	319.17
Median	117.00
In 2002, how many PSAP employees left for any of the following reasons: Retired	
0	43.5% 50
1	11.3% 13
2	3.5% 4

No Answer	41.7%	48
Totals	100.0%	115
Replies		67
Mean		0.31
In 2002, how many PSAP employees left for any of the following reasons: Job-related stress		
0	45.2%	52
1	6.1%	7
2	1.7%	2
No Answer	47.0%	54
Totals	100.0%	115
Replies		61
Mean		0.18
In 2002, how many PSAP employees left for any of the following reasons: Pay issues		
0	45.2%	52
1	5.2%	6
2	0.9%	1
3	1.7%	2
No Answer	47.0%	54
Totals	100.0%	115
Replies		61
Mean		0.23
In 2002, how many PSAP employees left for any of the following reasons: Termination of non-probationary employee		
0	43.5%	50
1	4.3%	5
No Answer	52.2%	60
Totals	100.0%	115
Replies		55
Mean		0.09
In 2002, how many PSAP employees left for any of the following reasons: Termination before completion of probationary period		
0	42.6%	49
1	10.4%	12
2	3.5%	4
3	1.7%	2
No Answer	41.7%	48
Totals	100.0%	115
Replies		67
Mean		0.39
In 2002, how many PSAP employees left for any of the following reasons: Work schedule and hour issues		
0	43.5%	50
1	0.9%	1
1	8.7%	10
2	1.7%	2

No Answer	45.2%	52
Totals	100.0%	115
Replies		63
Mean		0.23
In 2002, how many PSAP employees left for any of the following reasons: Moved to another area		
0	38.3%	44
1	19.1%	22
2	4.3%	5
3	1.7%	2
No Answer	36.5%	42
Totals	100.0%	115
Replies		73
Mean		0.52
In 2002, how many PSAP employees left for any of the following reasons: Other, specify below		
0	33.9%	39
1	13.9%	16
2	3.5%	4
3	0.9%	1
4	1.7%	2
13	0.9%	1
No Answer	45.2%	52
Totals	100.0%	115
Replies		63
Mean		0.76
Does your PSAP provide a tactical dispatcher dedicate to monitor communications traffic during major emergency incidents?		
Yes	47.0%	54
No	52.2%	60
No Answer	0.9%	1
Totals	100.0%	115
Replies		114
Mean		-
(20) How were pre-arrival instructions for medical calls provided in 2002?		
Our PSAP provided pre-arrival instructions	38.3%	44
We referred pre-arrival instructions to another organization	36.5%	42
Pre-arrival instructions were not offered	22.6%	26
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
(21) In general, how far have the agencies in your PSAP's jurisdiction progressed on the implementation of interoperable radio (such as trunked 800 mhz communication)? Check all that apply.		
Capable of patching frequencies together	42.6%	49

Implemented with police	20.9%	24
Implemented with fire	16.5%	19
Compatible with ARMER (the state's system)	7.8%	9
Implementation is being planned within a two year time frame	17.4%	20
Implemenation is being planned beyond a two year timeframe	22.6%	26
Implementation is not being planned at this time	25.2%	29
No Answer	7.0%	8
Totals	*	*
Replies		107
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Automatically communicate with your agency's incident record system		
Yes	71.3%	82
No	14.8%	17
Under development	11.3%	13
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Automatically query criminal justice information systems		
Yes	67.8%	78
No	23.5%	27
Under development	6.1%	7
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Communicate with law enforcement centers, fire stations, or ambulance stations		
Yes	93.9%	108
No	3.5%	4
Under development	1.7%	2
No Answer	0.9%	1
Totals	100.0%	115
Replies		114
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Communicate with mobile terminals in law enforcement vehicles		
Yes	50.4%	58
No	37.4%	43

Under development	8.7%	10
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Communicate with mobile terminals in fire vehicles		
Yes	20.0%	23
No	69.6%	80
Under development	7.0%	8
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Automatically communicate vehicle location		
Yes	22.6%	26
No	61.7%	71
Under development	12.2%	14
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Notify dispatchers of response unit status		
Yes	66.1%	76
No	21.7%	25
Under development	7.0%	8
No Answer	5.2%	6
Totals	100.0%	115
Replies		109
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Notify dispatchers of past # of 911 calls from the number calling		
Yes	60.9%	70
No	30.4%	35
Under development	5.2%	6
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-

Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Notify dispatchers of details of past 911 calls from the number calling		
Yes	58.3%	67
No	33.9%	39
Under development	5.2%	6
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Notify dispatchers of alerts and warnings for a particular phone number		
Yes	57.4%	66
No	38.3%	44
Under development	2.6%	3
No Answer	1.7%	2
Totals	100.0%	115
Replies		113
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Notify dispatchers of events in proximity to each other		
Yes	45.2%	52
No	45.2%	52
Under development	7.0%	8
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Ability to know what call has been ringing the longest		
Yes	41.7%	48
No	53.0%	61
Under development	2.6%	3
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Distinctive ringing or visual indicators for 911 calls		
Yes	95.7%	110
No	2.6%	3
Under development	0.0%	0

No Answer	1.7%	2
Totals	100.0%	115
Replies		113
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Speed dial library with ability to store at least 16 phone numbers		
Yes	93.0%	107
No	4.3%	5
Under development	0.0%	0
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Last number redial		
Yes	82.6%	95
No	13.0%	15
Under development	0.9%	1
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Show map of wireless calls		
Yes	39.1%	45
No	25.2%	29
Under development	32.2%	37
No Answer	3.5%	4
Totals	100.0%	115
Replies		111
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Show map of wireline calls		
Yes	53.9%	62
No	30.4%	35
Under development	13.0%	15
No Answer	2.6%	3
Totals	100.0%	115
Replies		112
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Ability to vary dispatch protocols by map location		
Yes	37.4%	43
No	40.0%	46

Under development	13.9%	16
No Answer	8.7%	10
Totals	100.0%	115
Replies		105
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Automatically feed ALI information into CAD or other system		
Yes	66.1%	76
No	24.3%	28
Under development	7.8%	9
No Answer	1.7%	2
Totals	100.0%	115
Replies		113
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Caller ID on administrative lines		
Yes	47.0%	54
No	48.7%	56
Under development	2.6%	3
No Answer	1.7%	2
Totals	100.0%	115
Replies		113
Mean		-
Do you have technology (phone system, Computer Aided Dispatching, or other) available with the following features: Other important feature (specify below)		
Yes	7.8%	9
No	3.5%	4
Under development	0.0%	0
No Answer	88.7%	102
Totals	100.0%	115
Replies		13
Mean		-
Is the technology commonly used: Automatically communicate with your agency's incident record system		
Yes	67.0%	77
No	3.5%	4
No Answer	29.6%	34
Totals	100.0%	115
Replies		81
Mean		-
Is the technology commonly used: Automatically query criminal justice information systems		
Yes	57.4%	66
No	10.4%	12
No Answer	32.2%	37
Totals	100.0%	115

Replies		78
Mean		-
Is the technology commonly used: Communicate with law enforcement centers, fire stations, or ambulance stations		
Yes	77.4%	89
No	2.6%	3
No Answer	20.0%	23
Totals	100.0%	115
Replies		92
Mean		-
Is the technology commonly used: Communicate with mobile terminals in law enforcement vehicles		
Yes	42.6%	49
No	12.2%	14
No Answer	45.2%	52
Totals	100.0%	115
Replies		63
Mean		-
Is the technology commonly used: Communicate with mobile terminals in fire vehicles		
Yes	15.7%	18
No	21.7%	25
No Answer	62.6%	72
Totals	100.0%	115
Replies		43
Mean		-
Is the technology commonly used: Automatically communicate vehicle location		
Yes	21.7%	25
No	25.2%	29
No Answer	53.0%	61
Totals	100.0%	115
Replies		54
Mean		-
Is the technology commonly used: Notify dispatchers of response unit status		
Yes	56.5%	65
No	10.4%	12
No Answer	33.0%	38
Totals	100.0%	115
Replies		77
Mean		-
Is the technology commonly used: Notify dispatchers of past # of 911 calls from the number calling		
Yes	42.6%	49
No	22.6%	26
No Answer	34.8%	40
Totals	100.0%	115
Replies		75

Mean		-
Is the technology commonly used: Notify dispatchers of details of past 911 calls from the number calling		
Yes	50.4%	58
No	12.2%	14
No Answer	37.4%	43
Totals	100.0%	115
Replies		72
Mean		-
Is the technology commonly used: Notify dispatchers of alerts and warnings for a particular phone number		
Yes	50.4%	58
No	12.2%	14
No Answer	37.4%	43
Totals	100.0%	115
Replies		72
Mean		-
Is the technology commonly used: Notify dispatchers of events in proximity to each other		
Yes	40.0%	46
No	17.4%	20
No Answer	42.6%	49
Totals	100.0%	115
Replies		66
Mean		-
Is the technology commonly used: Ability to know what call has been ringing the longest		
Yes	34.8%	40
No	20.9%	24
No Answer	44.3%	51
Totals	100.0%	115
Replies		64
Mean		-
Is the technology commonly used: Distinctive ringing or visual indicators for 911 calls		
Yes	90.4%	104
No	1.7%	2
No Answer	7.8%	9
Totals	100.0%	115
Replies		106
Mean		-
Is the technology commonly used: Speed dial library with ability to store at least 16 phone numbers		
Yes	87.0%	100
No	2.6%	3
No Answer	10.4%	12
Totals	100.0%	115
Replies		103
Mean		-

Is the technology commonly used: Last number redial		
Yes	75.7%	87
No	7.0%	8
No Answer	17.4%	20
Totals	100.0%	115
Replies		95
Mean		-
Is the technology commonly used: Show map of wireless calls		
Yes	37.4%	43
No	10.4%	12
No Answer	52.2%	60
Totals	100.0%	115
Replies		55
Mean		-
Is the technology commonly used: Show map of wireline calls		
Yes	51.3%	59
No	7.0%	8
No Answer	41.7%	48
Totals	100.0%	115
Replies		67
Mean		-
Is the technology commonly used: Ability to vary dispatch protocols by map location		
Yes	31.3%	36
No	16.5%	19
No Answer	52.2%	60
Totals	100.0%	115
Replies		55
Mean		-
Is the technology commonly used: Automatically feed ALI information into CAD or other system		
Yes	60.0%	69
No	12.2%	14
No Answer	27.8%	32
Totals	100.0%	115
Replies		83
Mean		-
Is the technology commonly used: Caller ID on administrative lines		
Yes	38.3%	44
No	17.4%	20
No Answer	44.3%	51
Totals	100.0%	115
Replies		64
Mean		-
Is the technology commonly used: Other important feature (specify below)		
Yes	5.2%	6

No	1.7%	2
No Answer	93.0%	107
Totals	100.0%	115
Replies		8
Data added by MAD: PSAP population		
Replies		103
Mean		48942.08
Median		25987.00
Data added by MAD: Geographic Location		
Metro	24.3%	28
Greater MN	75.7%	87
No Answer	0.0%	0
Totals	100.0%	115
Replies		115
Data added by MAD: Government type		
State Patrol	8.7%	10
County	68.7%	79
City	17.4%	20
Other	5.2%	6
No Answer	0.0%	0
Totals	100.0%	115
Replies		115

* Note: Multiple answer percentage-count totals not meaningful.