

# Emergency Challenge: A Study of E-911 Technology and Funding Structure in Tennessee

A TACIR Commission Report to the General Assembly  
Pursuant to Public Chapter 810 of 2004



The Tennessee Advisory Commission on Intergovernmental Relations

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## **PURPOSE**

Public Chapter 810 of 2004 directed TACIR to conduct a “Study of E-911 Technology and Funding Structure” and report findings, recommendations, and any necessary legislation to the General Assembly no later than February 1, 2006. PC 810 directs TACIR to study “all aspects of Tennessee’s emergency telephone service (911) statutes, including, but not limited to, local emergency communications districts and their respective boards, the state emergency communications board, the provision of enhanced 911 service, and the assessment of emergency telephone service charges upon telecommunications service providers and customers.” This report is the culmination of TACIR’s work pursuant to PC 810.



## EXECUTIVE SUMMARY

Tennessee is in the vanguard of E-911 service provision. The state has shown steady progress in improving emergency number services since the state first authorized the creation of emergency communications districts (ECDs) in 1984, through the creation of the Tennessee Emergency Communications Board (TECB) in 1998, to the implementation of Phase-II wireless and statewide wireline E-911 coverage. Many of the innovations in E-911 service in Tennessee were the result of recommendations made by the TACIR in its first study of E-911 service, published in January 1995.

This report provides background information on emergency communications in Tennessee, as well as findings and recommendations for four areas: general, technology, structure, and funding.

### GENERAL

The material in this report was obtained using a comprehensive methodology that consisted of five major research components:

1. Interviews;
2. Literature review;
3. Comprehensive survey of local Emergency Communication District (ECD) directors;
4. Review of additional material; and
5. TACIR staff analysis of rate structure scenarios.

TACIR's survey of ECD directors was integral to the study. A major goal of the survey was to obtain complete and comparable organizational, financial, staffing, equipment, and call data from all ECDs across Tennessee. The survey also asked for the directors' opinions on other issues related to E-911. Additional comments from the director or Board of Directors were welcomed. Unfortunately, TACIR initially received responses from only sixty-five of the one hundred districts in Tennessee. Five additional ECDs eventually responded. Each non-responding ECD was contacted by telephone at least twice to encourage their response.



Many responses were not complete. The low response and completion rates hindered the completion of the report.

### ***FINDINGS***

- The Tennessee Emergency Communications Board (TECB) and the state's Emergency Communications Districts have worked together to make Tennessee a national leader in E-911 coverage for both wireline and wireless phones, with coverage in every county of the state.
- Emergency Communication Districts' directors responding to the TACIR survey rated the programs and assistance of the Tennessee Emergency Communications Board very highly.
- In March 2005, the TECB received national recognition by the E-911 Institute as the top state program in the nation.
- The TECB has made significant strides toward ensuring standard E-911 service across Tennessee. More specific operational standards would allow for uniformity of action by public safety answering points (PSAPs), resulting in a similar service level statewide for all 911 calls.

### **TECHNOLOGY**

Today's communications devices are wired, wireless, and integrated into a host of other electronics such as computers, automobiles, and personal digital assistants (PDA) that were nonexistent when the 911 system was developed over thirty years ago. Communications innovations are expected to continue. As communication systems, devices and regulations have moved beyond traditional phone lines, so have the technology, tools, and resources needed to receive and respond to emergency calls.

### ***FINDINGS***

- The wireline customer base has been stagnating or declining in most states, including Tennessee for several years while wireless customers have continued to grow.

- Specific data to analyze trends in landlines by ECD is limited. Only twenty-one of Tennessee's one-hundred ECDs could provide valid landline counts for the last five years or information on the number of 911 calls received to analyze trends for individual ECDs in Tennessee. The Tennessee Regulatory Authority was able to provide landline counts by county for two years for most providers.
- Based on available data, the number of residential wirelines is clearly down but the change in business lines varies. The fiscal impact can vary among ECDs based on the differing fee levels for residential and business lines in the ECD. Most ECDs still have some flexibility to raise surcharge rates.
- Voice over Internet Protocol (VoIP) represents a new voice communication technology carried over broadband internet connections that is beginning to replace traditional landline phones.
- A growing number of vehicles are equipped with telematics and automatic crash notification (ACN) that allow access through a telematics call center to PSAPs in emergencies and could eventually provide a quicker and better emergency response if integrated with E-911 systems.
- All seventy districts responding to the TACIR survey rated the quality of their service as good to excellent.
- Almost all of the seventy districts responding to the TACIR survey rated the adequacy of their equipment as good to excellent.
- While the TECB has issued some policies and provided some funding and technical assistance related to necessary E-911 equipment, each of the one-hundred ECDs statewide ultimately makes its own equipment purchases.
- Rapid advances in communications technology are continuing to pose major challenges to current 911 systems that will require changes in the 911 systems in the near future.

### **RECOMMENDATIONS**

- As part of an overall effort to ensure that all ECDs meet a defined and consistent level of E-911 service, the TECB, in conjunction with an advisory committee, should develop more specific minimum equipment standards and specifications on the type and ability of equipment needed at each PSAP and projected replacement times.
- The TECB should consider developing a voluntary centralized purchasing capability to allow ECDs the option of taking advantage of increased economies of scale.
- The TECB should commission a comprehensive cost-benefit study of the development of a statewide E-911 network to take advantage of new technologies. Statutory changes may be necessary to broaden the TECB's authority to address the evolving changes in E-911 technology, networks, and systems.

### **STRUCTURE**

The organization of emergency communications within an ECD in Tennessee is determined locally. Tennessee has one-hundred emergency communications districts in its ninety-five counties: eighty-five districts cover a one-county area and one district covers a two-county area. However, six districts are just for a city area and eight districts cover the county outside the city districts (two cities with districts are located in multiple counties). Most districts (75%) have one primary PSAP that receives 911 calls.<sup>1</sup> An additional 9% have one primary PSAP and one or more secondary PSAPs. Sixteen districts have multiple primary PSAPs that answer calls, seven of these also have one or more secondary PSAPs.

### **FINDINGS**

- The organization of emergency communications within an ECD is determined locally. Most districts have one primary public safety answering point to receive initial 911 calls. About half of the seventy districts responding to the TACIR survey dispatch emergency service directly from the primary

PSAP while others choose to transfer some or all calls to other agencies for dispatch.

- In most of the seventy districts responding to the TACIR survey, telecommunicators are employees of one public safety agency.
- Several districts indicated that they have shifts with only one telecommunicator working. In these districts, phones may go unattended when the telecommunicator needs to be away from their console or provide additional information to callers or public safety officers.
- In 29% of the districts responding, no pre-arrival instructions are available. In these districts, callers must wait for emergency personnel to arrive before treatment can begin.
- Potential savings and benefits are available to ECDs and local governments from further consolidating PSAPs within an ECD or among adjacent ECDs. Consolidation may become more of an issue as technological changes in telecommunications result in the need for a new E-911 system network and major changes in PSAP equipment.
- Tennessee has a policy of encouraging consolidation within and among ECDs.
- ECDs in Tennessee are generally consolidated on a county basis.
- Overall, ECD Directors were positive toward the possibilities and benefits of consolidation within a county. Directors were not as supportive of the consolidation of ECDs among more than one county.
- There is controversy within some ECDs on whether municipalities are adequately represented on ECD Boards.
- If emergency communications are consolidated within or between districts, TCA 7-86-105(6) allows the parties involved to negotiate an interlocal agreement including the size and appointment of the board of directors of the combined district.

- In a 2005 survey by the Tennessee Emergency Number Association, thirty-four of the forty-one districts responding included city representatives on their boards.
- Most ECD Directors responding to the 2005 TACIR survey did not think the state law should prescribe the make-up of the local boards.

### **RECOMMENDATIONS**

- The TECB in conjunction with an advisory committee should define minimum operational standards for personnel and staffing needs.
- The TECB in conjunction with an advisory committee should consider the need and alternatives to offer pre-arrival instructions statewide.
- The Tennessee Emergency Communication Board should continue its education efforts and policies that encourage consolidation of PSAPs and Emergency Communications Districts.
- If the General Assembly feels that changes should be made to the TCA to require municipal representation on ECD boards, it is recommended that the change require the county mayor to appoint either the mayor, city manager, or their appointed representative, of the largest municipality, by population, providing emergency services and located within the ECD area to the ECD board in order to represent municipal interests. This requirement should not be applicable to boards that already require municipal representation through an interlocal agreement.

### **FUNDING**

Existing 911 funding mechanisms in Tennessee continue to produce a growing level of revenue statewide. However, some individual ECDs may be experiencing declining 911 revenues and some may still need additional funding to raise their 911 service levels to acceptable standards. Revenue problems resulting from

the introduction of new communications technologies may create some short term challenges, but do not as yet appear to threaten the long run viability of funding 911 resources from surcharges on users. Total 911 surcharges from wireline and wireless services should produce over \$80 million during fiscal 2005, based on data reported by the Federal Communications Commission (FCC). However, neither the FCC, ECD, nor TRA data on landlines are sufficiently detailed to evaluate the impacts on individual ECDs or revenue losses associated with exempt business lines.

The TACIR staff did not have the data required to objectively determine the level of service fees needed to cover the costs of E-911 in Tennessee. Information needed to determine the revenue needed to adequately provide E-911 service in a district would include:

- What E-911 operating and capital costs are the fees expected to cover;
- What support is expected from local county and city governments;
- What are the operating standards for districts in terms of service provided;
- What minimum level of equipment, technology, and staffing is needed to provide the expected service;
- What level of reserves do districts need to cover future capital costs and emergencies; and
- What is the revenue base in each ECD?

#### **FINDINGS**

- Sufficient information is not available for TACIR staff to determine the level of service fees needed to cover the cost of E-911 in Tennessee and how best to fund those costs.
- The most common funding method used by state and local governments for funding 911 service is a surcharge or fee

imposed on telephone customers. Tennessee's average residential surcharge of \$.87 is only slightly higher than the average of \$.81 for the forty states for which residential surcharges could be approximated. If Tennessee's surcharge rate on business wirelines is added to residential surcharges, Tennessee's overall average surcharge rate likely exceeds \$1. Only six of the forty states, for which reasonably comparable surcharge rates could be determined, have an average surcharge rate in excess of \$1.

- As of June 30, 2005, the state Emergency Communications Fund had a balance of \$32.6 million. These funds are reserved for payments to wireless service providers for their costs of providing enhanced wireless 911 service, which had not yet been approved or incurred. As of August 2005, the board estimated an additional \$8.14 million in non-recurring Phase II wireless requests and \$13 million per year in recurring costs. However, these figures could increase as providers add to their service areas or location technology or costs change. After the bulk of the initial non-recurring costs of wireless service providers are paid in FY2005-06, the TECB should have additional funds available to address other statewide and district E-911 needs.
- Most of the wireless surcharge revenue from fiscal year 2001-02 through fiscal year 2004-05 has been paid to wireless carriers to cover their costs in implementing wireless E-911, as provided by state statute. While the FCC no longer requires cost recovery for wireless providers from state or local governments, Tennessee's cost recovery provisions and policies have allowed Tennessee to be one of a very few states to fully deploy wireless E-911.
- About 34% (\$34 million) of TECB wireless revenue (\$99.1 million) from FY2002-03 to FY2004-05 went directly to ECDs. A large part of the TECB discretionary grants went to ECDs with smaller populations and thus, a smaller surcharge revenue base.



- Revenue problems resulting from the introduction of the new communications technologies may create some short-term challenges, but do not as yet appear to threaten the long run viability of funding 911 resources from surcharges on users.
- Despite overall increases in total 911 surcharge revenue statewide, some individual ECDs may be experiencing declining 911 revenues and some or many may still need additional funding to raise their 911 service levels to acceptable standards.
- Current Tennessee statutes do not require Voice over Internet Protocol (VoIP) service providers to impose and collect 911 fees from their customers, thus, threatening the stability of 911 revenue.
- District directors were overwhelmingly in favor of keeping the service fees for access to E-911, but to include all devices with access to E-911 including landlines, wireless, Voice over Internet.
- Overall, ECD directors favor local autonomy to set 911 surcharge fees with some differences on the maximum fee level that can be determined locally.
- Emergency Communications Districts vary on the costs they try to cover with E-911 service fees. The costs paid with E-911 service fees have also expanded over time.
- There is a discrepancy among districts and within the law on what E-911 service is to be and the costs the E-911 service fees are intended to cover. Are 911 surcharges intended to fund only the equipment and related costs to receive and answer E-911 calls or also include the cost to dispatch calls?
- Overall, districts indicated that fees cover the equipment, technology, and other costs needed to receive and answer 911 calls. Areas where districts thought that fees should cover more of the costs than they currently cover included dispatch personnel, building, and radio costs.



- For a limited sample of districts providing complete data, current fees appear to cover more than current non-personnel 911 operating costs but less than the full operating costs including dispatch.
- Most ECDs rely on local government contributions to cover part of the full cost of E-911. However, the contributions for E-911 by local governments vary and are not reported for all districts.
- There is no standard or guideline on the appropriate level of cash reserves for districts to maintain for equipment purchases or emergencies.
- ECDs have difficulty tracking the number of landlines and relevant service fees. The TECB does not have the authority to gather this information statewide. The TRA does not maintain line count information in the format needed to track fees. The Tennessee Code Annotated requires providers to report this data to ECDs, but there is no enforcement mechanism.
- Rural areas, with a much smaller fee base, have difficulty funding current technologies and staffing centers.
- Businesses fund a high share of total 911 wireline surcharge revenue which may not be reasonable given the absence of any data showing a significant business share of 911 emergency calls.

#### **RECOMMENDATIONS**

- The TECB, with input from an advisory committee from ECDs, local governments, and other 911 technical experts, should provide direction and data on what 911 fees are expected to cover and recommend a more specific funding method, if needed, and any legislative changes required. The advisory committee will include a representative of the TACIR, appointed by the chair of the TACIR. The advisory committee will report its findings to the TACIR no later than June 2006.

- Require providers to report line counts and service fees statewide by ECD to a central state agency and include penalties for not reporting.
- Consider requiring state audits of local exchange carriers to ensure that fees are properly collected and remitted to the ECDs.
- Amend the Emergency Communications statutes to include all devices, VoIP as well as other potential technologies, with access to 911 to pay 911 surcharge fees.
- The TECB should appoint an advisory committee of PSAP officials and other public safety personnel as well as persons with E-911 technical expertise to develop minimum operational standards and related costs to be reviewed and approved by the TECB. The development of standards should provide a means to determine the costs and necessary revenue to provide a minimum level of service statewide. Once the standards are set the TECB should work with the districts to determine if the level and distribution of revenue needs to change.
- The TECB should use the standards to identify ECDs that are not able to fund the minimum level of service with the revenue base in their district and determine if a change in the level and distribution of revenue is needed.



## INTRODUCTION

Public Chapter 810 of 2004 directed TACIR to conduct a “Study of E-911 Technology and Funding Structure” and report findings, recommendations, and any necessary legislation to the General Assembly no later than February 1, 2006. The act directs TACIR to study “all aspects of Tennessee’s emergency telephone service (911) statutes, including, but not limited to

- local emergency communications districts and their respective boards,
- the state emergency communications board, and
- the provision of enhanced 911 service, and the assessment of emergency telephone service charges upon telecommunications service providers and customers.”

Tennessee is in the vanguard of E-911 service provision. The state has shown steady progress in improving emergency number services since the state first authorized the creation of emergency communications districts (ECDs) in 1984, through the creation of the Tennessee Emergency Communications Board (TECB) in 1998, to the implementation of Phase-II wireless and statewide wireline E-911 coverage. Many of the innovations in E-911 service in Tennessee were the result of recommendations made by the TACIR in its first study of E-911 service, published in January 1995.

### E-911 VS. 911; WIRELINE VS. WIRELESS

People sometimes confuse the difference between 911 and E-911. **911** is the three-digit telephone number designated as the “Universal Emergency Number” for emergency assistance throughout the United States. **E-911** is short for enhanced 911. It is a selectively routed 911 call that uses a database to display the caller’s location (street address, longitude and latitude) on the call-taker’s screen.

**Wireline**, or landline, phones are traditional wired telephones. E-911 originally referred to enhanced service for these traditional phones. **Wireless**, commonly referred to as cellular phones, created new technology challenges when they came into common usage. The early phases of 911 service for wireless phones did not provide enhanced caller information. Phase-II implementation, of which Tennessee is an implementation leader, provides E-911 service to cell phone users.

This report generally uses the term E-911 to refer to all emergency number services in Tennessee, both wireline and wireless. When discussing funding comparisons with other states, many of which are far behind Tennessee in E-911 and Phase-II wireless implementation, the term 911 is used instead.



## METHODOLOGY

This report is the product of an extensive research effort that began shortly after the passage of Public Chapter 810 of 2004. The study consisted of five major research components:

### 1. Interviews

- Representative E-911 board directors
- TACIR members
- Select municipal and county officials
- Tennessee Emergency Communications Board, members and staff
- Audit officials, Office of the Comptroller
- House and Senate sponsors of PC 810
- Subject matter experts and other interested parties
- Other individuals as required

### 2. Literature Review

- Technical issues
- Funding issues
- Consolidation issues
- Other states' experiences
- Best practices
- Industry standards
- Federal and state regulations

### 3. Comprehensive survey of local Emergency Communication District directors.

### 4. Review of additional material, to include:

- Audit results for the TECB
- Audit results for local boards
- Information gathered by the TECB during its Fall 2004 public hearings
- Information gathered during TECB board meetings

- Feedback from TACIR membership

5. TACIR staff analysis of rate structure scenarios.

**SURVEY**

TACIR’s survey of ECD Directors, conducted between February and May 2005, was integral to the study. A major goal of the survey was to obtain complete and comparable organizational, financial, staffing, equipment, and call data from all ECDs across Tennessee. The survey also asked for the directors’ opinions on other issues related to E-911. Additional comments from the director or Board of Directors were welcomed.

Initially, TACIR received responses from sixty-five of the one hundred districts in Tennessee. Five additional ECDs eventually responded. Each non-responding ECD was contacted by telephone at least twice to encourage their response. Many responses were not complete as will be seen in the summary of information that follows. Districts with a larger population were more likely to respond to the survey. Response rates based on the population “tiers” established by the TECB are listed below. A listing of responding and non-responding districts is included in Appendix 1.

**Table 1. TACIR E-911 Survey Response Rates by Population Tier**

	Total	Population Tiers				
		Tier I >300,000	Tier II 70-300,000	Tier III 30-70,000	Tier IV 20-30,000	Tier V <20,000
Received Response	70 70%	4 100%	9 82%	22 65%	16 76%	19 48%
Did Not Receive Response	30 30%	0 0%	2 18%	9 35%	5 24%	14 52%
Total Districts	100	4	11	31	21	33

Source: TACIR Survey of ECD Directors, February-May 2005

## BACKGROUND

### THE DEVELOPMENT OF 911

“911” is the three-digit telephone number designated as the “Universal Emergency Number” for emergency assistance throughout the United States. The roots for using 911 go back to 1957, when the National Association of Fire Chiefs recommended the use of a single number for reporting fires.<sup>2</sup> President Kennedy focused federal interest in a single emergency number after returning from Europe and observing the success of the emergency 999 system in place there in many countries.<sup>3</sup> This focus remained in subsequent administrations. Following recommendations for a single emergency number nationwide by the President’s Commission on Law Enforcement and Administration of Justice and other agencies in 1967, the Federal Communications Commission (FCC) met with the American Telephone and Telegraph Company (AT&T) to determine how to quickly establish a universal emergency number. In 1968, AT&T chose 911 as the emergency code to be used throughout the United States. The first 911 call, a test of the system, was made by Senator Rankin Fite in 1968 in Haleyville, Alabama.<sup>4</sup>

The use of 911 as an emergency number met two key requirements:

- it is brief, easily remembered, and can be dialed quickly.
- it is a unique number which has never been authorized as an office code, area code, or service code.<sup>5</sup>

Local governments, service providers, and emergency communications districts continued to improve emergency response technology and systems throughout the 1970s, and in 1980, Orlando, Florida became the first location to use an “Enhanced 911” system, commonly referred to as E-911. With E-911, the caller’s street address, longitude and latitude are automatically displayed on the call-taker’s screen.<sup>6</sup>

Congress formalized the selection of 911 by passing legislation requiring its use when creating a single emergency calling service.<sup>7</sup>



Tennessee followed suit, creating formal emergency communications districts (ECDs) and earmarked funding with passage of Public Chapter 867 of 1984.<sup>8</sup> By 2000, nearly 93% of the US population and 96% of the geographic US was served by some type of 911 coverage. Ninety-five percent of the served population had access to E-911 in 2000.<sup>9</sup>

E-911 service was complicated by the advent of wireless telephones. As the use of cellular phones increased, so did the number of 911 calls made from wireless phones. It became apparent across the nation that there was a risk that such calls may not be routed to the closest 911 center. Even when the calls were properly routed, the call taker would not receive the callback phone number or the caller's location.<sup>10</sup> In response to these concerns, the FCC required a three-phase implementation plan for wireless 911 call service. The following description of the three phases is extracted from the National Emergency Number Association (NENA) website:

**Phase 0:** When you dial 911 from your cell phone a call taker at a public safety answering point (PSAP) answers. The call taker may be at a state highway patrol PSAP, at a city or county PSAP up to hundreds of miles away, or at a local PSAP, depending on how the wireless 911 call is routed. Required by basic 911 rules (according to the FCC). Wireless 911 calls are to be transmitted to a PSAP regardless of whether being placed by a wireless service subscriber or non-subscriber.

**Phase I:** A wireless 911 call will come into the PSAP with the wireless phone call back number. This is important in the event the cell phone call is dropped, and may even allow PSAP employees to work with the wireless company to identify the wireless subscriber. The FCC required wireless providers to provide Phase I capabilities by April 1, 1998 or within six months of being requested by the PSAP, whichever comes later.

**Phase II:** Phase II allows call takers to receive both the caller's wireless phone number and their location information.

Tennessee Public Chapter 1108 of 1998 established the Tennessee Emergency Communications Board, as well as the Emergency Communications Fund, to implement and pay for statewide wireless enhanced 911 service in Tennessee through service charges on wireless phones.

E-911 is currently challenged by the advent of Voice over Internet Protocol (VoIP) phones. VoIP allows voice communication through broadband internet connections. These phones are providing a lower cost alternative to traditional phones, especially for long distance service. They are often used from one specific location (static) but, are usable from any broadband connection (nomadic) and in some locations can be used wireless (mobile). However, VoIP phones have not been able to provide E-911 service through selectively routed, dedicated trunks to the appropriate PSAPs along with location and call back number identification. Another issue involves E-911 funding— VoIP users can arrange for E-911 service with their Internet provider, and yet not pay any applicable 911 surcharges for the service.<sup>11</sup>

Several Internet groups are working on enhancements to the underlying Internet protocols to allow additional data to be transmitted, including data related to voice calls, and specifically 911 calls. However, until the protocols are formally developed and approved, and the Internet enhancements implemented, persons dialing 911 from a VoIP-enabled telephone may not reach the appropriate PSAP, and may not have their location or call-back number displayed for the call taker.

The National Emergency Number Association in conjunction with other interested parties are working on standards for VoIP E-911 service and have identified three phases for the transition to a fully-E-911 capable IP system:<sup>12</sup>

- **I1** - now, routing to 10-digit PSAP administrative number allowed, static service only, no caller location transmitted, but no modifications required by PSAPs to handle incoming calls
- **I2** – deployed by late 2005, no routing to 10-digit numbers, stationary and nomadic service, caller location as provided

to VoIP provider transmitted, ALI database modification required, no modification required by PSAPs

- **I3** - unknown deployment, change to complete IP network and E-911 system

On May 19, 2005 the FCC issued an Order that requires VoIP providers to offer E-911 service within 120 days of the Order's formal passage (November 28, 2005). The industry movement is toward an I2 solution. This system will still be dependent upon a user to enter their current location if the phone is moved. If not, 911 calls are routed back to the last location entered.

### **THE FIRST TACIR 911 STUDY**

House Joint Resolution No. 499 of 1994 directed TACIR to conduct a study of the creation, funding, and management of ECDs, especially regarding the creation of new districts within the boundaries of an existing district. TACIR conducted an extensive study, including a survey of county executives, mayors, city managers, and 911 board chairs, a thorough review of relevant documents, reports, and statutes, and interviews of subject matter experts. TACIR also formed a nine-member committee to hear testimony from various stakeholders at a public hearing.<sup>13</sup> In its final report published in 1995, TACIR made six recommendations which are listed here along with a discussion, in italics, of the outcome of each recommendation.

1. The ECD Law be amended to delete the referral method as a response option. The general consensus of TACIR members was that this particular response method, given recent and anticipated technological advancements, is obsolete, and should therefore be repealed.

*Accomplished by Acts 1998, ch.1108.*

2. That each emergency services provider has the right to dispatch its own services, unless a voluntary agreement is made between such provider and the respective ECD.

*Accomplished by Acts 1998, ch.1108.*

3. To extend the then current moratorium on new ECD creation for two years, beginning April 1995, to allow time for this issue to be further studied and resolved.

*Now obsolete. Acts 1998, ch.1108 (TCA 7-86-310) says no new districts can be created within the boundaries of another ECD without prior approval of the TECB.*

4. Amend the ECD Law to include wireless communications. The TACIR commissioners agreed that subscribers of wireless telephone communications systems were enjoying the benefits of E-911 service, and should share in the payment of E-911 service in their county. Specifically:

- TCA §7-86-103(7) be amended to include in the definition of service supplier those suppliers that provide wireless telephone services.
- TCA §7-86-103 should be further amended to define “wireless telephone service.”
- TCA §7-86-108(a)(1) should be amended to extend the emergency telephone service charge to wireless users at a rate that shall not exceed one-half the residential rate per month. Such proceeds shall be paid to the ECD of the service user’s billing address.

*Partially accomplished by Acts 1998, ch.1108. TACIR recommendation was a wireless rate equal to half the residential rate for landline phones with proceeds going to ECDs based on service user’s billing address. Final law authorizes a rate up to a maximum of business rate (\$3) with 25% to ECDs based on population. The current rate is \$1. The TACIR recommendation was made before the FCC rulings on reimbursements to wireless service providers, which is a high cost*

*that Tennessee decided to address centrally. Tennessee chose to distribute fees based upon population as wireless users move and it was decided that their fees should not be tied to one address such as billing address.*

5. Amend TCA §7-86-126 to update statutory references to collateralization.

*The statute was updated in 1995, requiring ECDs to adhere to the same collateralization requirements as the state.*

6. Amend the ECD Law to create an Emergency Communications District Management Review Board to provide state oversight of ECDs. It was believed that the creation of such a review board would address and resolve many of the issues facing ECDs and would increase their operational, managerial, and financial accountability.

*Accomplished by Acts 1998, ch.1108 plus, broader powers for implementing wireless E-911 and “establishing 911 service throughout Tennessee.”*

## **THE TENNESSEE EMERGENCY COMMUNICATIONS BOARD**

Probably the most influential recommendation from TACIR’s 1995 report on E-911 was for the creation of a statewide emergency communications board. This recommendation was heeded by the General Assembly, which with the passage of Public Chapter 1108 of 1998 established the Tennessee Emergency Communications Board (TECB). PC 1108 was passed amid allegations of mishandling of funds at the district level and following the Tennessee Advisory Commission on Intergovernmental Relations’ recommendations discussed above, to include recommendations to expand emergency communication service and fees to wireless communications and to provide state oversight of Emergency Communication Districts.

The board has two primary purposes as stated in TCA §7-86-302:

1. to assist emergency communications district boards of directors in the area of management, operations, and accountability, and
2. to establish emergency communications for all citizens of Tennessee.

### **ECD ASSISTANCE**

The TECB has implemented several methods to assist and oversee the operation of the emergency communications districts. In 1999, ECDs began using a uniform financial accounting system developed by the Comptroller of the Treasury. The ECDs are audited annually and reports are filed with the Comptroller's Office and upon their approval, with the TECB. The board receives annual copies of ECD budgets. In 2003, the General Assembly increased the TECB's enforcement powers by authorizing the TECB to withhold the wireless distribution to any ECD operating in or failing to correct a specific violation of state law or if an ECD is deemed not to be taking sufficient actions or acting in good faith to establish, maintain, or advance wireline or wireless E-911 service for its citizens.

The TECB is authorized to approve increases in landline rates of an ECD up to \$1.50 residential and \$3 business. The TECB has developed policies and an application process for rate increase reviews which includes local public hearings, detailed financial history, specific uses for the rate increase funds, a site visit by the TECB technical consultant, and a public hearing and deliberations by the TECB. Forty of the one-hundred ECDs have petitioned and received rate increases above the \$.65 residential and \$1.50 business ECD-approved maximum rates on landlines from the TECB as of August 10, 2005. Claiborne County and Lauderdale County ECDs increased their rates through a public referendum.

Other areas of assistance to ECDs from the TECB include:

- Technical consulting from a TECB retained technical consultant and staff on an as needed basis;

### **Finding:**

The TECB has worked with the state's ECDs to make Tennessee a national leader in E-911 coverage for both wireline and wireless phones.

- Reimbursement of up to \$50,000 for GIS Mapping systems and up to \$10,000 reimbursement for mapping maintenance costs; and
- Grants up to \$30,000 to rural counties to cover costs of dispatching.

In 2003, The General Assembly directed the TECB to establish training and course of study requirements for emergency communications dispatchers. Proposed rules and regulations were approved by the board in March 2005 and have begun the formal rulemaking process by the Attorney General and the Secretary of State.

### ***E-911 IMPLEMENTATION***

The TECB has worked with the state's ECDs to make Tennessee a national leader in E-911 coverage for both wireline and wireless phones. The TECB's technical and financial support has enabled the creation of ECDs in eight counties that had no 911 service. As of April 21, 2005, every county in the state not only has 911 service, but has enhanced 911. The TECB's administration of the state's centralized 911 Emergency Communications Fund to pay for Phase II wireless E-911 has enabled Tennessee to be one of only three states in the U.S. with 100% of its counties having Phase II coverage. The fund is set aside to pay the costs of ECDs and wireless service providers to establish and maintain wireless E-911 and can only be used for E-911 purposes.

In addition to the success of the TECB in assisting ECDs in establishing E-911 coverage and implementing wireless 911 coverage, the merits of the board can be seen in the favorable impression of most ECDs towards the board. In the TACIR survey of ECD Directors, respondents rated the programs and assistance by the TECB very highly. Almost all districts responding (94%) rated the board's implementation of wireless E-911 as good or better; 80% rated it as very good or excellent. The board was also very highly rated for its financial oversight of districts (94% good or better) and the distribution of pertinent information to districts (92% good or better). The board received very good ratings for financial assistance (83% good or better) and for

### **Finding:**

Emergency Communication Districts' Directors responding to the TACIR survey rated the programs and assistance of the Tennessee Emergency Communications Board very highly.



technical assistance (77% good or better) but also received some fair to poor ratings in these areas (16% for financial assistance and 14% for technical assistance). Written comments about the board were overall very positive. Only six districts indicated any concerns with the board: four related to increasing the proportion of wireless revenue to the districts, one on need to avoid “micromanaging” districts in oversight role, and one on the need for staff with more direct E-911 experience.

**Table 2. ECD Directors' Ratings of the TECB**

	Wireless 911 Implementation	Financial Oversight of ECDs	Technical Assistance	Financial Assistance	Information Distribution
Excellent	39%	28%	25%	34%	34%
Very Good	39%	28%	28%	24%	31%
Good	16%	38%	26%	26%	28%
Fair	3%	4%	7%	9%	4%
Poor	0%	0%	6%	6%	1%
No Opinion	3%	1%	9%	1%	1%
	100%	100%	100%	100%	100%
Districts responding	69	68	69	68	68

Note: Totals may not equal 100% due to rounding.

Source: TACIR survey of ECD Directors, February-May 2005

In March 2005, the TECB received national recognition by the E-911 Institute as the top state program in the nation. The Institute noted in its presentation:

*“Since its inception in 1998, the state of Tennessee through the Tennessee Emergency Communications Board (TECB) has been nationally recognized as a leader in E-911 deployment and advocacy. The Board is focused on establishing and improving E-911 service for all of Tennessee’s residents.*

*The Board has made it a top priority to address the challenges facing rural PSAPS and continues to work on improving the existing infrastructure. Under the Board’s leadership and partnership with the state’s one hundred local Emergency Communications Districts (ECDs), Tennessee was one of the first states*

**Finding:**

In March 2005, the TECB received national recognition by the E-911 Institute as the top state program in the nation.



**Finding:**

More specific operational standards would allow for uniformity of action by public safety answering points (PSAPs), resulting in a similar service level statewide for all 911 calls.

*to assure that 80% or more of its counties provide E-911 wireline and wireless service.*

*The Tennessee Emergency Communications Board has worked tirelessly to ensure that the people of Tennessee have appropriate access to 9-1-1 services—and Tennessee residents are safer today because of it.”*

It is apparent that the TECB and the state’s ECDs have made significant strides toward ensuring standard E-911 service across Tennessee. They have also shown a willingness and interest in continuing to improve service to Tennesseans. One area with potential for improving service is more standard operational standards. As will be shown in the technology, structure and funding portions of this report, more specific operational standards would allow for uniformity of action by public safety answering points (PSAPs), resulting in a similar service level statewide for all 911 calls.

## TECHNOLOGY

Today's communications devices are wired, wireless, and integrated into a host of other electronics such as computers, automobiles, and personal digital assistants (PDA) that were nonexistent when the 911 system was developed over thirty years ago. Communications innovations are expected to continue. As communication systems, devices and regulations have moved beyond traditional phone lines, so have the technology, tools, and resources needed to receive and respond to emergency calls.

The wireline customer base has been stagnating or declining in many states for several years. The reasons are clear in most cases: increased substitution of wireless service for wireline service and most recently the availability of alternate voice communications technologies that compete directly with traditional wireline service. The most notable new entry is VoIP (Voice over Internet Protocol) service. VoIP service offers traditional voice communications between two points but bypasses the existing public telephone switching network, using instead high-speed Internet connections.

### THE SHIFT TO WIRELESS

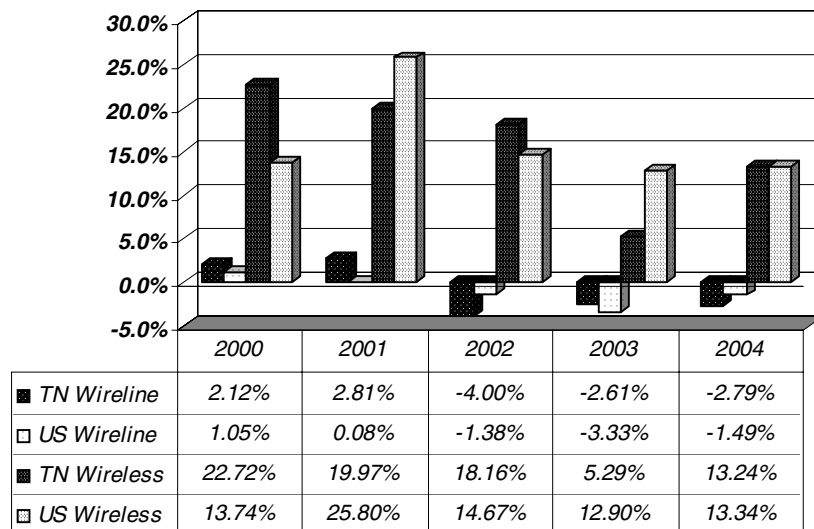
Wireline and wireless growth experience in Tennessee mirrors that in the rest of the country. Figure 1 shows Tennessee's wireline customers have decreased for the most recent three years while wireless customers have continued to grow at very fast rates for the last five years. Given the number of customers for both wireline and wireless service and their respective trends, wireless subscribers are estimated to outnumber wireline customers in Tennessee beginning in 2005. The statewide funding impact of this shift is discussed in the funding section of this report.

In order to examine the shift at the ECD level, the TACIR survey asked ECD Directors for workload information on the number of landlines paying E-911 service fees and changes in the number of 911 calls received over the last five years, including the percentage of wireless calls. This information is needed to determine the validity and magnitude of several districts' claims that the number of landlines and resulting fees are decreasing

#### **Finding:**

The wireline customer base has been stagnating or declining in most states, including Tennessee for several years while the wireless customer base has continued to grow.

**Figure 1. Growth in Wireline and Wireless Customers**



Source: Federal Communications Commission

**Finding:**

Specific data to analyze trends in landlines by ECD is limited. Only twenty-one of the one-hundred ECDs could provide landline counts for the last five years or information on the number of 911 calls received to analyze trends for individual ECDs in Tennessee. The TRA was able to provide landline counts by county for two years for most providers.

while their workload, especially from wireless calls, is increasing. Only twenty-three of the districts, less than one-fourth, were able to provide business and residential landline counts for the last five years or information on the number of 911 calls received.

The data for these twenty-three ECDs was analyzed to better understand the nature of declining wireline revenue to many ECDs over the most recent three fiscal years (2002-2004). The data for these counties was first evaluated for consistency with reported total wireline revenues.<sup>14</sup> Data for two of the ECDs was found to be inconsistent. TACIR used data for the other twenty-one ECDs.<sup>15</sup>

Given the lack of information from the ECDs, TACIR also requested information on the number of landlines by county for five years from the Tennessee Regulatory Authority (TRA). The TRA did not have the information requested, but requested it from all regulated telecommunication companies in Tennessee. The TRA received data from each of the incumbent local exchange carriers (ILECs) in Tennessee. ILECS are the telecommunication carrier that had the initial telephone franchise in an area. Only about half of the competitive local exchange carriers (CLECs), which account for an estimated 10% of total landlines, responded to the TRA request. CLECs are telecommunication providers that

compete with the incumbent providers in providing local exchange telecommunication service. Data received was obviously incomplete for 2000 to 2002, but TRA staff thought the data for 2003 and 2004 was representative of landlines in Tennessee. TRA asked TACIR not to publish landline data on individual counties because some of that information is considered proprietary.

**TRENDS IN WIRELINES**

Based on data from the TRA, landlines in Tennessee decreased about 2%, 3.1 million to 3.0 million lines between 2003 and 2004. Residential lines decreased 3% while business lines decreased by one-half percent. Residential lines made up 71% of total lines in 2004 and business lines (below the 100 cap per location) were 29% of the total lines, which was about the same for 2003. Business lines generally have a significantly higher surcharge rate than residential lines.

Most counties (63%) had declines in landlines between 2003 and 2004, most counties (56%) had declines of 4% or less. An additional 18% had no growth in total landlines. In residential lines, 87% of counties had negative or no growth. However, for business lines, just 54% of counties had negative or no growth.

**Finding:**

Based on available data, the number of residential wirelines is clearly down but the change in business lines varies. The fiscal impact can vary among ECDs based on the differing fee levels for residential and business lines in the ECD. Most ECDs still have some flexibility to raise surcharge rates.

**Table 3. % Change in Landlines by % of Counties  
2003 to 2004**

% Change	% of 95 Counties		
	Residential	Business	Total
< =-6%	3%	12%	6%
-5%	3%	4%	1%
-4%	7%	3%	6%
-3%	12%	5%	7%
-2%	23%	11%	18%
-1%	19%	8%	25%
0%	20%	11%	18%
>0%	13%	46%	18%
	100%	100%	100%

*Note: Totals may not equal 100% due to rounding.*

Source: Tennessee Regulatory Authority

Based on the data from twenty-one ECDs responding to the TACIR survey, only three ECDs experienced an increase in residential wireline counts over the three year period: Decatur, Polk, and Madison. Even for these three, the growth was muted, with the highest growth at less than 3%. The remaining eighteen ECDs experienced declines that ranged from -2.6% in the White County ECD to -19.4% in the Shelby County ECD. The average decline for the eighteen was -7.6%.

Twelve of the twenty-one ECDs experienced a decline in business wirelines over the three year period, eight registered gains, and one was unchanged. In some cases growth in business lines offset some of the decline in residential lines while in other ECDs declines occurred on both fronts. The actual fiscal impact depended not only on the relative changes in the two types of service, but also on the original configuration of residential lines versus business lines and the surcharges imposed on each. The 2004 data show significant differences in the relative surcharge burden imposed on residential customers versus the business sector. The business surcharge burden ranged from a high of 66.4% in Bristol to a low of 22.4% in the Campbell County ECD. Business surcharge revenue accounted for 50.8% of estimated total wireline revenue for the twenty-one ECDs included in the analysis.<sup>16</sup> A high business sector share of total 911 wireline surcharge revenue may not be reasonable given the absence of any data showing a significant business share of 911 emergency calls.

Residential wireline counts for the sample of twenty-one ECDs is clearly down for the majority of ECDs in the analysis, but the fiscal impact from a lower residential surcharge base is not spread evenly across the state. The trend with business lines is slightly different with a majority of the sample ECDs showing a decline, but almost 40% experiencing increases. A declining surcharge base caused by either a decline in residential or business lines or both threatens some 911 programs. On the other hand, seventy-three of the one-hundred ECDs as of August 10, 2005 still have some flexibility to raise surcharge rates, and some, which currently raise a majority of their total surcharge revenue from the business sector, can ask their citizens themselves to pick up a larger share of the burden.

The data compiled by TRA also indicates the potential for additional revenue is possible for ECDs if they choose to impose higher rates. Estimates of revenue potential using the landline counts from the TRA and the maximum landline rates currently authorized with approval by the TECB indicates that in 2003, ECDs statewide could have collected about \$69 million per year in landline surcharge fees at the \$1.50 residential and \$3 business rate compared to the \$34 million collected at the existing rates in 2003. Again, this amount could vary among ECDs because of varying number of landlines and the mix between residential and business.

### **VOICE OVER INTERNET PROTOCOL**

Voice over Internet Protocol (VoIP) represents a new voice communications technology carried over broadband Internet connections. While a new technology, it is already being offered by Vonage in Memphis, XO Communications in Nashville (business customers only), as well as by AOL.<sup>17</sup> A discussion of the potential impact of VoIP is included in the funding section of this report.

While this service is marketed as a low cost substitute for traditional wireline service, it is not clear whether all VoIP service will be of the same or higher quality than traditional wireline analog service and to what extent VoIP service limitations will impede its acceptance as a true alternative to traditional telephone service. Limitations vary by provider and include:

- Limited E-911 service, requirement for standard phone service if customer's broadband Internet service is DSL,<sup>18</sup>
- Not practical when customer has home-security systems linked by a traditional telephone line to security companies,
- Inability to work if electricity is out and no back-up power is provided,<sup>19</sup> and
- Phone number may not be listed in published telephone directories nor be available from directory assistance.

#### **Finding:**

Voice over Internet Protocol (VoIP) represents a new voice communication technology carried over broadband internet connections that is beginning to replace traditional landline phones.

Available information concerning the status of VoIP service in Tennessee includes the following:

- Memphis: Shelby County ECD officials confirm that they have had discussions with Time Warner on 911 matters. Time Warner provides 911 service to their VoIP Memphis customers over true 911 trunk lines. Time Warner collects the Shelby County E-911 surcharge fees cents from their VoIP customers in the Memphis area and they are currently remitted through the local exchange carrier providing E-911 access to the ECD. Other VoIP providers in Memphis area do not provide true 911 service (Vonnage, Primas, Lingo), that is they do not connect to 911 trunks but rather connect calls to local seven- digit numbers, such as a sheriff's office, which then must determine while talking with caller the caller's name and location.
- Nashville: ECD personnel have had two VoIP providers call to inquire about local surcharges, but no one to their knowledge is collecting the surcharge nor remitting it to the ECD.
- Knoxville: ECD personnel noted that a VoIP provider did call recently to inquire about 911 surcharges. However they are not aware of anyone collecting the surcharge yet.

**Finding:**

A growing number of vehicles are equipped with telematics and automatic crash notification (ACN) that allow access through a telematics call center to PSAPs in emergencies and could eventually provide a quicker and better emergency response if integrated with E-911 systems.

**TELEMATICS**

A growing number of vehicles are equipped with telematics and automatic crash notification (ACN) that allow access through a telematics call center to PSAPs in emergencies and could eventually provide a quicker and better emergency response if integrated with E-911 systems. Telematics is the system of components that supports two-way communication between a motor vehicle and a call center for the collection or transmission of information and commands. Automatic Crash Notification telematic systems transport voice and data to an emergency call center when the driver presses a button or when triggered by on board safety equipment such as an airbag and safety belt. "On Star" in General Motors vehicles is an example of telematics.



Currently, most telematic call centers verbally relay the need for emergency response to the appropriate PSAP when contacted by a client and after confirming an actual emergency. Most 911 call centers do not currently have a way to receive this information electronically or through 911 dedicated trunks. Telematic systems in vehicles can provide information on orientation and location through Global Positioning Satellites (GPS) and some systems provide information on crash severity such as airbag deployment, velocity of vehicle at time of deployment, fire, number of occupants, use of seat belts, or even pictures. In addition, telematic call centers may have demographic and medical information, as available, on vehicle occupants and a vehicle description to assist emergency responders.

The more complete integration of telematics, automatic crash notification, and E-911 is under study as a part of the “Next Generation E-911,” as described below.

## **SERVICE AND EQUIPMENT**

The ECDs responding to the TACIR survey rated the quality of service and equipment available to provide E-911 service very positively. The age of most equipment did not appear excessive. Most districts are planning and have identified funding for equipment purchases planned in the next few years. While some ECDs indicated they had needed but unfunded expenditures, only a few listed equipment needs.

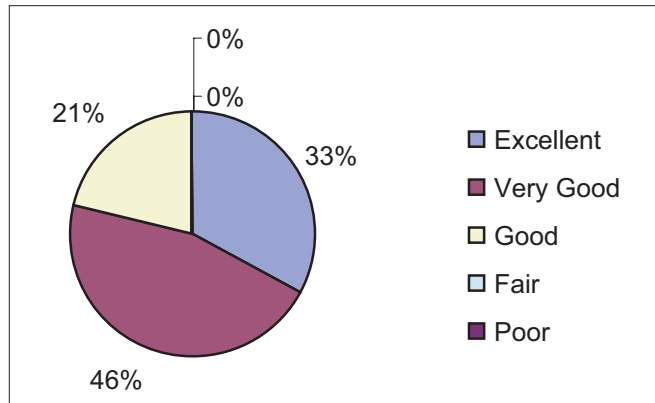
All seventy districts responding to the TACIR survey rated the quality of their service as good to excellent: 33% excellent, 46% very good, 21% good. No districts reported their service as fair or poor.

### **Finding:**

All seventy districts responding to the TACIR survey rated the quality of their service as good to excellent.



**Figure 2. Quality of 911 Service**



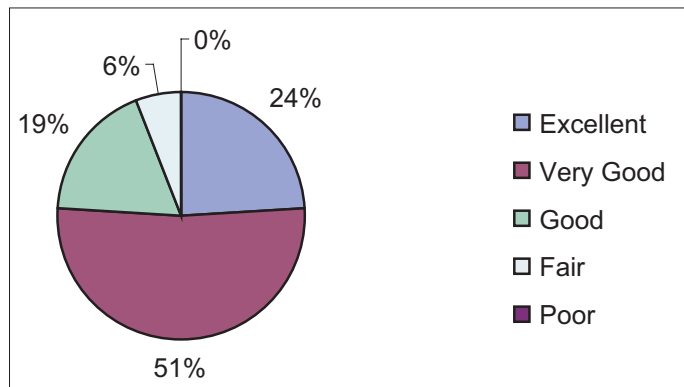
Responses - 70 ECDs  
 Source: TACIR Survey of ECD Directors, February -May 2005

**Finding:**

Almost all of the seventy districts responding to the TACIR survey rated the adequacy of their equipment as good to excellent.

Almost all (94%) of the seventy districts responding rated the adequacy of their equipment as good to excellent: 24% excellent, 51% very good, and 19% good. Only three districts (6%) reported their equipment as fair and no districts reported their equipment as poor.

**Figure 3. Adequacy of 911 Equipment**



Responses - 65 ECDs  
 Source: TACIR Survey of ECD Directors, February -May 2005

The average age of E-911 equipment components used to answer and track 911 calls ranges from three to four years. Radio equipment to dispatch 911 calls averaged 6.63 years. The average year expected to replace the primary E-911 equipment components ranges from 2008 to 2010.

About 67% of the sixty-six districts responding indicated that they had planned capital expenditures in the next three years; 33% have no planned capital expenditures. The most common capital needs included buildings (fourteen), computer aided dispatch equipment or upgrades (thirteen), radio equipment (eleven), mapping (nine), computers and software (seven), and E-911 system upgrades (nine). Most districts plan to fund these expenditures through E-911 service fees and fund reserves (twenty-five), state, and possibly federal grants (sixteen), local government funds (eight), E-911 landline service fee increases (ten), and bonds based on E-911 service fees (five).

Most districts (59%) of the seventy responding indicated they currently had no needed but unfunded expenditures. Of the 41% of districts (twenty-nine) that noted they had needed but unfunded expenditures, equipment needs included radio upgrades (eight), computer aided dispatch (four), and enhanced mapping (three).

#### **TECHNOLOGY STANDARDS AND CENTRALIZED EQUIPMENT PURCHASING**

The TECB has issued some policies and provided some funding and technical assistance related to necessary E-911 equipment however, each of the 100 ECDs statewide ultimately makes its own equipment purchases. E-911 equipment has become much more technologically complex over time. As noted by a participant in the TECB hearings, many districts have had to rely on vendors for technical assistance in purchasing equipment in the past. In the TACIR survey, only eight districts reported that they tried to follow an established equipment replacement policy. For those reporting policies, they varied from three to ten years with five years being the most common response. More objective standards and technical assistance to the districts appear needed.

The TECB has issued some policies related to E-911 service and equipment. Policy 33 approved March 17, 2005, requires all PSAPs to be capable of receiving and utilizing the data elements associated with wireless and wireline E-911 Phase II service including Automatic Number Identification (ANI) and Automatic Location Identification (ALI) as well as Phase II wireless coordinates and a GIS Mapping system capable of auto-populating

#### **Finding:**

While the TECB has issued some policies and provided some funding and technical assistance related to necessary E-911 equipment, each of the 100 ECDs statewide ultimately makes its own equipment purchases.

**Recommendation:**

As part of an overall effort to ensure that all ECDs meet a defined and consistent level of E-911 service, the TECB, in conjunction with an advisory committee, should develop more specific minimum equipment standards and specifications on the type and ability of equipment needed at each PSAP and projected replacement times.

**Recommendation:**

The TECB should consider developing a voluntary centralized purchasing capability to allow ECDs the option of taking advantage of increased economies of scale.

E-911 location data. The TECB Revenue Standards require ECDs to use 911 fees for the lease, purchase or maintenance of existing enhanced emergency (911 service) telephone equipment, ANI, ALI, including necessary computer hardware, software, and database provisioning for existing PSAP(s) in and ECD. Policy 32 requires minimum backup power requirements for ECDs.

The TECB has also reimbursed ECDs for some E-911 equipment. The TECB has reimbursed some of the cost of PSAP Master Clocks, GIS Mapping and Maintenance, and 911 systems and controllers for qualifying rural districts as well as start up costs in ECDs that did not have E-911 and other ECDs with financial difficulties. Also, the TECB pays recurring costs for some special equipment needed to implement wireless E-911 in certain counties.

As part of an overall effort to ensure that all ECDs meet a defined and consistent level of E-911 service (defined in more detail in the Funding Section of this report), the TECB should develop more specific minimum equipment standards and specifications on the type and ability of equipment needed at each PSAP and projected replacement times. The TECB should appoint an advisory committee of ECD officials and other public safety personnel and persons with E-911 technical expertise to develop minimum operational standards. The creation of such advisory committees is authorized by TCA §7-86-309. Such standards would assist in determining costs and required fees for E-911 and to plan for future equipment purchases. Standards would also assist in identifying districts that do not have sufficient revenues to meet the minimum level of service and better guide TECB assistance to those areas.

The TECB should also consider developing and coordinating a voluntary centralized purchasing capability for more common E-911 equipment. The purchasing power and knowledge base of a single state-wide agency would provide more efficient decisions on equipment choices and greater likelihood for lower equipment prices as a result of its market size. Centralized purchasing could also assist in standardizing the E-911 equipment across the state and allow for more interoperability among districts for backup coverage in emergencies.

## THE NEED TO EVOLVE TO NEW TECHNOLOGIES

Rapid advances in communications technology are continuing to pose major challenges to current 911 systems, challenges that will require changes in the 911 systems in the near future. Current 911 systems are based on outdated analog networks. Wireless E-911 has been “shoehorned” into the existing 1970’s 911 network. Studies are currently underway on how to accommodate newer emerging technologies such as Voice over Internet Protocol (VoIP) and telematics<sup>20</sup> into the current system until new, more compatible systems can be developed. The capacity and reliability of 911 can also be further enhanced by changes to newer networks and equipment to further increase public safety, especially in light of the vital role 911 plays in homeland security. The National Emergency Number Association (NENA)<sup>21</sup> is leading an initiative through private and public partnerships to help local emergency call centers keep up with the next generation of 911. NENA’s goal is to ensure everyone has access to emergency services anytime, anywhere, from any device. The TECB can play an important role in monitoring, coordinating, and eventually implementing the changes needed to replace the current systems across Tennessee.

The 2001 “Report Card to the Nation: the Effectiveness, Accessibility, and Future of America’s 911 Service”<sup>22</sup> states that current 911 networks are outdated analog services that are slow in delivering calls and limited in their application. The 911 system was built to route calls to the jurisdictionally designated PSAP responsible for emergency services dispatch, based on a fixed geographical location. These systems were not designed to handle the mobility and data components of wireless calls or local number portability much less the newer technologies of Internet Protocol telephony or Automatic Collision Notification.

In 2004, of the thirty-five districts reporting to TACIR the percentage of 911 calls from wireless phones, almost half reported 50% or more of E-911 calls were from wireless phones. For the fifteen districts reporting information for five years, the average percentage of E-911 calls from wireless phones was 42% in FY 2004, up from an average of 27% in FY 2000. NENA officials estimate that twelve to fifteen million households in the U.S. will

### **Finding:**

Rapid advances in communications technology are continuing to pose major challenges to current 911 systems that will require changes in the 911 systems in the near future.

use VoIP services as either a primary or secondary line by the end of 2008.<sup>23</sup>

PSAP staff have been asked to compensate for the shortfalls in the current 911 system's ability to accommodate new technologies. For example, many call centers have to accept 911 calls on lower priority, administrative phone lines with no location or call back information, or deal with cellular phone calls without location or callback information and callers who are unable to provide that information. The Metro Nashville Communication Center has begun to ask what state a caller is calling from after having received a VoIP call from Houston, Texas.

Current systems are limited in the amount of data that can be sent to more fully identify callers and locations. 911 systems are very voice-centric and do not have a means to easily access data from other sources. Potential sources of information that could improve emergency response include medical information of victims, pictures from surveillance cameras or camera phones of a criminal or an accident scene, maps or floor plans for the premises in question, information obtained from car sensors through automatic crash notification systems such as OnStar, to name a few. Some of this information would be coming from databases across the country or even the world.

### **NEXT GENERATION E-911: INTERNET PROTOCOL**

Serious consideration is being given to Internet Protocol (IP) as a basis to replace the current aging 911 infrastructure. According to the National Emergency Number Association (NENA), the telecommunications world is rapidly embracing IP as the convergent, mainstream technology in both private and public networks.<sup>24</sup> IP is offered as an integrated solution for data, voice, video, and a wide range of multimedia applications. Large enterprises such as ATM systems for banks and the military are deploying reliable, secure IP networks with great benefits. In a public safety environment, IP makes it possible to replace the multitude of individual circuits that now exist with one infrastructure, linking different public safety organizations at the federal, state, and local levels. This would allow for more

interoperability among PSAPs for backups, consolidating staff, and sharing information. It also facilitates access to 911 from the public using e-mail, computers and other devices, including persons that are hearing or speech impaired.<sup>25</sup>

While emerging communications trends challenge the foundations of our existing 911 system, they also hold the promise of fundamentally altering how the public summons emergency assistance and improving emergency service providers' efficiency in dealing with emergencies.<sup>26</sup> The movement is to work together to replace today's 911 technology with new, innovative, and more flexible solutions for public safety that meet current needs with appropriate long-term solutions, and provides a robust platform upon which to build solutions to future challenges.<sup>27</sup>

The specifics of new networks and systems are still under study. NENA is coordinating the work on defining the architectural structure of next generation 911 standards to be followed by testing and trials and finally launching the transition.<sup>28</sup> During this process, NENA has organized roundtables of public and private partners to study and make recommendations on issues of funding, public policy, education, and regulatory aspects related to upgrading 911 service, design, implementation and policy. The role of the federal government has not been defined at this point.

Several panelists at the TECB Public Hearings on the "Status and Future Challenges of E-911 in Tennessee" in 2004 echoed the need for a new E-911 network and the need for state involvement to make it happen. Comments included:

*"Because whether we want to accept it or not, in my opinion, the entire E-911 network needs to be replaced and upgraded over the next three to five years. We can't continue to shoehorn 21<sup>st</sup> century technology into a 1970s network, which is what it is."*

*Steve Marzolf, President, National Association of 911 Directors*



**Recommendation:**

The TECB should commission a comprehensive cost-benefit study of the development of a statewide E-911 network to take advantage of new technologies. Statutory changes may be necessary to broaden the TECB's authority to address the evolving changes in E-911 technology, networks, and systems.

*“It’s got to start at the state level creating a state network so calls and data can be moved across the state as well as among states. We need to take advantage of the technology that’s out there. We need to be able to build the partnerships (with various private businesses) that will help us help our citizens.”*

*Richard Taylor, Past President, National Emergency Number Association*

*“Next Generation 911, moving to an IP architecture ...lays an awesome foundation for the future, for services we haven’t envisioned yet....(IP) will ensure that whatever devices come out there to access 911, every citizen will have access to 911.”*

*Carey Spence, Director of State Government Affairs, Intrado*

*“The state needs to reserve some funds, with IP you’re going to have to replace the entire infrastructure. I believe that overall the IP technology may be less expensive to maintain than the current technologies out there.”*

*Dick Dickinson, Public Safety Manager, Telecommunication Services (TCS)*

As with the implementation of wireless E-911, the state board is better suited than individual districts to take the lead role in determining funding and organizing an updated E-911 system in Tennessee. In July, 2003 the TECB passed a proposal to issue a “Request for Information” to study the alternatives of securing a better E-911 network in Tennessee, which they are continuing to pursue. Statutory changes may be necessary to support the TECB role in addressing these evolving changes in E-911.

## STRUCTURE

### ORGANIZATION OF EMERGENCY COMMUNICATION DISTRICTS

The organization of emergency communications within an ECD in Tennessee is determined locally. Tennessee has one-hundred emergency communications districts in its ninety-five counties: eighty-five districts cover a one-county area and one district covers a two-county area. However, six districts are just for a city area and eight districts cover the county outside the city districts (two cities with districts are located in multiple counties).

Most districts (75%) have one primary PSAP that receives 911 calls.<sup>29</sup> An additional 9% have one primary PSAP and one or more secondary PSAPs. Sixteen districts have multiple primary PSAPs that answer calls, seven of these also have one or more secondary PSAPs.

About half (49%) of the seventy districts responding to the TACIR survey have one PSAP that answers 911 calls and directly dispatches for public service agencies. An additional 29% have one PSAP answer the calls, dispatch calls for some agencies directly, and transfer other calls to other public safety agencies. A few districts (3%) have one PSAP answer calls and transfer all calls to other public safety agencies for dispatch. Of the remaining districts that have multiple PSAPs answering calls, some (7%) directly dispatch the calls received and some (13%) dispatch some and transfer others.

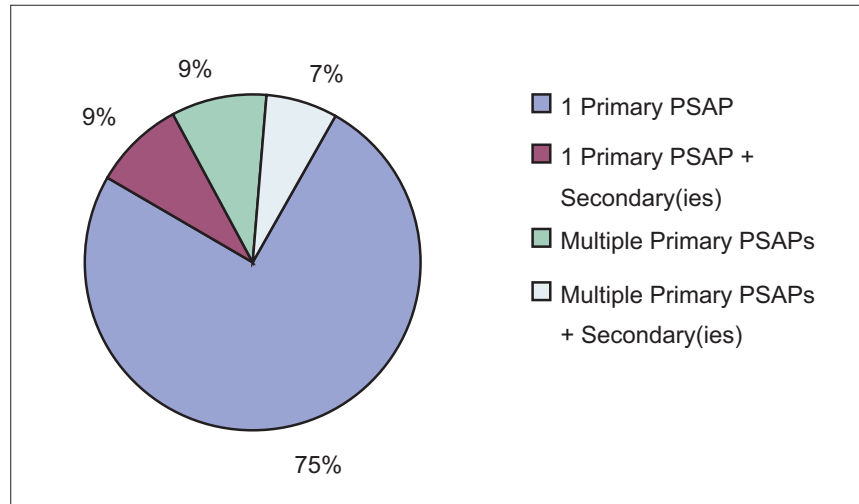
Most districts responding (70%) said their emergency communications district operated as an independent unit of government; 30% said they operated more like a division of county or city government.

#### **Finding:**

The organization of emergency communications within an ECD is determined locally. Most districts have one primary public safety answering point to receive initial 911 calls. About half of the 70 districts responding to the TACIR survey dispatch emergency service directly from the primary PSAP while others choose to transfer some or all calls to other agencies for dispatch.



**Figure 4. PSAPs by District**



Source: 2005 TACIR survey for the 70 districts responding or a 2003-04 survey by the TECB technical consultant.

**STAFFING**

Staffing for emergency communications is also determined locally among the emergency communication district, local governments, and local public service agencies. In most (74%) of the seventy districts responding to the TACIR survey, telecommunicators are employees of one public safety agency. Telecommunicators are employed directly by the emergency communication district in 52% of the districts responding, by the sheriff in 12%, by the city police in 3%, by the emergency medical service in one district, and in a separate emergency communication agency in 6%. In 15% of districts, telecommunicators are employed by two public safety agencies. In 12% of districts telecommunicators are employed by three or more public safety agencies.

Although most of the telecommunicators reported are full-time (89%), 64% of the seventy districts responding employ some part-time telecommunicators. Almost all E-911 telecommunicators in responding districts (fifty-nine of sixty) answer both E-911 and non-emergency calls. Only one district reported that telecommunicators have additional duties away from the call center (jailer) but about half of the districts indicated telecommunicators have other duties. Examples given by just twelve districts included checking for criminal histories and warrants, switchboard operation, and alarm registration.

**Finding:**  
 In most of the seventy districts responding to the TACIR survey, telecommunicators are employees of one public safety agency.

Of the sixty districts reporting employee figures, several districts indicated that they have shifts with only one telecommunicator working. In these districts, phones may go unattended when the telecommunicator needs to be away from their console or provide additional information to callers or public safety officers. This included nine districts with one person assigned on a day shift, nine districts with one person assigned on an evening shift, and eighteen districts with one person assigned on a night shift.

About 59% of the seventy districts responding are staffed and trained to provide pre-arrival medical instructions to E-911 callers. An additional 13% of districts refer or transfer calls to another agency for pre-arrival emergency medical instruction. At least two telecommunicators are needed on a shift to be able to provide pre-arrival instructions as needed.

### **NEED FOR STAFFING STANDARDS**

The TECB, in conjunction with an advisory committee, should develop minimal staffing standards for the districts as part of the development of overall standards to meet a defined level of E911 service statewide, as discussed below in the funding section. The standards should consider the need and alternatives to providing pre-arrival instructions statewide. In areas with insufficient local E-911 service fees to meet the staffing and other standards, state E911 funds could be used to supplement the fees in the area.

### **POTENTIAL BENEFITS IN CONSOLIDATING PSAPS AND ECDS**

Several studies across the country and Tennessee have found significant cost savings and better service through consolidation. Most cost savings are through the reduction in personnel costs and the high cost of equipment replacement. The major difficulties reported are getting agreement among the various parties to the terms of the consolidation and a perceived loss of control by the agencies involved. Differing pay scales and benefits among consolidating agencies as well as other staffing issues are often areas of concern. However, as pointed out in one consolidation report, it is possible to find many reasons for not consolidating but, for every problem, another community has found a solution.<sup>30</sup>

#### **Finding:**

Several districts indicated that they have shifts with only one telecommunicator working. In these districts, phones may go unattended when the telecommunicator needs to be away from their console or provide additional information to callers or public safety officers.

#### **Recommendation:**

The TECB in conjunction with an advisory committee should define minimum operational standards for personnel and staffing needs.

#### **Finding:**

In 29% of the districts responding, no pre-arrival instructions are available. In these districts, callers must wait for emergency personnel to arrive before treatment can begin.

#### **Recommendation:**

The TECB in conjunction with an advisory committee should consider the need and alternatives to offer pre-arrival instructions statewide.

**Finding:**

Potential savings and benefits are available to ECDs and local governments from further consolidating PSAPs within an ECD or among adjacent ECDs. Consolidation may become more of an issue as technological changes in telecommunications result in the need for a new E-911 system network and major changes in PSAP equipment.

**Finding:**

Tennessee has a policy of encouraging consolidation within and among ECDs.

Consolidation may become more of an issue as technological changes in telecommunications result in the need for a new E-911 system network and major changes in PSAP equipment. Newer network solutions should also allow greater interoperability among PSAPs and districts to enhance consolidation or backup in times of greater 911 needs or in a local disaster. Also, as the TECB continues to define statewide technical, operating, staffing and training standards, consolidation may be a more cost-efficient and effective means of meeting a higher level of service, especially in areas with limited E-911 service charge revenue.

**CONSOLIDATION IN TENNESSEE**

Tennessee has a policy of encouraging consolidation within and among ECDs. TCA §7-86-105(b)(6) states that “it is the public policy of the state to encourage the consolidation of emergency communications operations in order to provide the best possible technology and service to all areas of the state in the most economical and efficient manner possible.” Also, TCA §7-86-310, effective May 20, 1998 prohibits the creation of a new ECD within the boundaries of an existing district without the prior approval of the TECB.<sup>31</sup> TCA §7-86-305 authorizes the TECB, as a means to restore financial stability to financially distressed ECDs and to ensure continued 911 service for the benefit to the public, to study the possible consolidation or merger of two or more adjacent ECDs if one of the ECDs is financially distressed.

To promote consolidation, the TECB allows full benefits of its grants programs and reimbursement programs to continue after consolidation. For example, a consolidated district will still continue to receive grant amounts for each of the districts included in the consolidation. In July 2005, the TECB approved a program to encourage consolidation of rural ECDs with other ECDs by reimbursing the costs of consolidation up to \$300,000, subject to the availability of funds. The TECB also directed staff to conduct a study on the feasibility of contributing funds toward the consolidation of emergency communication operations within districts.

**ORGANIZATION OF EMERGENCY COMMUNICATIONS DISTRICTS**

Emergency communications in Tennessee are fairly consolidated on a county level. Tennessee has one-hundred emergency communications districts in its ninety-five counties: eighty-five districts cover a one-county area and one district covers a two-county area. However, six districts are just for a city area and eight districts cover the county outside the city districts. Two cities with districts are located in multiple counties (See Table 4). In counties with multiple ECDs, E-911 service fees are split among the districts established in the county and each district must provide complete 911 equipment and at least a base level of personnel to operate a PSAP.

There are 139 primary PSAPs reported<sup>32</sup> in Tennessee and twenty-six secondary PSAPs (see Table 5). Most districts in Tennessee (75%) have one PSAP that receives the initial 911 calls. An additional 9% operate one primary PSAP but also operate one or more secondary PSAPs where calls are transferred for dispatch. The remaining districts (16%) operate multiple primary PSAPs that receive calls, some also with secondary PSAPs that dispatch calls (see Table 6). These districts, along with the eight counties with multiple districts, would potentially have the most to gain from consolidation within their district.

**Finding:**

ECDs in Tennessee are generally consolidated on a county basis.

**Table 4. Counties with Multiple Emergency Communications Districts**

Anderson County
Clinton City
Oak Ridge
Campbell County
Lafollette
Williamson County
Brentwood
Sullivan County
Bristol
Kingsport
Roane County
Oak Ridge
Hawkins County
Kingsport

Source: Tennessee Emergency Communications Board

Table 5. Number of PSAPs by ECD

ECD	# Primary	# Secondary	Total	ECD	# Primary	# Secondary	Total
Anderson	1	3	4	Lake	1	0	1
Clinton	1	0	1	Lauderdale	1	0	1
Oak Ridge	1	0	1	Lawrence	1	0	1
Bedford	1	0	1	Lewis	1	0	1
Benton	2	0	2	Lincoln	1	0	1
Bledsoe	1	0	1	Loudon	3	3	6
Blount	1	0	1	Macon	1	0	1
Bradley	1	0	1	Madison	2	2	4
Campbell	1	0	1	Marion	1	0	1
LaFollette	1	0	1	Marshall	1	0	1
Cannon	1	0	1	Maury	1	1	2
Carroll	1	2	3	McMinn	1	0	1
Carter	1	0	1	McNairy	1	0	1
Cheatham	1	0	1	Meigs	2	0	2
Chester	1	0	1	Monroe	1	0	1
Claiborne	1	0	1	Montgomery	1	0	1
Clay	1	0	1	Moore	1	0	1
Cocke	1	0	1	Morgan	2	0	2
Coffee	1	0	1	Obion	1	0	1
Crockett	1	0	1	Overton-			
Cumberland	1	0	1	Pickett	1	0	1
Davidson	1	0	1	Perry	1	0	1
Decatur	1	0	1	Polk	1	1	2
Dekalb	1	0	1	Putnam	1	2	3
Dickson	1	0	1	Rhea	1	0	1
Dyer	3	0	3	Roane	1	0	1
Fayette	1	0	1	Robertson	2	0	2
Fentress	1	1	2	Rutherford	4	1	5
Franklin	1	0	1	Scott	1	0	1
Gibson	1	0	1	Sequatchie	1	0	1
Giles	1	0	1	Sevier	3	2	5
Grainger	1	0	1	Shelby	7	2	9
Greene	1	0	1	Smith	1	0	1
Grundy	1	0	1	Stewart	1	0	1
Hamblen	1	0	1	Sullivan	1	0	1
Hamilton	9	1	10	Bristol	1	0	1
Hancock	2	0	2	Kingsport	1	0	1
Hardeman	1	0	1	Sumner	8	1	9
Hardin	1	0	1	Tipton	1	0	1
Hawkins	1	0	1	Trousdale	1	0	1
Haywood	1	0	1	Unicoi	2	1	3
Henderson	1	0	1	Union	2	0	2
Henry	1	0	1	Van Buren	1	0	1
Hickman	1	0	1	Warren	1	1	2
Houston	1	0	1	Washington	1	0	1
Humphreys	1	0	1	Wayne	1	0	1
Jackson	1	0	1	Weakley	1	1	2
Jefferson	1	0	1	White	1	0	1
Johnson	2	0	2	Williamson	1	0	1
Knox	1	1	2	Brentwood	1	0	1
				Wilson	1	0	1

Source: 2005 TACIR survey for the 70 districts responding or a 2003-04 Survey by the TECB technical consultant.

**Table 6. Emergency Communication Districts with Multiple Primary PSAPs**

	Primary PSAPs	Secondary PSAPs
Benton	2	0
Dyer	3	0
Hamilton	9	1
Hancock	2	0
Johnson	2	0
Loudon	3	3
Madison	2	2
Meigs	2	0
Morgan	2	0
Robertson	2	0
Rutherford	4	1
Sevier	3	2
Shelby	7	2
Sumner	8	1
Unicoi	2	1
Union	2	0

Source: 2005 TACIR survey for the 70 districts responding or a 2003-04 Survey by the TECB technical consultant.

### ***SURVEY RESULTS ON CONSOLIDATION***

The trend in the emergency communication field is to consolidate equipment and telecommunicators into fewer, more centralized call centers. Tennessee's district directors were asked their opinions on several statements related to the consolidation of emergency communications. Overall, directors were positive toward the possibilities and benefits of consolidation within a county. Directors were not as supportive of the consolidation of PSAPs among more than one county. Most directors agreed that telecommunicators can be trained (84%) and held accountable (63%) to effectively handle calls of multiple public safety agencies and for a larger geographical area (61%). Most (71%) agreed that personnel cost savings were possible by combining PSAPs within a county. Directors were evenly split (agree, neutral, and disagree) on the need for call centers to handle a minimum number of call for cost-effectiveness, non-personnel cost savings and effective management control by combining PSAPs among more than one county.

### **Finding:**

Overall, ECD Directors were positive toward the possibilities and benefits of consolidation within a county. Directors were not as supportive of the consolidation of ECDs among more than one county.

**TACIR Survey July 2005**  
**Table 7. Organization of Communication Centers**

<b>Current E911 technology allows call takers/dispatchers to effectively answer and dispatch calls for a larger geographical region.</b>					
Strongly Agree	20%	Agree	41%	Neutral	20%
Positive			61%	Disagree	14%
				Strongly Disagree	4%
				Negative	19%
<b>Call taker/dispatchers can be trained and effectively handle calls of multiple public safety agencies.</b>					
Strongly Agree	26%	Agree	59%	Neutral	9%
Positive			84%	Disagree	6%
				Strongly Disagree	1%
				Negative	7%
<b>Call takers/dispatchers can be held accountable when handling calls for multiple public safety agencies.</b>					
Strongly Agree	16%	Agree	53%	Neutral	21%
Positive			69%	Disagree	9%
				Strongly Disagree	1%
				Negative	10%
<b>For cost effectiveness, E911 systems need to handle a minimum level of calls.</b>					
Strongly Agree	10%	Agree	27%	Neutral	30%
Positive			37%	Disagree	27%
				Strongly Disagree	6%
				Negative	33%
<b>Personnel cost savings are possible by combining PSAPs (both primary and secondary) within a county.</b>					
Strongly Agree	26%	Agree	46%	Neutral	17%
Positive			71%	Disagree	4%
				Strongly Disagree	7%
				Negative	11%
<b>Non-personnel cost savings (equipment, maintenance, administration) are possible by combining PSAPs (both primary and secondary) among more than one county.</b>					
Strongly Agree	14%	Agree	21%	Neutral	29%
Positive			36%	Disagree	20%
				Strongly Disagree	16%
				Negative	36%
<b>Effective management control is possible by combining PSAPs (both primary and secondary) among more than 1 county.*</b>					
Strongly Agree	9%	Agree	23%	Neutral	28%
Positive			32%	Disagree	23%
				Strongly Disagree	17%
				Negative	41%

\*69 responses for this question; 70 responses for all others.

Note: Totals may not equal 100% due to rounding.

Source: TACIR survey of Tennessee's Emergency Communications Directors, 2005



### ***CONSOLIDATED CALL CENTERS IN TENNESSEE***

TACIR interviewed<sup>33</sup> some of the district directors that have consolidated call and dispatch centers in the last several years. Humphreys County converted to a consolidated dispatch center in 2001. The director indicated that consolidation reduced overlap and cost among public safety agencies and they now can offer better coverage for emergency communication. The director of Tipton County said that consolidation definitely reduced costs; he knows the smaller cities could not operate a dispatch center for the funds they contribute to the consolidated center. The director of the Bradley County ECD said their consolidation in 1996 allowed them to pool the 911 call workload and smooth out the peaks and valleys in the receipt of calls among several agencies. All of these directors said the biggest issue which they have successfully overcome was the perceived loss of control from some of the agencies involved. The districts were able to overcome these concerns by involving all the affected agencies in establishing the standards, procedures, and agreements and eventually, in showing that service was not compromised.

The Tennessee Emergency Communications Board encouraged the last four counties to implement E-911 in Tennessee (Van Buren, Grundy, Sequatchie, and Bledsoe) to develop a regional call center. However, after about three years of discussion, each of the four counties decided they wanted to keep their dispatchers in their own county and have an E-911 facility in their own county as well.<sup>34</sup>

### **VERTON-PICKET ECD**

Overton and Pickett County ECDs merged in 2001. Pickett County was in “financial distress.” Pickett County came to Overton County about a possible merger to continue E-911 service in their area. The TECB provided funds for updated equipment in a consolidated center. According to the director of the merged district, the merger has worked because both counties wanted it and have worked together to achieve it. The merger saved Pickett County the costs of new equipment it could not afford with its small population and service fee base and has provided improved service for both counties.





**2004 MINNESOTA STUDY**

A 2004 study by the Minnesota Department of Administration for the Minnesota Legislature found that PSAP consolidation is feasible in Minnesota and has the potential to offer cost savings and public safety benefits when the circumstances are right. The “right circumstances” include

- PSAP operating costs per call are relatively high compared to larger PSAPs;
- The PSAP is in need of capital upgrades that could be avoided through consolidation;
- Willing consolidation partners can be found in other PSAPs;
- 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;
- Transition costs would not be more than savings; and
- A feasibility study has verified the potential for operational, cost, or public safety benefits within the specific consolidation.

The study found that larger PSAPs have lower personnel costs-per-911 call than smaller PSAPs, indicating potential for cost savings from consolidating smaller PSAPs. The study focused on personnel costs because they make up an average of 86% of operating costs and other operating costs were not completely or consistently reported. Personnel costs were adjusted to reflect the percent of time telecommunicators were assigned to other non-call center activities. The potential for cost savings in smaller PSAPs seems rooted in minimum staffing requirements i.e. when the workload does not require the full-time of each employee on duty.

The Minnesota study cautiously projected a potential statewide cost savings through consolidation of between \$8 and \$10.5 million dollars per year if PSAPs could operate at a lower cost level achieved by many PSAPs. However, the study team thought these savings would be significantly less because underutilized

PSAP staff fulfill other duties in many law enforcement agencies that would have to be filled by other staff. Most consolidation efforts have agreed to not lay off employees, so savings are deferred until attrition results in staff reductions. Also, many PSAP budgets did not include “off budget” costs as clerical and technical support from other offices, especially in smaller PSAPs. E-911 service fees in Minnesota only fund about 10% of PSAP total budgets so most of the cost savings there would be to the local governments.

TACIR unsuccessfully attempted to replicate the staffing analysis of the Minnesota study. Comparable data was only provided by twenty-two of the one-hundred districts in Tennessee. Data was only provided by two of the districts with populations under 20,000, districts most likely to benefit economically from consolidation. However, personnel costs are a high percentage of E-911 total costs in Tennessee (over 70% for the districts reporting total costs) as in Minnesota, which indicates there is potential for cost savings through consolidation. Most of these savings would be to local governments who usually fund E-911 personnel costs.

In general, the Minnesota study found that the public safety community believed that consolidation would cause them to compromise public safety services. Although the researchers thought these concerns are addressable and solvable, that doesn't mean they will be solved without public safety support. The researchers also found that many of the very small PSAPs were in rural or more isolated areas of the state where several PSAPs would need to be joined together to get results. This could result in too large a geographic area for effective or efficient coverage. Also, large PSAPs require higher levels of technology to be effective which would increase the costs of consolidation. The Minnesota researchers emphasize the need to look at each potential consolidation individually. Also, public safety officials need to be certain of the public safety benefits.

The study recommended that the state's optimal role is to create a “consolidation friendly” environment through education about consolidation and possibly grants to study, plan, and implement consolidation. Another suggestion was to standardize equipment

and performance and operating requirements which would increase interoperability among PSAPs and make consolidation more feasible and convenient. Prior attempts at mandating consolidation appeared to be ineffective and possibly counterproductive.

### **MAINE CONSOLIDATION STUDY**

A PSAP Consolidation Study<sup>35</sup> by L. Robert Kimball and Associates<sup>36</sup> for the State of Maine in 2004 recommended that Maine move forward with consolidating PSAPs with a goal of one PSAP per county and three additional PSAPs for State Police (a total reduction from forty-eight to nineteen PSAPs). The study's focus was on ways to decrease the statewide network, database, and equipment costs of E-911 in Maine, which are paid through statewide E-911 service fees by a centralized state agency. The study projected that consolidation of PSAPs in Maine could reduce the Emergency Services Communications Bureau's budget by about 8% through reductions in equipment costs paid to the service providers.

As in Tennessee, some counties in Maine operate one consolidated PSAP while others operate several. The study states that while it is technically feasible to provide E-911 to the entire state of Maine with only two PSAPs, it is not advisable for several reasons such as terrain, demographics, and culture. However, the reasons for differing numbers of PSAPs in similar-sized counties do not seem reasonable. The study found that in two counties with similarly sized population (29% difference), a county with eleven PSAPs compared to one with two PSAPs had equipment and network costs 300% higher. Maine's largest county had one consolidated PSAP and equipment and network costs were 65% less than the one with two PSAPs and 500% less than the one with eleven.

The study suggests that consolidation would also result in significant savings in operating costs, which are paid by local governments in Maine. These include savings in personnel costs through improvements in productivity and combining the costs of multiple PSAPs to upgrade and maintain 911 systems, radio console systems, and other expensive equipment. Consolidation would

also make operations more efficient and effective, most notably through

- Standardized training,
- Standardized operating procedures,
- A larger call taking/dispatcher staff,
- Improved opportunities for career advancement, and
- Improved sharing of response information.

The overall benefit would be improved continuity of call processing and increasing the public's trust in 911. The study concludes that consolidation of PSAPs is feasible and desirable but acknowledges that it is also difficult. The concerns of impacted agencies and personnel need to be considered and reasonably mitigated. Kimball further suggests that separately identifying PSAP costs from the operating agency's budget provides a clearer picture of true costs of running a PSAP, and any cost savings that may be available from consolidation.

### **GEORGIA'S REGIONAL E-911 GRANTS**

In order to more fully implement E-911 statewide in Georgia, a Georgia Department of Community Affairs' demonstration project in 2001 funded a fully functional "regional" E-911 system for two counties in southwest Georgia. These counties were among thirty-one predominantly small, rural counties with limited populations at the time that did not have 911 service, primarily as a result of lack of county financial capacity. The counties received a state funding grant for the up-front costs associated with the installation and set-up of the E-911 system. The two counties developed an intergovernmental agreement whereby they would share and allocate revenues and expenses associated with the E-911 system. As of a 2002 report,<sup>37</sup> the project appeared to be realizing significant and sustainable "economies of scale" as it relates to ongoing operation of the regional E-911 center and operational costs appear sustainable from a local budgetary standpoint. The study concludes that with the proper political will and collaborative spirit, other rural counties could replicate the program and concept.

According to the 911 Coordinator for the Georgia Emergency Management Agency in July 2005, Georgia has funded start-up costs for six regional projects including counties without 911 service through grants. The first regional project is coming on line in 2005. In addition, several counties in Georgia successfully contract for E-911 services with neighboring counties to share the costs of E-911 service.

### **CONSOLIDATION RECOMMENDATIONS FOR TENNESSEE**

Tennessee needs to continue to encourage consolidation of PSAPs within a county or among adjoining ECDs. Districts and local governments with multiple PSAPs or districts need to determine whether the additional personnel and equipment costs are justified. Most of the cost savings will come to local governments in personnel savings. Districts with smaller populations and call volumes, especially those with financial problems or those unable to meet accepted technical and operating standards, should explore possible cost savings and service enhancement from merging with adjacent districts for call-taking and dispatch responsibilities. Consolidation will become even more important to consider when current technological changes require high cost changes in the 911 communication equipment and networks.

The Tennessee Emergency Communication Board should continue its education efforts and policies that encourage consolidation of PSAPs and Emergency Communications Districts. The board should work to avoid policies that reward counties with multiple PSAPs, such as grants based on districts or PSAPs as opposed to counties.

### **NEED FOR LOCAL BOARD MEMBER REQUIREMENTS?**

There is controversy within some ECDs on whether municipalities are adequately represented on ECD Boards. For most ECDs, there is no specific statutory authority requiring municipal representation. Of the forty-one boards that provided sufficient information in a survey by the Tennessee Emergency Number Association in 2005, they do appear to include municipal representatives: elected officials, public safety representatives, or

### **Recommendation:**

The Tennessee Emergency Communication Board should continue its education efforts and policies that encourage consolidation of PSAPs and Emergency Communications Districts.

### **Finding:**

There is controversy within some ECDs on whether municipalities are adequately represented on ECD Boards.



citizens. Through the Tennessee Municipal League, municipal officials have stated that they are “experiencing numerous and widespread emergency communication challenges” and need assurance of municipal representation on boards.<sup>38</sup> Most ECD Directors think board composition and selection should remain at the local level.

#### ***ECD BOARD MEMBER MAKE-UP***

As directed by TCA 7-86-105, ECD Board members are primarily appointed by the local government executive for the area covered by the ECD, subject to confirmation by the local legislative body. Board members are to include seven to nine members with no specific requirements for membership.<sup>39</sup>

Some specific exceptions in the statute have been included for the following districts:

- In a home rule municipality having a population of less than 30,000 residents, and having an incorporated area lying in two or more counties (Oak Ridge), the municipality’s legislative body may serve as the ECD board of directors if the municipality provides the emergency service.<sup>40</sup>
- In counties with a metropolitan form of government and a population between 400,000 and 500,000 (Nashville/Davidson County) the ECD Board has seven to nine members. The members are appointed by the mayor subject to confirmation by the Metropolitan City Council. In addition, the mayor is to include minorities and females in appointments to the ECD Board.<sup>41</sup>
- In counties that do not have a metropolitan form of government and with a population between 300,000 and 750,000 (Knox and Hamilton<sup>42</sup> Counties) allow up to sixteen members and must include the County Mayor, County Sheriff, and Chief of Police, Mayor, and Fire Chief or their representatives for the largest municipality in the district. The remaining eleven members are appointed by the legislative body and must include one woman and one representative from the nongovernmental emergency

agency servicing such district.<sup>43</sup> Public Chapter 64, effective April 26, 2005, allows these eleven members to be appointed by the county executive with confirmation by the county legislative body, as in other counties.

- In counties with a population between 43,700 and 43,800 (Hawkins) the county legislative body may appoint two additional members.<sup>44</sup>
- In counties with a population greater than 800,000 (Shelby) one board member must be an actively engaged firefighter, police officer, or emergency medical technician.<sup>45</sup>
- In emergency communication districts created by a municipality after July 1, 2002 (Brentwood), the board of directors of the district may be the legislative body of such municipality.<sup>46</sup>

In addition, if emergency communications are consolidated within or between districts, TCA 7-86-105(6) allows the parties involved to negotiate an interlocal agreement including the size and appointment of the board of directors of the combined district.

The Tennessee Emergency Number Association (TENA) conducted a survey of ECDs in 2005 and requested information on the ECD Boards of Directors and their “affiliation” or who they represent. Survey responses were received from forty-four of the one-hundred ECDs, forty-one districts provided sufficient information to determine the general make up of their board of directors. This is not necessarily a representative sample.

Most of the boards reporting (83%) included city representatives on their board.<sup>47</sup> Only seven of forty-two ECDs with sufficient information (17%) did not show any members representing cities.

The makeup of ECD Boards of Directors varies among the districts. Of the forty-one boards reporting sufficient information, twenty-four boards (59%) included members representing a combination of locally elected officials (e.g. Mayors, Commissioners), involved agencies (e.g., Sheriff, Police, Fire, EMS, utilities, etc.), and citizens; eleven (27%) included members from involved agencies and citizens; three boards (7%) included locally-elected officials and

**Finding:**

If emergency communications are consolidated within or between districts, TCA 7-86-105(6) allows the parties involved to negotiate an interlocal agreement including the size and appointment of the board of directors of the combined district.

**Finding:**

In a 2005 survey by the Tennessee Emergency Number Association, thirty-four of the forty-one districts responding included city representatives on their boards.



**Finding:**

Most ECD Directors responding to the 2005 TACIR survey did not think the state law should prescribe the make-up of the local boards.

citizens; two boards (5%) were comprised of all citizens; and one board (2%) was locally elected officials and involved agencies.

In 2004, the Tennessee Municipal League approved a policy statement strongly supporting municipal representation on local ECD boards, directly appointed by municipalities, in proportion to call volume by location. No legislation has yet been filed. At one of the public hearings held by the TECB, an alderman from the City of Franklin testified that the City of Franklin does not think that ECD boards operate at “arms length” from county governing bodies. He stated that funds received by the district do not trickle down in such a way as to address local equipment and software needs. He recommended legislation requiring all partners within a district be given representation on the local district board thus ensuring that more densely populated areas will receive funding based on need.<sup>48</sup>

The 1995 study by TACIR “Funding, Creation, and Management of E-911 Districts” included discussion of the issue of municipal representation on ECD boards but made no recommendations. At that time many city officials contended that because they generate a majority of E-911 service charge revenue, the selection method and composition of ECD Boards should be changed. Many county officials and ECD Board members and staff contended that ECD Boards represent all citizens, regardless of whether they live in an urban or rural area of the county and that current selection methods and composition of boards was satisfactory. Other officials stated that the issue of municipal representation is actually a symptom of greater problems; if the General Assembly were to more clearly define the role and proper actions of the ECDs, there would be less room for argument about whether cities were being adequately represented on the ECD Boards. Municipal officials stated that as long as cities perceive that their concerns are underrepresented on ECD Boards, there will be a “growing” number of cities that will “secede” from their respective county ECDs. (At the time, there was a moratorium on the creation of new ECDs and Public Acts of 1998, Ch. 1108 (TCA 7-86-310) says no new districts can be created within the boundaries of another ECD without prior approval of the TECB.)

In the 2005 TACIR survey, most ECD Directors (69%) did not think the state law should prescribe the make-up of the local boards. A few commented that this decision should be left at the local level. Thirty-nine percent indicated that the state law should prescribe the make-up; however, few indicated what this make up should be. Several directors (6) indicated a potential conflict of interest in having city or county elected officials on the ECD Boards because those officials may use E-911 funds to replace local government funds now covering some E-911 expenses.

Local governments within an ECD should continue to work together through interlocal agreements to ensure that ECD Boards provide the best guidance and representation in their area. If the General Assembly feels that changes should be made to the TCA to require municipal representation on ECD boards, it is recommended that the change require the county mayor to appoint either the mayor, city manager, or their appointed representative, of the largest municipality, by population, providing emergency services and located within the ECD area to the ECD board in order to represent municipal interests. This requirement should not be applicable to boards that already require municipal representation through an interlocal agreement.

**Recommendation:**

If the General Assembly feels that changes should be made to the TCA to require municipal representation on ECD boards, it is recommended that the change require the county mayor to appoint either the mayor, city manager, or their appointed representative, of the largest municipality, by population, providing emergency services and located within the ECD area to the ECD board in order to represent municipal interests. This requirement should not be applicable to boards that already require municipal representation through an interlocal agreement.



## FUNDING

A principal question considered in this study is whether or not there is a problem with Tennessee's current funding method for E-911. Existing 911 funding mechanisms in Tennessee are similar to those in place in most states. And like in most states, they continue to produce a growing level of revenue statewide. However, some individual ECDs may be experiencing declining 911 revenues and some may still need additional funding to raise their 911 service levels to acceptable standards. Revenue problems resulting from the introduction of new communications technologies discussed in an earlier section of this report may create some short term challenges, but do not as yet appear to threaten the long run viability of funding 911 resources from surcharges on users. Total 911 surcharges from wireline and wireless services should produce over \$80 million during fiscal 2005, based on data reported by the FCC. However, neither the FCC, ECD, nor TRA data on landlines are sufficiently detailed to evaluate the impacts on individual ECDs or revenue losses associated with exempt business lines.

The data required in order to objectively determine the level of service fees needed to cover the costs of E-911 in Tennessee is not currently available. Information needed to determine the revenue needed to adequately provide E-911 service in a district would include:

- What E-911 operating and capital costs are the fees expected to cover;
- What support is expected from local county and city governments;
- What are the operating standards for districts in terms of service provided;
- What minimum level of equipment, technology, and staffing is needed to provide the expected service;
- What level of reserves do districts need to cover future capital costs and emergencies; and
- What is the revenue base in each ECD?

### **Finding:**

Sufficient information is not available for TACIR staff to determine the level of service fees needed to cover the cost of E-911 in Tennessee and how best to fund those costs.

**Recommendation:**

As sufficient data is not currently available to recommend a more specific funding option, The TECB, with input from an advisory committee from ECDs, local governments, and other 911 technical experts, should provide direction and data on what 911 fees are expected to cover and recommend a more specific funding method, if needed, and any legislative changes required.

The advisory committee will include a representative of the TACIR, appointed by the chair of the TACIR. The advisory committee will report its findings to the TACIR no later than June 2006.

**Recommendation:**

Require providers to report line counts and service fees statewide by ECD to a central state agency and include penalties for not reporting.

The TECB, with input from an advisory committee from the state's ECDs, local governments, and other 911 technical experts, should provide direction and data in these areas and recommend a more specific funding method, if needed, and any legislative changes required. The advisory committee will include a representative of the TACIR, appointed by the chair of the TACIR. The advisory committee will report its findings to the TACIR no later than June 2006.

The funding method should consider more efficient and equitable funding of 911 services in Tennessee. As discussed in the following section, options for the advisory committee to consider could include:

- Establishing a single rate that applies to all telecommunications users regardless of technology used to access E-911;
- Linking distribution of the state fee to cost components developed using technology and staffing operational standards if local fees are insufficient to cover the minimum standards;
- Incorporating some measurement of local fiscal capacity reflecting the relative funding burden and capacity of the ECDs into the distribution of the state fee;
- Allowing the ECDs the flexibility to use local surcharges to fund E-911 operations above and beyond the minimum standards funded by the state fee;
- Changing the current cap on business lines from 100 lines at a higher rate to 300 lines at a new, lower single state rate, with an additional charge for each 50 lines above 300. A specific definition of "location" is needed to determine the number of lines within the cap.

The ECDs have difficulty tracking the number of landlines and relevant service fees. The TECB does not have authority to gather this information statewide. There are no enforcement provisions against providers not providing this information. In addition, many ECD Directors indicated on the TACIR survey that they do not

believe they are receiving all 911 service fees from all providers in their area.

It is recommended that the state should require providers to report line counts and service fees statewide by ECD to a central state agency and include penalties for not reporting. Tennessee should consider requiring state audits of local exchange carriers to ensure that fees are properly collected and remitted to the ECDs.

## **CURRENT SCENARIO**

Realizing the importance and need for E-911 service throughout Tennessee, the Tennessee General Assembly authorized and provided independent funding for Emergency Communication Districts (ECDs). Public Chapter 867 of 1984, allows local referendums to create Emergency Communication Districts run by a locally-appointed board of directors to provide “a single, primary, three-digit emergency telephone number (9-1-1) through which emergency service can be quickly and efficiently obtained.” TCA 7-86-108 allows the board of directors of the districts to levy an emergency telephone service charge on “landlines,” not to exceed \$.65 per month per line for residential users and \$2 per month for business users, up to 100 lines at one location, to fund E-911 emergency service. The service charges may increase up to \$1.50 for residential lines and up to \$3 for business lines if approved by the Tennessee Emergency Communication Board or if submitted by the ECD board and approved by voters in a public referendum. Table 9 shows the current landline rates by district, as of August 10, 2005.

## **Recommendation:**

Consider requiring state audits of local exchange carriers to ensure that fees are properly collected and remitted to the ECDs.

**Table 9. Tennessee Emergency Communications Board  
Landline 9-1-1 Rates  
August 10, 2005**

<b>ECD</b>	<b>Res. Rate</b>	<b>Bus. Rate</b>	<b>ECD</b>	<b>Res. Rate</b>	<b>Bus. Rate</b>
Anderson	\$0.65	\$2.00	Lake	\$0.65	\$2.00
Clinton City	\$0.65	\$2.00	Lauderdale	\$1.25	\$2.25
Oak Ridge City	\$1.50	\$3.00	Lawrence	\$1.50	\$3.00
Bedford	\$0.65	\$2.00	Lewis	\$0.65	\$2.00
Benton	\$0.60	\$1.50	Lincoln	\$0.65	\$2.00
Bledsoe	\$1.50	\$3.00	Loudon	\$0.65	\$2.00
Blount	\$1.10	\$2.45	Macon	\$0.65	\$2.00
Bradley	\$1.50	\$3.00	Madison	\$0.45	\$1.64
Campbell	\$1.15	\$2.50	Marion	\$0.65	\$2.00
LaFollette City	\$0.65	\$2.00	Marshall	\$1.50	\$3.00
Cannon	\$0.65	\$2.00	Maury	\$1.00	\$2.35
Carroll	\$0.65	\$2.00	McMinn	\$0.65	\$2.00
Carter	\$0.65	\$2.00	McNairy	\$1.15	\$2.50
Cheatham	\$1.15	\$2.50	Meigs	\$1.50	\$3.00
Chester	\$0.65	\$2.00	Monroe	\$0.65	\$2.00
Claiborne	\$1.50	\$3.00	Montgomery	\$1.50	\$3.00
Clay	\$0.65	\$2.00	Moore	\$0.65	\$2.00
Cocke	\$1.15	\$2.50	Morgan	\$1.50	\$3.00
Coffee	\$0.55	\$1.75	Obion	\$0.65	\$2.00
Crockett	\$0.65	\$2.00	Overton-Pickett	\$1.50	\$3.00
Cumberland	\$1.40	\$2.75	Perry	\$0.65	\$2.00
Davidson/Nashville	\$0.65	\$2.00	Polk	\$0.65	\$2.00
Decatur	\$0.65	\$2.00	Putnam	\$0.65	\$1.66
DeKalb	\$0.65	\$2.00	Rhea	\$1.50	\$3.00
Dickson	\$0.55	\$1.65	Roane	\$1.50	\$3.00
Dyer	\$0.55	\$1.67	Robertson	\$1.50	\$3.00
Fayette	\$0.65	\$1.75	Rutherford	\$0.50	\$1.52
Fentress	\$0.65	\$2.00	Scott	\$0.65	\$2.00
Franklin	\$0.65	\$2.00	Sequatchie	\$1.50	\$3.00
Gibson	\$1.50	\$3.00	Sevier	\$0.55	\$1.67
Giles	\$1.50	\$3.00	Shelby	\$0.65	\$1.30
Grainger	\$1.50	\$3.00	Smith	\$0.65	\$2.00
Greene	\$0.65	\$1.50	Stewart	\$1.00	\$2.50
Grundy	\$0.65	\$2.00	Sullivan	\$1.50	\$3.00
Hamblen <sup>1</sup>	\$1.00	\$2.50	Bristol City	\$0.65	\$2.00
Hamilton	\$1.50	\$3.00	Kingsport City	\$0.65	\$1.65
Hancock	\$0.65	\$2.00	Sumner	\$0.55	\$1.00
Hardeman	\$0.65	\$2.00	Tipton	\$1.50	\$3.00
Hardin	\$0.60	\$1.50	Trousdale	\$0.65	\$2.00
Hawkins	\$0.90	\$2.25	Unicoi	\$1.50	\$3.00
Haywood	\$0.65	\$2.00	Union	\$1.50	\$3.00
Henderson	\$0.65	\$2.00	Van Buren	\$0.65	\$2.00
Henry	\$0.65	\$2.00	Warren	\$1.00	\$3.00
Hickman	\$0.65	\$2.00	Washington	\$1.10	\$2.45
Houston	\$1.50	\$3.00	Wayne	\$1.00	\$2.50
Humphreys	\$1.50	\$3.00	Weakley	\$0.65	\$2.00
Jackson	\$1.50	\$3.00	White	\$1.50	\$3.00
Jefferson	\$1.00	\$3.00	Williamson	\$0.64	\$2.00
Johnson	\$1.50	\$3.00	Brentwood City	\$0.65	\$2.00
Knox	\$0.65	\$2.00	Wilson	\$0.55	\$1.67



In 1998, Tennessee law was amended to create the Tennessee Emergency Communications Board to provide statewide wireless enhanced 9-1-1 service as well as to assist ECD boards in the areas of management, operations, and accountability. Chapter 1108 of the Public Acts of 1998, codified as TCA 7-86-108(B)(i), created the 911 Emergency Communications Fund, effective April 1, 1999. The fund was created, in part, to meet the order of the FCC issued in July, 1996 that required a cost recovery mechanism be in place for both the wireless carrier and the PSAP before the carrier would be obligated to deliver E-911 service.<sup>49</sup> The FCC eliminated the carrier cost recovery requirement in November, 1999 but not the PSAP cost-recovery requirement.<sup>50</sup> However, Tennessee has not changed their statutes or policies regarding carrier reimbursement following the revised order.

The Tennessee Emergency Communications Board (TECB) administers this fund which includes emergency telephone service fees paid by commercial mobile radio service subscribers (wireless/cell phone users) statewide. Service fees are authorized up to an amount equal to the maximum business rate for landlines of \$3 per month. The original and current rate is \$1 per month. These fees are collected by wireless service providers and submitted to the TECB every two months. The providers are authorized to retain 3% of the service charges collected as an administrative fee.

TCA 7-86-303 requires the board to use the 911 Emergency Communications Fund for the following purposes:

- To distribute 25% of revenues to local emergency communication districts based on their proportion of the population;
- To pay operational and administrative expenses of the TECB;
- To reimburse emergency communication districts and wireless providers for expenditures to implement, maintain, operate, or enhance statewide wireless enhanced 911 service;



**Finding:**

The most common funding method used by state or local governments for funding 911 service is a surcharge or fee imposed on telephone customers. Tennessee's average residential surcharge of \$.87 is only slightly higher than the average of \$.81 for the 40 states for which residential surcharges could be approximated. If Tennessee's surcharge rate on business wirelines is added to residential surcharges, Tennessee's overall average surcharge rate likely exceeds \$1. Only six of the forty states for which reasonably comparable surcharge rates could be determined, have an average surcharge rate in excess of \$1.

- At its discretion, and following policies, procedures, and criteria it has developed, to use any unspent funds to provide grants for operating and capital expenditures for basic or enhanced 911 service and wireless 911 service to assist emergency communication districts;
- After implementing statewide wireless enhanced 911 service pursuant to standards established by the board, to distribute any unspent excess revenue to each emergency communication district, if the board first determines that such distribution is possible and practicable, does not threaten the solvency of the 911 Emergency Communications Fund.

ECDs are also allowed to receive funds from federal, state, and local government or private sources including funds from the issuance of bonds. In most areas, the local governments pay for some emergency service costs from general revenue. While the law does provide independent funding for E-911, the law does not clearly state that ECDs are to be financially self-sufficient.

***E-911 FUNDING IN OTHER STATES***

Funding of 911 service is primarily the responsibility of state and local governments. The funding methods used in each state are unique but contain some similarities. The most common funding method used is a surcharge or fee imposed on telephone customers. In some cases, the surcharges are imposed by the state, in others by local units of governments, and in other cases by both state and local governmental entities. Available data shows that most states impose E-911 fees on both wireline and wireless customers. All states impose a fee, surcharge, or tax<sup>51</sup> on wireline customers.<sup>52</sup> All but two states impose a fee or surcharge on wireless customers. The exceptions are Missouri and Wisconsin.<sup>53</sup> The wireline surcharges can vary by customer class, residential versus business, and by whom levied. They are sometimes levied by the state, but more often by local 911 authorities. Wireless surcharges are most often imposed by the state and generally are in the form of a fixed monthly amount. The data in Table 10 is based on the most recent information that could be found on wireline and wireless rates as of April 2005.

**Table 10. Monthly 911 Surcharges by State (as of April 2005)**

State	Wireline Rate	Wireless Rate
Alabama	\$1.20 Res; \$2.03 Bus	\$0.70
Alaska	\$0.50 - \$0.75(see note)	\$0.50-\$0.75
Arizona	\$0.37	\$0.37
Arkansas	5% of Basic Rate (tariff rate)	\$0.50
California	Based on Access fees	Based on Access fees
Colorado	\$0.68(see note)	\$0.68(see note)
Connecticut	\$0.19	\$0.19
Delaware	\$0.60	\$0.60
District of Columbia	\$0.76	\$0.76
Florida	\$0.50(see note)	\$0.50(see note)
Georgia	\$1.50(see note)	\$0.00- \$1.50 (see note)
Hawaii	\$0.27	\$0.66
Idaho	\$1.00 (see note)	\$1.00 (see note)
Illinois	\$1.15 (see note)	\$0.75
Indiana	3-10% of monthly access	\$0.65
Iowa	\$.93(see note)	\$0.65
Kansas	\$0.75 (see note)	\$0.50(see note)
Kentucky	\$1.08 (see note)	\$0.70
Louisiana	\$1.00 Res; \$2.00 Bus (max)	\$0.85 (max)
Maine	\$0.50	\$0.50
Maryland	\$1.00(see note)	\$1.00
Massachusetts	\$0.85	\$0.30
Michigan	\$0.19 - \$4.00	0.52(\$.29 effective 12/31/2005)
Minnesota	\$0.40	\$0.40
Mississippi	\$1.00 Res; \$2.00 Bus	\$1.00
Missouri	15% (max) of Base Rate (see note)	None
Montana	\$0.50	\$0.50
Nebraska	\$1.00 (see note)	\$0.50
Nevada	up to \$.25 (see note)	0.25(one county only)
New Hampshire	\$0.42	\$0.42
New Jersey	\$0.90	\$0.90
New Mexico	\$0.51	\$0.51
New York	\$0.35	\$1.20 - \$1.50 (see note)
North Carolina	\$.90 (see note)	\$0.80
North Dakota	\$1.00	\$1.00
Ohio	\$0.50 (max) (limited to a few Counties, no general surcharge)	\$0.32
Oklahoma	3-15% of monthly recurring charges	\$0.50 (Approx. 4 Counties)
Oregon	\$0.75	\$0.75
Pennsylvania	\$1.31 (see note)	\$1.00
Rhode Island	\$1.00	\$1.26 (see note)
South Carolina	\$0.50-\$1.50 (see note)	\$0.60
South Dakota	\$0.75	\$0.75
Tennessee	\$0.87 residential / \$1.50-\$3 business (see note)	\$1.00

**Table 10. Monthly 911 Surcharges by State (as of April 2005) *continued***

State	Wireline Rate	Wireless Rate
Texas	\$0.50	\$0.50
Utah	\$0.65	\$0.65
Vermont	Universal Service Funding (1.27% rate; see note)	Universal Service Funding
Virginia	\$3.00 (max)	\$0.75
Washington	\$.70(see note)	\$.70(see note)
West Virginia	\$2.04 (see note)	\$1.48
Wisconsin	\$1.00	None
Wyoming	\$0.75	\$0.75

Note: In states in which rates vary by jurisdiction, an average rate is shown when available.

Source: NENA (National Emergency Number Association), website <http://nena.org/dot/updated> with 4/2005 data from APCO (Association of Public- Safety Communications Officials, and detailed information on local fees for various states.

State Notes:

Alabama: varies by district but capped at \$2 per month. Figures shown in table reflect average of rates in districts that impose monthly dollar surcharge amounts (as of 8/2004).

Alaska: \$.50 in areas with pop >100,000; \$.75 elsewhere.

Colorado: \$.40 - \$1.25 (mostly county fees); average of rates (3/2005) was \$.68.

Florida: \$.50 maximum, most counties at the \$.50 maximum.

Georgia: majority of counties impose the maximum \$1.50 wireline rate; wireless rates range from \$0 to \$1.50 (with no detailed data available by county).

Idaho: 44 counties impose the maximum fee of \$1; 2 counties < \$1, and 4 counties impose no fee.

Illinois: rates vary from none to \$3.50; weighted (by pop) average rate as of end of 2004 was \$1.15.

Indiana: depends on type and size of local government.

Iowa: none-\$1.00. Average rate (as of February 2005) for 99 counties (79 impose full \$1) was \$.93.

Kansas: all but one county imposes \$.75 rate on wirelines; all impose \$.50 rate on wireless (conversation with Kansas Association of Counties on May 3, 2005).

Kentucky: rates vary from \$.36 to \$4.00. Average rate for 128 counties per data supplied by Kentucky Office of Technology is \$1.08.

Maryland: \$.25 state fee, local fee max of \$.75; most impose the full \$.75.

Missouri: 15% of a \$20 base rate would be \$3. Local rates imposed by vote.

Nebraska: \$1 is the most common rate among Nebraska towns.

Nevada: counties can assess a property tax in lieu of surcharge; only two counties do so.

New York: state fee is \$1.20 and local taxes (NYC imposes it) can be \$.30.

North Carolina: 100 rates vary from none to \$2.00; average of existing rates (as of 5/1/2005) was \$.90.

Pennsylvania: rates vary from \$.74 to \$1.50; average of rates in effect as of 5/2/2005 was \$1.31.

Rhode Island: imposes a \$.26 surcharge on wireless in addition to a \$1 surcharge on both wireline and wireless access.

South Carolina: fees vary by population tier size; both start-up fees and ongoing operational fees are authorized.

Tennessee: residential rates vary from \$.65 to \$2.00 (weighted average 3/2005 was \$.87; business rates vary from \$1.50 to \$3.00.

Vermont: State 911 service is funded in part by funds raised by a 1.27% fee imposed on most revenues of telecommunication providers. Part of revenues raised also used for universal service.

Washington: local tax of \$.50 and state tax of \$.20.

West Virginia: wireline rates vary from \$.98 to \$3.75. Average of all county rates is \$2.04 (5/3/2005)

Data from the Minnesota Statewide 911 Program<sup>54</sup> shows eight states with state surcharges only, twenty-eight states in which only local governments impose such surcharges, and six states, including Tennessee in which both levels of government levy a surcharge. The surcharges are most often imposed upon both wireline and wireless users, and may be the same or vary for residential and business users. Higher rates are sometimes imposed on business wireline customers. In addition to such user fees, local governments also fund portions of the cost of 911 programs from other local sources of revenue.

As of March 17, 2005, Tennessee residential wireline rates vary from a low of \$.45 per month in the Madison County ECD to a high of \$1.50 per month in eighteen ECDs. Business surcharges vary from a low of \$1.48 in the Franklin ECD to \$3.00 in 20 ECDs. Since the detailed amounts paid to each ECD are not known, estimating an average state-wide wireline monthly surcharge rate is difficult. However given an average state-wide residential rate of \$.87 and business rates that averages \$2 or more, the average combined residential and business state-wide wireline rate is clearly in excess of \$1 per month. As shown in Table 10, Tennessee's average residential surcharge of \$.87 is only slightly higher than the average of \$.81 for the forty states for which residential surcharges could be approximated.<sup>55</sup> If Tennessee's surcharge rate on business wirelines is added to residential surcharges, Tennessee's overall average surcharge rate likely exceeds \$1. Only six of the forty states for which reasonably comparable surcharge rates could be determined, have an average surcharge rate in excess of \$1.

Funding problems have developed in some states for several reasons:

- Some states initially postponed imposing appropriate levels of E-911 funding and now must accelerate their E-911 revenue-raising and financing activities.
- Some states have diverted 911 surcharge revenue to other uses.
- Many states impose higher surcharges on wireline service than wireless service; this in combination with recent

declines in the number of wireline customers<sup>56</sup> versus growth in the number of wireless customers has reduced total 911 surcharge revenue in several states.

- Emerging new technologies, such as VoIP that are currently not subject to state regulation or surcharges, will accelerate the decline in the number of wireline subscribers and overall 911 surcharge revenue.
- New technologies to help deliver more efficient and dependable E-911 services continue to appear and make providing the most efficient E-911 services a constantly moving fiscal target.

### **A FUNDING PROBLEM?**

Over the course of this study, ECD officials, local leaders, and lawmakers have raised questions concerning several funding issues. One concerns the *level, distribution, and use of statewide E-911 service fees* from wireless phones. The current rate is \$1 per month per phone and the statutory maximum is \$3 per month. The state distributes 25% of these funds to local districts based on population. Most of the remaining wireless service fees collected since 1999 have been or will be used to offset the costs of wireless service providers to provide location information for wireless 911 calls. Some of the funds have been used as grants or reimbursements to ECDs for specific purposes and often directed to districts with small populations or financial difficulties. After the bulk of the initial non-recurring costs of wireless service providers are paid in FY2005-06, the TECB should have additional funds available to address other statewide and district E-911 needs.

Also, E-911 leaders have expressed concern that local revenue is falling or will fall as customers continue to *migrate from traditional landline phones to wireless phones* or other *emerging technologies*. The net impact on total 911 surcharge revenue of the wireline declines and the wireless increases in Tennessee remains positive, but in the long term this revenue growth faces challenges. Similarly, the substitution of VoIP service for standard wireline service creates new 911 revenue problems.

*The level of wireline fees and local control of funding are other issues.* Some ECD leaders believe that they would be better able to conduct their mission if they had more control over setting funding at their level. Currently, local ECD boards can set fees for landline phones of up to \$.65 per line for residences and \$2 for businesses. The rates can be raised to \$1.50 for residential lines and \$3 for business lines with approval of the TECB or by local referendum. The local limits were established in 1989. Many local districts believe higher fees are justified to cover increasing and expanding costs and that there is adequate control and accountability, at the local and state level, to increase the surcharges that can be set locally or to eliminate the limits. Tennessee residential wireline surcharges as of April 2005 are only slightly higher than the average surcharges charges in other states; business surcharges are high compared to other states.

Two other potential funding problems involve *expanding and varied provision costs* and a *growing uncertainty that ECDs are receiving all required service fees* from the providers in their districts. E-911 components funded by E-911 service fees appear to have expanded over time and vary among districts, particularly personnel costs. The level of contribution by local governments also appears to vary. The change to a more open and competitive telecommunication market has reduced the accountability and control local districts have in assuring they receive all E-911 service fees in their area. Instead of one primary telephone company in an area there can now be numerous providers of wireline services.

Another funding problem noted are the *funding challenges faced by rural ECDs*. The public expects consistent 911 service across all areas of the state. However, rural areas, with their smaller fee bases, have experienced difficulties providing the same level of service as that found in more urban areas.

A final issue is the question of *funding equity*, both for business vs. residential customers and for wireline customers versus customers of wireless phones, VoIP, and other emerging technologies. As a result of existing business tax surcharges that are higher than residential rates, and the very uneven importance of business lines versus residential lines in each ECD, the business

**Finding:**

As of June 30, 2005, the state Emergency Communications Fund had a balance of \$32.6 million. These funds are reserved for payments to wireless service providers for their costs of providing enhanced wireless 911 service, which had not yet been approved or incurred. As of August 2005, the board estimated an additional \$8.14 million in non-reoccurring Phase II wireless requests and \$13 million per year in recurring costs. However, these figures could increase as providers add to their service areas or location technology or costs change. After the bulk of the initial non-recurring costs of wireless service providers are paid in FY2005-06, the TECB should have additional funds available to address other statewide and district E-911 needs.



sector is shouldering a relatively high percent of the landline surcharge burden in many ECDs. Likewise, wireline customers pay higher monthly surcharges than do wireless customers. Finally, all devices including VoIP and other emerging technologies that can access 911 should pay similar fees to support the system.

**USE OF STATE WIRELESS REVENUE**

The Emergency 911 Communications Fund has been accumulating funds since its inception in 1999. As of June 30, 2005, the fund had a balance of \$32.6 million. These funds are reserved for payments to wireless service providers for their costs of providing enhanced wireless 911 service, which had not yet been approved or incurred. As of August 2005, the board estimated an additional \$8.14 million in non-reoccurring Phase II wireless requests. However, this figure could increase as providers add to their service areas or location technology or costs change. The board’s estimate for reoccurring costs is about \$13 million per year for Phase I and II but, emphasize that this amount may fluctuate with changes in costs and service areas.

**Table 11. Enhanced Emergency 911 Service Fund**

	Fiscal Year (in thousands)						
	2005 *	2004	2003	2002	2001	2000	1999
Fund Balance 6/30	\$ 32,648	\$49,684	\$ 48,433	\$ 35,692	\$ 21,877	\$ 8,223	\$ -
Revenue	\$37,115	\$32,831	\$ 29,142	\$ 27,514	\$ 22,185	\$ 11,670	\$ 203
Fees	\$36,124	\$32,233	\$ 28,455	\$ 26,798	\$ 21,400	\$ 11,496	
Interest	\$991	\$598	\$ 687	\$ 716	\$ 785	\$ 174	
Transfer In							\$ 203
Expenditures	\$54,151	\$31,580	\$ 16,401	\$ 13,699	\$ 8,531	\$ 3,447	\$ 203
Change in Fund Balance	-\$17,036	\$1,251	\$ 12,741	\$ 13,815	\$ 13,654	\$ 8,223	\$ -

\* Preliminary information from the Tennessee Emergency Communications Board, as of August 23, 2005

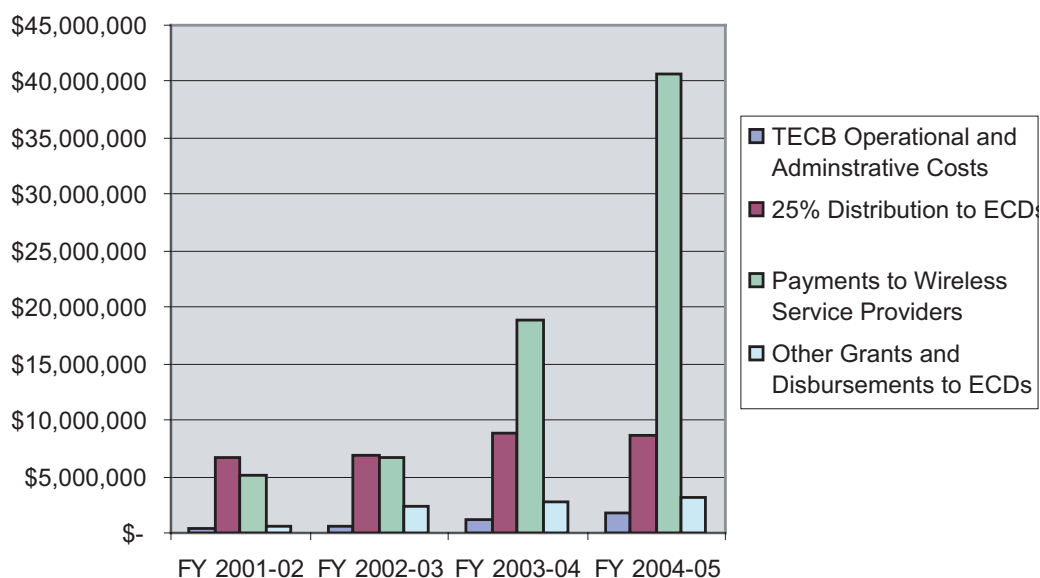
Source: Tennessee Comprehensive Annual Financial Reports

Expenditures of the board have included the 25% payments to emergency communication districts, the board’s operational and administrative costs, payments to wireless service providers, as well as some grants and reimbursements to emergency



communication districts. As shown in Figure 5, expenditures increased significantly in FY 2003-04 and 2004-05 with the payment of \$18.8 million and \$40.8 million to wireless service providers for the costs of implementation of Phase I and II enhanced wireless 911. The statutorily-required 25% distribution of wireless revenue to local districts increased 5% in FY 2002-03 and 27% in FY 2003-04.<sup>57</sup> In addition, local districts received \$3.1 million from the TECB in FY 2004-05 in grants and reimbursements to cover equipment and other costs of deploying wireless E-911 as well as ensuring statewide E-911 service in Tennessee. Board operational and administrative costs more than doubled between FY 2002-03 and FY2003-04 with the addition of staff, the need for greater use of a contracted technical consultant to assist the districts, and the partial payments to the State Office of Information Resources to develop GIS maps for use by Emergency Communication Districts to locate wireless callers.

**Figure 5. State Emergency Communications Fund Expenditures**



	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05
TECB Operational and Administrative Costs	\$ 428,750	\$ 561,835	\$ 1,176,412	\$ 1,717,555
25% Distribution to ECDs	\$ 6,612,590	\$ 6,935,147	\$ 8,828,900	\$ 8,585,690
Payments to Wireless Service Providers	\$ 5,128,323	\$ 6,621,880	\$ 18,779,991	\$ 40,751,589
Other Grants and Disbursements to ECDs	\$ 623,043	\$ 2,282,129	\$ 2,793,243	\$ 3,096,025
<b>Total</b>	<b>\$ 12,792,706</b>	<b>\$ 16,400,991</b>	<b>\$ 31,578,546</b>	<b>\$ 54,150,859</b>

Source: Tennessee Emergency Communications Board

**Finding:**

Most of the wireless surcharge revenue from FY2001-02 through FY2004-05 has been paid to wireless carriers to cover their costs in implementing wireless E-911, as provided by state statute. While the FCC no longer requires cost recovery for wireless providers from state or local governments, Tennessee's cost recovery provisions and policies have allowed Tennessee to be one of a very few states to fully deploy wireless E-911.

**FUNDS TO WIRELESS PROVIDERS**

Wireless carriers have received the majority of wireless surcharge revenue from the state 911 Emergency Communication Fund. From FY 2001-02 through FY 2004-05 wireless providers received \$71.3 million from the fund, 56% of wireless revenue for those years. An additional nine percent went to the fund reserve for future payments to wireless providers. Tennessee offers full cost recovery to wireless providers for wireless E-911 service. This appears to be within the intent of the law to provide E-911 statewide but, is no longer required by the Federal Communications Commission. However, full cost recovery is a reason cited for Tennessee's ability to be the third state in the nation to be fully deployed for Phase II wireless E-911. Most other states still lag behind. However, if additional funds are needed to cover other E-911 costs, Tennessee could reduce the payments to wireless providers. This could provide a significant source of additional funding for E-911 in Tennessee, if needed, but could threaten the high level of coverage and service for wireless E-911.

The FCC promulgated requirements and established a framework to provide wireless enhanced 911 services in an Order issued on July 26, 1996<sup>58</sup> and contained regulations that were subsequently promulgated in 47 CFR 20.18. The FCC required that a cost recovery mechanism be in place for both the wireless carrier and the PSAP before the carrier would be obligated to deliver E-911 service.<sup>59</sup>

Tennessee established the Tennessee Emergency Communications Board in 1998<sup>60</sup> and created the Emergency Communication 911 Fund, in part, to meet the FCC order and to address the need for wireless enhanced 911. TCA 7-86-303(2) required the board to use such funds from surcharges on wireless customers "to reimburse ECDs and CMRS providers for expenditures to implement, maintain, operate, or enhance statewide wireless E-911 service, in accordance with provisions of TCA 7-86-306(a)(10). TCA 7-86-306(a)(10) gives the board the power and authority to "respond to requests from ECDs, CMRS providers, and other parties and subject to the availability of funds, review and approve requests for reimbursements for expenditures or

payment of obligations incurred to implement, operate, maintain, or enhance statewide E-911 conformance with any rules or orders of the FCC, and other federal and state requirements that pertain to wireless E-911.” The board is also authorized to determine the method of reimbursement to CMRS providers and ECDs that will also ensure the long-term stability and solvency of the Emergency Communications 911 Fund in consultation with the Comptroller of the Treasury. In addition, TCA 7-86-303(d)(3) limits the board’s authority to distribute additional funds or grants to ECDs until “AFTER implementing statewide wireless enhanced 911 service established by the board, which shall include the present and future costs associated with required and necessary implementation, operation, maintenance, and enhancement of statewide wireless enhanced 911 service pursuant to the FCC order” and in accordance with statutes cited above.

The TECB, in concurrence with the Office of the Comptroller, developed a Memorandum of Understanding (MOA), later revised for Phase II service and titled Agreement for Reimbursement (AFR), which is signed by the board and by each wireless service provider requesting reimbursement. The agreement identifies a certain amount of cost recovery to be received by each carrier, subject to documentation of actual incurred costs and the availability of funds in the 911 Emergency Communication Fund. Carriers can request full cost recovery. Not all carriers have requested cost recovery from the state.<sup>61</sup> Some carriers have absorbed the costs or paid costs through additional “regulatory fees” on customers.

The FCC eliminated the carrier cost recovery requirement in November, 1999 but not the PSAP cost-recovery requirement.<sup>62</sup> The FCC found that disputes about cost recovery had become a significant impediment to the implementation of E-911 Phase I.<sup>63</sup> However, Tennessee has not changed their statutes or policies regarding carrier reimbursement following the revised order. In a survey conducted by the General Accounting Office in 2003,<sup>64</sup> thirty-two states and the District of Columbia allowed carriers to recover their E-911 costs from state funding mechanisms. The GAO report also cites lack of funding in most states as a major impediment to the deployment of wireless E-911 nationwide.

**Finding:**

About 34% (\$34 million) of TECB wireless revenue (\$99.1 million) from FY2002-03 to FY2004-05 went directly to ECDs. A large part of the TECB discretionary grants went to ECDs with smaller populations and thus, a smaller surcharge revenue base.

**FUNDS TO ECDs**

In addition to the required distribution of 25% of wireless 911 service charges, ECDs have received reimbursements and grants from the TECB. The TECB has also paid some direct costs for Phase II wireless for some ECDs.

The TECB has authorized, issued policies and procedures, and provided funds for the following reimbursement or grants:

- GIS Mapping Reimbursement up to \$50,000 for all ECDs
- GIS Maintenance Grant up to \$10,000 annually for all ECDs
- Master Clock reimbursement up to \$5,000 for all ECDs
- Rural Dispatcher Assistance Grants up to \$30,000 for rural ECDs for up to five years

In addition the TECB has used its discretion to fund some ECDs for the following costs:

- Start-up Reimbursements of \$100,000 to ECDs established or without service in 1999
- PSAP equipment upgrades up to \$40,000 per ECD in less populous districts
- Automatic Location Information (ALI) costs required for wireless enhanced 911 in sixteen ECDs where service was not provided by their local telephone service

In July 2005, the TECB approved a program to encourage consolidation of rural ECDs with other ECDs by reimbursing the costs of consolidation up to \$300,000, subject to the availability of funds.

The TECB also has funded other costs that directly benefit the local districts including

- The cost of a contracted technical consultant to assist districts when needed; and

- A contract with the State Office of Information Resources to construct a statewide GIS baseline map for E-911 purposes.

The TECB has also provided financial and technical assistance to a few districts facing financial problems in order to keep them operating to maintain 911 service in those areas. This included funds to Jackson County ECD and funds to assist in the merger of Pickett County ECD with Overton County ECD.

About 34% (\$34 million) of TECB wireless revenue (\$99.1 million) from FY2002-03 to FY2004-05 went directly to ECDs. The statutorily-required 25% distribution of wireless revenues to ECDs are based on population. However, a large part of the discretionary funds to the ECDs went to ECDs with smaller populations and ECDs with financial difficulties. In fact, some of the discretionary funds have purposely been directed to smaller ECDs to address the financial challenges of providing E-911 service with a smaller population base contributing funds. Table 12 shows all distributions to ECDs between FY2001 through FY2004. Tier V ECDs with less than 20,000 population received \$10.86 per person, Tier I ECDs over 300,000 population received \$5.20 per person.

**Table 12. Tennessee Emergency Service Fund Distributions Approved to Emergency Communications Districts, FY 2003 - 2005**

	FY 2002-03	FY 2003-04	FY 2004-05	Total FY 2003-05
25% Wireless Distribution	\$ 7,026,572	\$ 10,145,339	\$ 8,585,690	\$ 25,757,601
Upgrades	\$ 122,642	\$ 240,834	\$ 163,423	\$ 526,898
GIS Mapping	\$ 1,662,653	\$ 1,150,074	\$ 630,031	\$ 3,442,758
GIS Maintenance	\$ 240,000	\$ 200,000	\$ 610,000	\$ 1,050,000
Rural Dispatching	\$ -	\$ 660,000	\$ 1,140,000	\$ 1,800,000
Master Clock			\$ 142,520	\$ 142,520
ALI - Stand Alones	\$ 101,200	\$ 33,000	\$ 66,979	\$ 201,179
ALI Phase I	\$ 45,511	\$ 43,055	\$ 243,071	\$ 331,638
Start-up ECDs	\$ -	\$ 668,810	\$ 100,000	\$ 768,810
Total Distributions to ECDs	\$ 9,198,578	\$ 13,141,112	\$ 11,681,714	\$ 34,021,403
Without 25% Distribution	\$ 2,172,006	\$ 2,995,772	\$ 3,096,024	\$ 8,263,803
Total Wireless Revenue	\$ 29,142,000	\$32,831,000	\$37,115,283	\$ 99,088,283
% to ECDs	32%	40%	31%	34%

Note: ECDs received an extra distribution of their 25% set-aside wireless funds in FY 2003-04 to better coordinate accounting cycles between the State and locals.

Source: Compiled from data from the Tennessee Emergency Communications Board

Table 13. Tennessee Emergency Service Fund Distributions Approved to Emergency Communications Districts FY 2001 - 2004											
Population Tier	25% Wireless Distribution	Grants and Reimbursements							Start-Up	Upgrades	Total
		Phase II GIS Reimbursement	GIS Maintenance	Rural Dispatcher	ALI Phase I	Stand Alone ALI					
Tier I	\$ 11,021,963	\$ 100,000	\$ 20,000	\$ -	\$ -	\$ 33,000	\$ -	\$ -	\$ -	\$ 153,000	
Tier II	\$ 5,941,195	\$ 393,528	\$ 70,000	\$ -	\$ -	\$ 28,600	\$ -	\$ -	\$ -	\$ 492,128	
Tier III	\$ 6,970,307	\$ 1,098,646	\$ 170,000	\$ -	\$ 161,000	\$ 48,759	\$ -	\$ -	\$ 109,378	\$ 1,587,783	
Tier IV	\$ 2,803,225	\$ 491,156	\$ 100,000	\$ 270,000	\$ 216,923	\$ 30,360	\$ -	\$ 100,000	\$ 257,562	\$ 1,466,001	
Tier V	\$ 2,155,235	\$ 879,396	\$ 80,000	\$ 390,000	\$ 156,701	\$ 32,913	\$ -	\$ 568,810	\$ 345,583	\$ 2,453,403	
<b>TOTAL</b>	<b>\$ 28,891,924</b>	<b>\$ 2,962,727</b>	<b>\$ 440,000</b>	<b>\$ 660,000</b>	<b>\$ 534,624</b>	<b>\$ 173,632</b>	<b>\$ -</b>	<b>\$ 668,810</b>	<b>\$ 712,523</b>	<b>\$ 6,152,316</b>	

Total Funds	% of Funds	% POP	2000	
			Population	Total Funds/ 2000 Population
\$ 11,174,963	32%	38%	2,157,291	\$ 5.18
\$ 6,433,323	18%	21%	1,186,557	\$ 5.42
\$ 8,558,089	24%	24%	1,381,230	\$ 6.20
\$ 4,269,226	12%	9%	539,777	\$ 7.91
\$ 4,608,639	13%	7%	424,428	\$ 10.86
<b>\$ 35,044,240</b>	<b>100%</b>	<b>100%</b>	<b>5,689,283</b>	<b>\$ 6.16</b>

Source: Compiled from data provided by the Tennessee Emergency Communications Board.

### THE IMPACT OF THE SHIFT TO WIRELESS

As discussed in the technology section, wireline and wireless growth in Tennessee mirrors that in the rest of the United States. The net impact on total 911 surcharge revenue of the wireline declines and the wireless increases in Tennessee remains positive, with growth in wireless customer 911 revenue more than offsetting the declines in wireline customer 911 revenue.<sup>65</sup> The estimated revenue impact, a statewide net increase of \$3.3 million to ECDs, is shown in the following two tables. While the substitution of wireless service for wireline service in Tennessee currently produces a rising level of total 911 revenue,<sup>66</sup> this revenue growth faces challenges.

The impact of the decline in wireline customers was estimated using an average monthly 911 surcharge of \$.87. This figure was estimated using residential surcharge rates only. The figure represents the average population weighted residential ECD-imposed surcharge as of March 2005.<sup>67</sup> The cumulative net revenue impact over the six year period considered was a decline of \$1.59 million. This loss could not be prorated among Tennessee's one-hundred ECDs because federal data by ECD does not exist. Wireless 911 surcharge revenue more than offset the declines identified in wireline 911 revenue.

**Table 14. Estimated Annual Impact of Wireline Customer Trends**

Year	Number of Wirelines	Change	Cumulative Change	Estimated E911 Surcharge Impact*
1999	3,452,207			
2000	3,525,455	73,248	73,248	\$732,480
2001	3,624,435	98,980	172,228	\$1,722,280
2002	3,479,604	-144,831	27,397	\$273,970
2003	3,388,799	-90,805	-63,408	-\$634,080
2004	3,294,083	-94,716	-158,124	-\$1,581,240

Note: Numbers as of June 30 except for 1999 (lines as of December 30).  
 \* Average monthly surcharge estimated at 87 cents per month and \$10 per year.

Source: Reports on "Local Telephone Competition," various years at FCC website <http://www.fcc.gov/wcb/iatd/comp.html>

#### Finding:

Revenue problems resulting from the introduction of the new communications technologies may create some short-term challenges, but do not as yet appear to threaten the long run viability of funding 911 resources from surcharges on users.



The accompanying table reflects a significant growth in the number of wireless subscribers in Tennessee over the six year period. The annual increases coupled with the \$1 state-imposed 911 surcharge per subscriber per month, is estimated to have produced more revenue than was lost from the declines in the wireline segment of the market. This is true even if the estimated increase is reduced to reflect only the portion of the wireless revenue that is returned to ECDs, which is 25% of net wireless revenue remitted by wireless providers to the TECB. Twenty-five percent of the estimated 911 wireless surcharge impact, \$4.9 million, still exceeds the estimated ECD wireline loss of \$1.6 million by \$3.3 million.<sup>68</sup> Therefore, the decline in the estimated number of wireline subscribers in Tennessee has not caused a decline in overall 911 surcharge revenues available to ECDs as a group.

**Table 15. Estimated Annual Impact of Wireless Customer Trends**

Year	Number of Wireless Subscribers (as of June 05)	Change	Cumulative Change	Estimated E-911 Surcharge Impact*
1999	1,529,054			
2000	1,876,444	347,390	347,390	\$4,168,680
2001	2,251,208	374,764	722,154	\$8,665,848
2002	2,660,068	408,860	1,131,014	\$13,572,168
2003	2,800,735	140,667	1,271,681	\$15,260,172
2004	3,171,487	370,752	1,642,433	\$19,709,196

Source: Reports on "Local Telephone Competition", various years at FCC website <http://www.fcc.gov/wcb/iatd/comp.html>

\* Average monthly surcharge estimated at \$1 per month and \$12 per year.

**Finding:**

Despite overall increases in total 911 surcharge revenue statewide, some individual ECDs may be experiencing declining 911 revenues and some or many may still need additional funding to raise their 911 service levels to acceptable standards.

Despite overall increases in total 911 surcharge revenue statewide, some individual ECDs may be experiencing declining 911 revenues and some or many may still need additional funding to raise their 911 service levels to acceptable standards. Many directors attending the three TECB public hearings commented that funding from landlines was decreasing and beginning to impact their operations. They stated that local governments do not always have the funds to make up the difference and that 911 loses out to other public safety interests, for example, law enforcement officers.

Thirty-one ECDs in Tennessee imposed residential wireline surcharges in excess of \$1 as of March 17, 2005. For each residential customer who substitutes wireless service for wireline service in these ECDs, total 911 revenue will decline.<sup>69</sup> Such losses will be offset by growth in the total number of wireline customers and growth in wireless service that does not substitute for wireline use. It is not clear whether wireless use by businesses is a threat to the number of wireline business customers. If that is true, then further erosion in 911 revenue will occur since business wireline rates are generally in excess of \$2 in most ECDs, versus only \$1 for wireless lines.

### **THE POTENTIAL IMPACT OF VoIP**

The substitution of VoIP service for standard wireline or wireless service creates new 911 revenue problems. VoIP service is a clear substitute for traditional wireline service and with its nomadic and growing mobile features may compete with existing wireless service. Current Tennessee statutes do not require VoIP service providers to impose and collect 911 fees from their customers, thereby threatening the stability of 911 revenue.

Traditional wireline and wireless communication providers are required by state law and state regulation to provide E-911 service and to collect the monthly 911 fees that are levied on subscribers in Tennessee.<sup>70</sup> The state and the local ECDs have authority under current FCC regulations to impose such fees on these service providers. This is not true for VoIP service providers who are not subject to state regulations<sup>71</sup> and therefore not obligated to provide 911 services nor collect 911 fees from subscribers.<sup>72</sup> In May 2005, the FCC issued an order (FC 05-116) requiring VoIP providers that connect to the public-switched telephone network to supply E-911 as a mandatory feature of its service within time guidelines provided by the FCC. The FCC Order does not prohibit states from collecting E-911 surcharge fees from these users but current Tennessee laws requiring E-911 surcharge fees does not include such providers. Some existing VoIP service providers do offer some version of 911 services and voluntarily collect the 911 fees imposed by ECDs on wireline service. The Shelby County ECD

### **Finding:**

Current Tennessee statutes do not require VoIP service providers to impose and collect 911 fees from their customers, thereby threatening the stability of 911 revenue.

**Recommendation:**

Amend the Emergency Communications statutes to include all devices, VoIP as well as other potential technologies, with access to 911 to pay 911 surcharge fees.

has confirmed that it is collecting surcharge revenue from at least one VoIP provider.

The issue of whether VoIP service is subject to state and local sales tax is distinct from the issue of 911 surcharges on VoIP service. The FCC has powers that can require VoIP service providers to collect 911 surcharges, just as it recently did in requiring VoIP providers to offer E-911 capabilities to its customer.<sup>73</sup>

The Emergency Communications statutes should be amended to include all devices, VoIP as well as other potential technologies with access to 911 pay 911 surcharge fees. It is not clear whether VoIP and other not yet created technologies should fall under current local landline fees or the statewide fees for wireless devices. Given the uncertainty and rapidly changing telecommunications industry and E-911 technology, provisions under the more general statewide fees seem appropriate.

### SALES TAX ON VoIP?

The issue of whether or not VoIP services are subject to the sales tax is a separate issue but also involves the FCC. In a November 9, 2004 decision, the FCC not only ruled that VoIP services were of an interstate nature, but also reaffirmed its 2002 decision that VoIP service over broadband internet service is an information rather than a telecommunications service, and therefore not subject to state regulation as is telephone service. This ruling was bolstered by a US Supreme Court ruling in June 2005 that affirmed that cable broadband internet service is an interstate information service and not a telecommunications service.<sup>74</sup> The end result is that state and local sales taxes can be legally imposed on VoIP service only if:

- 1(a). information services were already subject to the sales tax under the laws of a state prior to October 1998, or
- 1(b). the state can craft some definition of taxable telecommunication services that can avoid FCC decisions that VoIP is an information service and
2. the VoIP provider has nexus with the state and therefore can be required to collect a sales tax. If a VoIP provider has no nexus with a state, it can choose for whatever reason to collect the use tax due and remit it to a state.

Tennessee has tried various methods to get around the fact that it has never explicitly taxed information services. Its various attempts to wordsmith changes to tax broadband internet service as a telecommunication service finally proved unsuccessful in a recent court decision.<sup>75</sup> Since Tennessee has never explicitly taxed information services, it cannot consider such a tax change until 2007.<sup>76</sup> However the state is now attempting to subject VoIP services to sales tax through further changes to the language in the state statutes that define telecommunications.<sup>77</sup> While states cannot regulate VoIP service as a telecommunications service, they may be able to tax VoIP service as an information service.<sup>78</sup> Whether or not statutory language changes will actually result in sales tax liability for the service in Tennessee, it is worth noting, in the words of one observer on VoIP service, “if it dials like a phone and rings like a phone, it’s a phone.”<sup>79</sup> For this reason, it is difficult to argue that VoIP service should be treated any differently than standard telephone service.

**Finding:**

District directors were overwhelmingly in favor of keeping the service fees for access to E-911 but to include all devices with access to E-911 including landlines, wireless, Voice over Internet.

**Finding:**

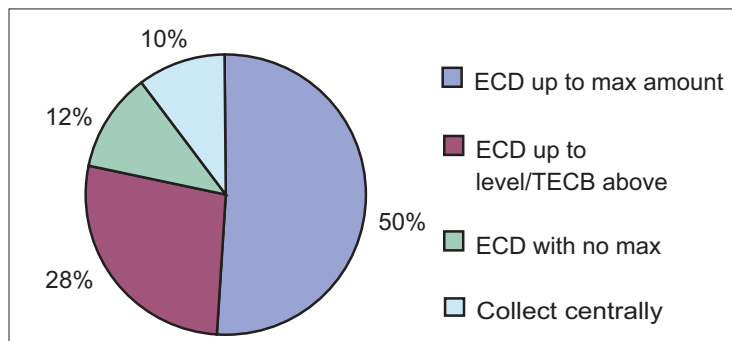
Overall, districts directors favor local autonomy to set 911 surcharge fees with some differences on the maximum fee level that can be determined locally.

**SETTING E-911 SERVICE FEES**

In the TACIR survey, district directors were asked how they thought E-911 should be funded in Tennessee. Overwhelmingly (fifty-three of fifty-four districts responding), district directors were in favor of keeping the service fees for access to E-911, but to include all devices with access to E-911 including landlines, wireless, Voice over Internet. Additional comments by eleven ECDs suggested that local governments needed to cover certain costs such as dispatching. Six districts commented that a larger share of wireless revenues should come to the districts, three thought service fees should be set to cover all costs, and five said additional funds are needed to assist less populated counties with the costs of E-911. Three commented that there is a need for more state and federal assistance, especially to cover mandated requirements. Other suggestions, one district each, included a statewide fee for all devices accessing E-911, adding a service fee for alarms with direct access to E-911, or to fund E-911 like schools and local highways.

On setting E-911 fees, slightly more than half (50%) of the sixty-nine districts responding thought that districts should be able to set fees for landlines for their districts up to the maximum level established by law, without review and approval by the Tennessee Emergency Communication Board. Twenty-eight percent indicated they preferred the current system of allowing districts to set fees up to a certain level with TECB approval up to a higher level. Twelve percent thought districts should be able to determine their own fees without statutory limits. Ten percent supported uniform statewide fees collected centrally and distributed to the districts.

**Figure 6. 911 Fee Setting Authority**



Source: TACIR Survey of ECD Directors, February-May 2005

**COSTS COVERED BY E-911 FEES**

Emergency Communications Districts vary on the costs they try to cover with E-911 service fees. The costs paid with E-911 service fees have also expanded over time. In the TACIR survey, district directors indicated a need to cover even more of the costs of E-911 through service fees. Direction is needed in the statutes and from the TECB on costs that need to be covered by E-911 service fees in order to objectively determine the level of fees needed and whether additional funds are needed to fund E-911 or whether those costs are the responsibility of local governments.

There is a discrepancy among districts and within the law on what E-911 service is to be and the costs the E-911 service fees are intended to cover. Several longtime ECD Directors have stated that the original intent of E-911 service was to pay for the equipment to receive and answer E-911 calls, not the cost of dispatching, buildings, and radios, which were all paid for by local governments prior to the implementation of E-911.

The discrepancy arises because of the permissive nature of the statutory definition of E-911 service.<sup>80</sup> The statute defines “911 service” as the lines and may – but is not required to- include the equipment necessary for answering, transferring, and dispatching of public emergency telephone calls. Thus, some ECDs believe<sup>81</sup> that E-911 service means only the technology and lines used, but not the answering or dispatching of the E-911 call. The answering and dispatching of emergency calls and their costs are the responsibility of the county and city governments within the particular ECD’s service area. Other ECD Boards believe that E-911 service includes only the technology, lines used, and the answering of the E-911 call, but not the dispatching of any emergency services. The dispatching of emergency services or at least, the cost are the responsibilities of the county and city governments. Finally, other boards believe that E-911 service means the costs of technology, the lines used, the personnel to answer of the E-911 call and dispatching of emergency services to the E-911 caller, and in some cases, the buildings to house the equipment and personnel.

**Finding:**

Emergency Communications Districts vary on the costs they try to cover with E-911 service fees. The costs paid with E-911 service fees have also expanded over time.

**Finding:**

There is a discrepancy among districts and within the law on what E-911 service is to be and the costs the E-911 service fees are intended to cover. Are 911 surcharges intended to fund only the equipment and related costs to receive and answer E-911 calls or also include the cost to dispatch calls?



In 1989 and again in 1992, 1995, and 1997,<sup>82</sup> the Tennessee Attorney General opined that the responsibility for dispatching depends on the type of response method chosen. The Attorney General opined that if a district uses the direct dispatch method, then that ECD is responsible for dispatching emergency services. The ECD may use the telephone emergency service charge to pay for the costs of dispatching, including salaries and all necessary equipment. With the other two response methods,<sup>83</sup> the responsibility of dispatching appears to be with the appropriate local government or emergency service provider. Thus, from the Attorney General's Office, it appears that if an ECD has chosen the direct dispatch method, E-911 service is the technology, the lines, the answering of the call, and the dispatching of the emergency services; the response time would still be the responsibility of the respective governments or emergency service agencies.

An analysis of ECD financial data indicates that the E-911 components funded by E-911 service fees appear to have expanded over time. The components funded by these fees also appear to vary among districts, particularly related to personnel costs. TACIR's analysis of this data is limited by variations in accounting methods and by low and incomplete responses by ECDs to fiscal questions in the TACIR survey. The TACIR survey attempted to collect from the emergency communication districts complete and comparable revenue for a five year period and expenditure data for fiscal year 2003. Districts are required to use a uniform chart of accounts and audit manual and submit audits by certified public accountants annually. However, districts vary significantly on the expenditures accounted for through their emergency communication fund and whether the local governments contribute funds directly to the emergency communication fund, pay for some expenditures directly, or in some cases, receive impact payments from the E-911 fund. The survey asked the directors to include all costs (or estimates) of E-911 through dispatching a call in the cost figures, including any cost paid directly by the local governments in their areas, in order to have the full costs of E-911 as reported by some districts.



Less than 40% of districts provided complete revenue information by source over the last five years or since their inception, if later, or complete expenditures for fiscal year 2003, including costs or estimates of costs paid by local governments. Although TACIR has compiled revenue information from the districts' audits, that information is often not comparable, and in some cases, consistent among districts. For example, fifty-five districts in fiscal year 2000 did not provide separate data for wireline versus wireless revenue and twenty-five districts did not for fiscal year 2001. Some districts pay some or all of personnel and building costs through their E-911 funds and some do not.

### **USE OF E-911 FEES**

In the TACIR survey, most districts responding (>75%) indicated that current fees covered the equipment and technology to receive and answer 911 calls, equipment to log and record calls, costs of obtaining and maintaining current addresses of all locations in the district, and administrative staff for the district. Some districts (50-75%) said fees covered costs of additional equipment for mapping the location of calls, computer aided dispatch that helps distribute calls to telecommunicators and provides management information, radio costs related to E-911, and building costs. Fewer districts (<40%) said fees covered the cost of call takers and dispatchers. Two districts indicated that fees paid for address markers, currently a prohibited use of E-911 fees.

Overall, districts indicated that fees should cover most or all of the costs of E-911 including the equipment and technology to receive and answer 911 calls, other equipment such as computer aided dispatch, mapping, logging recorders. Areas where districts thought that fees should cover more of the costs than they currently cover included personnel, buildings, radio costs, and address markers.

### **Finding:**

Overall, districts indicated that fees cover the equipment, technology, and other costs needed to receive and answer 911 calls. Areas where districts thought that fees should cover more of the costs than they currently cover included dispatch personnel, building, and radio costs.

**Table 16. ECDs Reporting Current Expenses Covered by Fees and Percent of ECDs Recommending Full Coverage, by Category of Cost**

	Current *	Recommended **
Equipment to Answer Calls	91%	96%
Tech to Receive Calls	86%	100%
Addressing	80%	87%
Address Markers	5%	29%
Admin Staff	80%	87%
Calltakers	22%	60%
Dispatchers	40%	66%
Radio	70%	82%
Building	56%	81%
CAD	48%	84%
Mapping	69%	88%
Loggers/recorders	81%	96%
ILEC Tariffs	59%	71%
Districts Responding	65	68

\* Districts responding current fees cover all or a portion of these costs.

\*\* Districts recommending that fees cover all of these costs.

Source: TACIR survey of ECD Directors, February-May 2005

Many districts (59%) of the seventy responding indicated they currently had no needed expenditures that are unfunded. Of the 41% of districts (twenty-nine) that noted they had “needed but unfunded” expenditures, the more common needs indicated included additional dispatchers (eleven), radio upgrades (eight), increased pay levels (six), computer aided dispatch (four), building (four), and enhanced mapping (three). Most of these costs are part of the expanded definition of E-911 service i.e. costs after the call is received and are considered permissible, but not required expenditures under the TECB’s revenue standards.

Although based on limited data from the TACIR survey, current fees to local ECDs appear to cover more than current non-personnel operating costs. For the thirty-nine districts that provided total costs through dispatching, landline and wireless fees from the 25% distribution covered an average of 53% of total operating costs and 182% of non-personnel costs. For the nineteen districts with both total costs and line counts (including CLECs), landline rates of \$.65 residential and \$2 business produces an average of

**Finding:**

For a limited sample of districts providing complete data, current fees appear to cover more than current non-personnel 911 operating costs but less than the full operating costs including dispatching.

37% of total operating costs and 126% of non-personnel costs. A rate of \$1.50 residential and \$3 business produces an average of 73% of total operating costs and 247% of non-personnel costs. Operating costs include depreciation which should be an approximate estimate of capital costs over time.

### **LOCAL GOVERNMENT CONTRIBUTIONS**

Most ECDs rely on local government contributions to cover part of the full cost of E-911. However, the contributions for E-911 by local governments vary and are not reported for all districts. There are no required contributions and no E-911 cost sharing between the districts and the local governments. These arrangements are left to interlocal agreements.

Audited financial statements are not required to and often do not reflect the level of local government funding to E-911. Some local governments pay some costs of E-911 directly, such as dispatching costs, and expenses are not reflected in the E-911 fund accounting. Other districts receive contributions from local governments which are included in the financial reports of the district.

Only twenty-nine ECDs provided TACIR complete revenue figures that included local governments' contributions or direct expenditures for E-911 for at least two years. The percentage of E-911 revenue from local governments averaged 41% in fiscal year 2003-04, ranging from 3% in Claiborne County<sup>84</sup> to 65% in Sevier County. The local governments' share for these ECDs was down slightly from the 43% average in fiscal year 2002-03. Half of these districts had a smaller share of revenue from local governments in fiscal year 2003-04 than in fiscal year 2002-03.

Several districts have indicated that with the slowed growth or decrease in overall local government revenues, particularly in state-shared taxes, local governments are seeking ways to reduce local government costs for E-911. For the twenty-eight ECDs providing data, the average growth in local government dollars to E-911 was 2% between fiscal year 2002-03 and fiscal year 2003-04; eight districts received fewer local government dollars and eight had no growth in revenue from local governments.

### **Finding:**

Most ECDs rely on local government contributions to cover part of the full cost of E-911. However, the contributions for E-911 by local governments vary and are not reported for all districts.

**Finding:**

There is no standard or guideline on the appropriate level of cash reserves for districts to maintain for equipment purchases or emergencies.

Eight of the twenty-nine districts reporting local government funds to E-911 had rate increases between fiscal year 1999-00 and fiscal year 2003-04 above the \$.65 residential and \$2 business rate allowed to be set by local boards. Six of these were approved by the TECB and two were by referendum. Seven of the eight districts showed a decrease in the percent of local revenue for E-911. Four districts saw a reduction in the amount of local funds to E-911, one district remained constant, and three districts saw an increase. Of the districts with increased local government funds, one later reduced funds. Of the districts with reduced funds, one later increased funds.

Historical data on rate increases by local boards is not readily available to determine the influence of a local E-911 rate increase on local funds to E-911.

***ECD RESERVES***

The local Emergency Service Fund is a separate enterprise fund with revenue dedicated to 911 emergency service. Districts are allowed to accumulate funds to cover future expenses, usually equipment and other capital items, and emergencies. However, there is no standard or guideline on the appropriate level of cash reserves for districts to maintain. As a check, TCA 7-86-108(c) does authorize the local legislative body of the district, by its own two-thirds vote, to reduce the service fees established by the board of directors if they believe it is above the level required to fund the authorized activities of the district.

The TACIR survey asked district directors what their district considered an acceptable level of reserves. Of the twenty-eight of the one hundred districts responding, fifteen use a dollar amount ranging from \$50,000 or less (five districts) to \$500,000 (two districts), twelve base reserves on a percentage of annual or number of months operating costs, and one responded an acceptable level is one years operating plus the cost to replace all E-911 equipment.

A review of the financial statements for eighty-five districts that were operational and had audits available at the TECB offices for fiscal year 2002-03 show a wide variation in the level of cash

reserves<sup>85</sup> maintained by the districts. The current assets of these districts averaged \$533,134 and ranged from \$29,231 to \$5.45 million. As shown in Table 17, 40% of districts responding have reserves \$200,000 or less, 92% have reserves of \$1 million or less. The median level of current assets was \$251,653.

**Table 17. Emergency Communication Districts  
Level of Current Assets, FY 2002-03**

Less than or equal to:	# of Districts	% of Districts
\$100,000	8	9%
\$200,000	26	31%
\$500,000	31	36%
\$1,000,000	13	15%
\$2,000,000	3	4%
\$3,000,000	0	0%
\$4,000,000	1	1%
\$5,000,000	2	2%
\$6,000,000	1	1%
<b>Total</b>	<b>85</b>	<b>100%</b>

Average	\$533,134
Minimum	\$29,231
Maximum	\$5,452,425
Median	\$251,653

<b>Average by Population Tier</b>	
Tier I	\$4,585,905
Tier II	\$861,343
Tier III	\$359,705
Tier IV	\$240,485
Tier V	\$149,965

Note: Total does not add to 100% due to rounding.

Source: Tennessee Emergency Communications Districts, Fiscal Year 2002-03 Audits filed with Tennessee Emergency Communications Board.

Table 18 compares the eighty-five districts' current assets to their operating expenses reported in their audit for fiscal year 2002-03. Again, there is significant variation in what is reported as an expense to the E-911 fund among the districts. The median of current assets to operating expenses was 111% and ranged from 9% to 507%. Analysis by population tiers showed that the smallest ECDs and the largest ECDs had higher cash reserves. Averages for all population tiers were over 100% of operating expenses included in their audit.

**Table 18. Emergency Communication Districts  
Current Assets as Percent of Operating Expenses,  
FY 2002-03**

Less than or equal to:	# of Districts	% of Districts
50%	15	18%
100%	23	27%
150%	17	20%
200%	15	18%
250%	4	5%
> 250%	11	13%
Total	85	100%

Average	131%
Minimum	9%
Maximum	507%
Median	111%

**Average by Population Tier**

Tier I	150%
Tier II	123%
Tier III	110%
Tier IV	122%
Tier V	163%

Note: Total does not add to 100% due to rounding.

Source: Tennessee Emergency Communications Districts, Fiscal Year 2002-03 Audits filed with Tennessee Emergency Communications Board.

**Finding:**

ECDs have difficulty tracking the number of landlines and relevant service fees. The TECB does not have the authority to gather this information statewide. The TRA does not maintain line count information in the format needed to track fees. The TCA requires providers to report this data to ECDs, but there is no enforcement mechanism.

**RECEIPT OF FEES**

In the TACIR survey, very few districts were able to provide information on the number of landlines in their district over the last five years or on changes in the mix of residential versus business landlines (business landlines face higher surcharges). Without this information it is not possible to determine how much of the reported drop in landline fee collections is due to a decrease in landline telephone use or the lack of collection. The TECB does not have authority to gather this information statewide and the primary phone companies have declined to provide this information voluntarily. The Tennessee Regulatory Authority (TRA) does not maintain the information in the form needed to monitor these trends by the TECB. The TRA surveyed telecommunications providers for TACIR and were able to compile only fairly complete data for 2003 and 2004. About half of the Competitive Local Exchange Carriers (CLECs) failed to respond to the survey by the

TRA. TCA 7-86-110 does require service suppliers to annually provide each ECD an accounting of the amount billed and collected and the disposition of such amounts. This accounting is not happening and the statute provides no way to enforce this requirement. The TECB has sent letters to all certified local exchange carriers (LECs) in the state advising them of the accounting requirements. The TECB has also sent letters to the ECDs encouraging them to request the accounting from their LECs and providing them a form letter they can use for the request.

The districts receive E-911 service fees from landline users directly from the phone companies operating in their areas. Back in the 1980's when the original E-911 legislation was passed, almost all landline service was provided through one telephone company in the area. However, competition in the telephone industry has allowed many new companies to enter the market and begin telephone service. Most districts have one primary phone company (incumbent local exchange carrier (ILEC)) and many districts also have varying numbers of competitive local exchange carriers (CLECs).

Based on data for 2003 and 2004 compiled by the TRA, a growing percentage of consumers have switched to CLECs from ILECs, especially for business lines. Statewide, landlines by ILECS decreased about 4% and CLEC lines increased 23%. The ILEC market share of landlines decreased from 95% in 2003 to 93% in 2004. ILECs had 98% of the residential market in both 2003 and 2004 but only 86% of the business lines in 2003 and 83% in 2004.

**Table 19**

	Residential		Business		Total	
	2003	2004	2003	2004	2003	2004
% ILEC	98%	98%	86%	83%	95%	93%
% CLEC	2%	2%	14%	17%	5%	7%

Source: Tennessee Regulatory Authority

The ILEC was the sole provider of landline service in 23% of the ninety-five Tennessee counties in 2004, down from 28% in 2003. CLECs exist in most counties and their market share grew between 2003 and 2004.



**Table 20. ILEC Market Share by County  
2003 to 2004**

ILEC Market Share	% of 95 Counties	
	2003	2004
<=95%	19%	23%
96%	8%	5%
97%	12%	15%
98%	21%	18%
99%	12%	16%
100%	28%	23%
	100%	100%

Source: Tennessee Regulatory Authority

Several local ECD Directors interviewed indicated that they do not have a means to readily know what companies are operating in their district and the level of fees to expect. Additionally, about 29% of the sixty-five districts responding to the TACIR survey question regarding service fees thought that they were receiving all the service fees they should from the ILECS. An additional 58% weren't sure but thought they probably were receiving all the fees due. Only 8% had serious doubts about whether they were receiving those fees.

Districts indicated much less confidence in whether they were receiving all fees from the competitive local exchange carriers (CLECs). About 20% of the sixty-four districts responding thought they were not receiving all these fees and an additional 28% were not sure but thought they probably were not receiving all these fees. Only about half of the districts thought they were receiving the fees from the competitive providers. In fact, only about one-fourth of districts provided the number of lines provided by CLECs in their districts in any of the last five years.

It is recommended earlier in this section that Tennessee require providers to report line counts and service fees by ECD to a central agency. If these reports are made to the TRA, the state should require that they include the necessary information and are properly formatted to allow the TECB to properly track service fees. The TRA would be required to share the data with the TECB, which in turn would provide ECDs with data for their district. An alternative would be to have the providers report the line count

and service fee data directly to the TECB. Penalties should be specified for non-complying providers.

If additional control is considered necessary, another possible alternative would be to centralize the collection of landline fees at one central agency. The collecting agency could be either the TECB or the Department of Revenue. The Department of Revenue would appear to be a more logical choice due to their extensive revenue collection capabilities and experience. The Department of Revenue would be more likely to be able to enforce and ensure tax compliance. The agency that is given responsibility for collecting 911 fees should have the same audit and collection authority as granted to the Commissioner of Revenue under the General Revenue Laws (TCA 67-Chapter 1) and at TCA 4-3-1903 and other administrative and audit powers granted to the Department of Revenue.

It is important to note that this revenue would still be local revenue, not a state-shared tax. The service fees would simply be centrally collected and then distributed back to the ECDs, similar to the collection and distribution of local option sales taxes. Provision should be made for compensating the central agency and vendors for administrative overhead from the 3% now set-aside, with a recommended compensation rate of 1.25% and 1.75%, respectively, which is more in line with administrative cost sharing with local option sales tax collection. The collecting agency should have full audit authority to ensure that proper fees are remitted. In addition to increasing accountability and compliance, this option should ease administrative burdens for ECDs and providers alike. ECDs would no longer have to track ILEC and CLEC compliance, while providers would only have to report line counts to one agency rather than to multiple ECDs.

### **RURAL ECDS**

The topic of rural ECDs and their capacity to pay for E-911 service was a major point of discussion during one of the TECB's fall 2004 public hearings. Panelists at that hearing noted the need for a consistent statewide 911 delivery system. They stated that rural areas deserve the same quality of service as larger, urban areas and that people expect the same level of 911 service as they

### **Finding:**

Rural areas, with a much smaller fee base, have difficulty funding current technologies and staffing centers.

travel in all areas of the state. However, rural areas, with a much smaller fee base, have difficulty funding current technologies and staffing centers.

Also, the panel noted that rural ECDs' workloads have increased – about 50% of their calls are from wireless devices. The Farm Bureau, attending the public hearing, indicated that wireless technology and 911 location technology has been extremely important in rural areas for farm and personal accidents. A major concern voiced was the expanded expectation of local political leaders, who are often also on the ECD boards and making funding decisions, to expand what operating costs 911 fees cover, thus leaving a shortfall when new equipment is needed. Some rural ECD leaders feel that 911 fees are becoming a backdoor tax mechanism to free up funds for other county purposes. Rural areas also have a hard time offering competitive pay for and retaining dispatchers.

E-911 surcharge revenue is closely linked to the population as well as the fiscal capacity of the local governments in the district. Landline surcharge revenue is based on the number of phone lines, which is driven by population in an area. Business landline surcharge revenue, which pay a higher rate, is also influenced by the economic development of the area. Twenty-five percent of the wireless fees are distributed to ECDs from the TECB based on population. However, there is a fixed cost to providing a minimum level of E-911 service in an ECD. As noted above, the TECB has used discretionary grants and reimbursements to provide some additional funds to less populated ECDs. However, the TECB should consider incorporating a measure of local fiscal capacity, not just population, into the distribution of wireless funds, grants, and reimbursements. Also, the TECB should consider linking the distribution of statewide E-911 fees to cost components develop using minimum technical and operational standards.

As stated in previous sections and below, the TECB should coordinate the development of more specific minimum technical and operational for ECDs. These standards would serve as a guide to required uses of local ECD funds and ensure that a minimum acceptable level of E-911 is available to users statewide.

Such standards would allow the TECB to better identify ECDs that are not able to fund the minimum level of service with the revenue base in their district and determine if a change in the level and distribution of revenue is needed.

### **FUNDING EQUITY**

Based on useable data for twenty-one ECDs in 2004, the business sector share of total landline surcharges ranged from a high of 66% in the Bristol ECD to a low of 22% in the Campbell County ECD. Business surcharge revenue accounted for 51% of estimated total wireline revenue for the twenty-one ECDs included in the analysis.<sup>86</sup> A high business sector share of total 911 wireline surcharge revenue may not be reasonable given the absence of any data showing a significant business share of 911 emergency calls.

As part of the recommended review of fees levels based on more specific standards developed by the TECB, the TECB should consider a single state rate for all access lines. Changing the current cap on business lines from a 100 line cap at a higher rate to a 300 line cap at a new, lower single state rate produces about the same revenue as the current rate structure. An additional charge for every 50 lines above 300 would address customers, such as call centers, with extremely large line counts. A more specific definition of “location” is needed to determine the number of lines within the cap.

### **NEED FOR MORE SPECIFIC TECHNICAL AND OPERATING STANDARDS**

The Tennessee Emergency Communication Board is charged with establishing technical operating<sup>87</sup> standards for Emergency Communication Districts in Tennessee. The TECB is specifically directed to establish 911 service throughout Tennessee pursuant to standards established by the board.<sup>88</sup> The board is also authorized to establish operating standards concerning acceptable uses of revenues for ECDs.<sup>89</sup>

Since its inception in 1998, the TECB has worked to ensure that all of Tennessee has E-911 service for both wireline and wireless phones. When the board was created in 1998, eight counties in

### **Finding:**

Businesses fund a high share of total 911 wireline surcharge revenue which may not be reasonable given the absence of any data showing a significant business share of 911 emergency calls.

### **Recommendation:**

The TECB should appoint an advisory committee of PSAP officials and other public safety personnel as well as persons with E-911 technical expertise to develop minimum operational standards and related costs to be reviewed and approved by the TECB. The development of standards should provide a means to determine the costs and necessary revenue to provide a minimum level of service statewide. Once the standards are set the TECB should work with the districts to determine if the level and distribution of revenue needs to change.

Tennessee had no 911 service. Through grants and technical assistance, the TECB has worked with these counties to establish E-911 service. The TECB also took the lead role in working with wireless providers to ensure that all ECDs in the state with cellular phone coverage receive calls in their area and location and identification information on those calls. Through its policies, the board has set standards for GIS mapping systems to locate wireless callers and minimum backup system requirements. Policy 33 passed by the TECB on March 17, 2005 sets a minimum operating standard of care for E-911 service. This policy requires all PSAPs to be able to receive and utilize the data elements associated with wireline and wireless E-911 Phase II service, including Automatic Number Identification (ANI) to determine a caller's phone number and Automatic Location Identification (ALI) to pinpoint a caller's location and Phase II wireless coordinates. Each PSAP must have and regularly maintain a GIS Mapping system capable of auto-populating E-911 location data.

In 2003, the TECB was assigned the responsibility of developing dispatcher training standards. The board approved regulations in May, 2005 which are currently under review as required by the Administrative Procedures Act.

The TECB issued Revenue Standards in 2001 and amended them in 2003. These standards include required uses of 911 service fee revenues, permissible uses of 911 revenues after the required uses are met, and prohibited uses of 911 revenue. The required uses include the equipment and fees necessary to get wireline and wireless calls to the existing PSAPs with identification and location information, costs of an annual audit, surety bonds, legal notices for compliance with Open Meetings Act. Permissible uses are much more broad and include the costs of additional PSAPs, salaries of employees or consultants hired by the district, backup power for PSAPs, office supplies, utilities and repair costs for 911 service, facility costs, addressing and mapping, public education, insurance, uniforms, board meeting expense, training and travel expenses, among other expenses. Prohibited uses include costs for emergency response after the 911 call is dispatched, vehicles for non-ECD uses, road signs, outdoor warning sirens, and entertainment related expenses.

While providing overall direction on the use of E-911 service fees, the Revenue Standards are not specific as to the equipment required and are not tied to the availability of revenue in a district through 911 service fees or local government contributions. The revenue standards also do not address appropriate level and uses of reserves. Comments at a TECB hearing indicated that the revenue standards are helpful but, not specific enough.

Although the TECB has made significant advancements toward ensuring E-911 service across Tennessee, the TECB should coordinate the development of a comprehensive set of minimum technical and operating standards detailing the expectations of ECDs across the state. Several comments made at the TECB public hearings on the inability of some rural districts to fund the basics of E-911 service. Also, some districts are funding a greater proportion of dispatcher costs and operating costs and later are unable to fund necessary equipment purchases.

Specific standards would provide for uniformity of action by PSAPs resulting in a similar 911 service level statewide for all 911 calls. Tennessee should strive to meet statewide E-911 performance standards. More specific technical and operating standards could serve as a basis for defining costs for a district and develop a funding system that ensures that all districts are sufficiently funded to provide a minimum level of service as defined by the standards. Standards could include suggested replacement policies for required equipment and contributions to a local ECD equipment replacement account to fund major capital purchases in the future.

The standards should address needed PSAP infrastructure, such as the network and equipment needed to meet established performance standards. Such standards would also assist in developing standardized equipment specifications that could take advantage of statewide purchasing contracts. Standardization also would contribute to interoperability among PSAPs and districts and further encourage consolidation of E-911 service.

The standards should also address minimum staffing requirements to meet the performance measures included as part of the standards and incorporate training standards issued by the TECB. Such standards should consider services offered by ECDs such as

**Recommendation:**

The TECB should use the standards developed to identify ECDs that are not able to fund the minimum level of service with the revenue base in their district and determine if a change in the level and distribution of revenue is needed.



the provision of medical pre-arrival instructions, currently not offered in many counties. Standards in other states also include standards related to PSAP administration such as written policies and procedures and data collection, and PSAP governance, such as written inter-local agreements.

The TECB should appoint an advisory committee of PSAP officials and other public safety personnel as well as persons with E-911 technical expertise to develop minimum standards and related costs to be reviewed and approved by the TECB. The development of standards should provide a means to determine the costs and necessary revenue to provide a minimum level of service statewide. Once the standards are set the TECB should work with the districts to determine if the level and distribution of revenue needs to change.



## ENDNOTES

<sup>1</sup> These figures include the information reported by the 70 ECDs responding to the TACIR Survey in 2005 supplemented for non-responding counties by data compiled by the TECB technical consultant in 2003-2004.

<sup>2</sup> National Emergency Number Association (NENA), “The Development of 9-1-1”, [www.nena.org](http://www.nena.org).

<sup>3</sup> Green, Harry A., et. al., *Funding, Creation & Management of E-911 Districts, A Report to the 99<sup>th</sup> General Assembly Pursuant to HJR No. 499*, Tennessee Advisory Commission on Intergovernmental Relations, January 1995, p. 4. According to the Internet site [911dispatch.com](http://911dispatch.com), Winnipeg, Manitoba, Canada also had a 999 service beginning in 1959. Canada switched to 911 for its emergency response number in 1972.

<sup>4</sup> NENA.

<sup>5</sup> Ibid.

<sup>6</sup> Green, p. 4.

<sup>7</sup> NENA.

<sup>8</sup> Green, p. 1.

<sup>9</sup> NENA.

<sup>10</sup> Ibid.

<sup>11</sup> DISPATCH monthly, summarized from [www.dispatchmonthly.com/info/voip](http://www.dispatchmonthly.com/info/voip).

<sup>12</sup> NENA.

<sup>13</sup> Green, p. v.

<sup>14</sup> Data was deemed consistent if reported (for 2004) residential lines multiplied by the local residential surcharge plus reported business lines multiplied by the local business line surcharge approximated total reported 2004 (in the survey) wireline surcharge revenues.

<sup>15</sup> Data was included for Benton, Blount, Bristol, Campbell, Cocke, Coffee, Davidson, Decatur, Greene, Hamilton, Hardeman, Lawrence, Lincoln, Madison, Maury, Polk, Roane, Sevier, Shelby, Warren, and White Counties. Sumner County was excluded since reported 2002 wireline counts were inconsistent with reported 2003 and 2004 wireline data. Claiborne County was excluded since its reported wireline counts were inconsistent with its reported wireline revenues.

<sup>16</sup> Since metro areas generally have a higher ratio of business lines to residential lines, and the sample of ECDs used includes three of the four largest metro areas in the state (only the Knox County ECD was excluded), the estimated business share of wireline surcharge revenue of 50.8% is likely higher than the actual state-wide share.

<sup>17</sup> AOL began offering the service in early April 2005 to its top 40 markets, including Nashville. The service will be made more widely available at later dates. The potential growth of VoIP service is unclear. Recent estimates put the number of VoIP subscribers by 2008 at between 9-18 million (see APCO, 2005, p.7).

<sup>18</sup> Customer still needs a wireline to deliver DSL broadband service. If customers have a cable-based alternative to DSL, then the availability of VoIP will likely reduce the DSL share of the broad-band market.

<sup>19</sup> VoIP providers now offer back-up power on their VoIP phones.

<sup>20</sup> Telematics are automatic crash notification (ACN) devices found in many modern automobiles. OnStar is the most widely known provider of telematic services.

<sup>21</sup> NENA is a non-profit, membership organization solely dedicated to education, research, and standards for 9-1-1.

<sup>22</sup> National Emergency Number Association, *Report Card to the Nation: The Effectiveness, Accessibility, and Future of America's 9-1-1 Service*, September 2001.

<sup>23</sup> "Enabling Next Generation E-911," *Emergency Number Professional*, Vol.23, No. 1, February 2005.

<sup>24</sup> Hixson, Roger, NENA Technical Issues Director, "TechTrends," *Emergency Number Professional*, Vol.22, No.3 June/July 2004.

<sup>25</sup> Olivier, Pierre, "What You Need to Know about Internet Protocol Networking and Security," *NENA News*, Vol. 21, No. 6, December 2003/January 2004

<sup>26</sup> Meer, Stephen, Chief Technology Officer, Intrado, "VoIP and 9-1-1: The Technology is not the Problem," *Emergency Number Operations*, Vol. 22, No. 1, February/March 2004.

<sup>27</sup> Ibid.

<sup>28</sup> Hixson, Roger, "Redefining E-911 Services for the Future," *Emergency Number Professional*, Vol. 23, No. 4, May 2005.

<sup>29</sup> These figures include the information reported by the 70 ECDs responding to the TACIR Survey in 2005 supplemented for non-responding counties by data compiled by the TECB technical consultant in 2003-2004.

<sup>30</sup> L. Robert Kimball and Associates, "Public Safety Answering Point Consolidation Study," prepared for The State of Maine, May 2004. ([www.mainE-911.com/psaps/document/RPT512GC104-State of Maine PSAP/fnl.pdf](http://www.mainE-911.com/psaps/document/RPT512GC104-State%20of%20Maine%20PSAP/fnl.pdf))

<sup>31</sup> The TECB approved the Brentwood Emergency Communication District in Williamson County in 2003. Brentwood had been operating as an independent 911 communication system and dispatching since the mid 1980's. Brentwood residents did not pay 911 service fees to the Williamson County ECD prior to the creation of the separate districts so no fees were lost.

<sup>32</sup> These figures include the information reported by the 70 ECDs responding to the TACIR Survey in 2005 supplemented for non-responding counties by data compiled by the TECB technical consultant in 2003-2004.

<sup>33</sup> Interviews with district directors in the summer of 2004 by TACIR staff.

<sup>34</sup> Testimony of Larry White, Vice-Chair, Van Buren Emergency Communications District, TECB Nashville Public Hearing, 12/1/2004.

<sup>35</sup> L. Robert Kimball and Associates, "Public Safety Answering Point Consolidation Study," prepared for The State of Maine, May 2004. ([www.mainE-911.com/psaps/document/RPT512GC104-State of Maine PSAP/fnl.pdf](http://www.mainE-911.com/psaps/document/RPT512GC104-State%20of%20Maine%20PSAP/fnl.pdf))

<sup>36</sup> L. Robert Kimball and Associates is the current technical consultant under contract to the Tennessee Emergency Communications Board.

<sup>37</sup> Georgia Department of Community Affairs, "Regional E-9-1-1 Financing Report" – Recommendations from the Advisory Panel Meeting held June 5, 2002.

<sup>38</sup> Testimony of Ross Loder, Tennessee Municipal League, at TECB Public Hearing, December 1, 2005.

<sup>39</sup> TCA 7-86-105(b)(1).

<sup>40</sup> TCA 7-86-104(b).

<sup>41</sup> TCA 7-86-105(b)(2).

<sup>42</sup> Hamilton County met this populaton definition based on the 2000 U.S. Census.

<sup>43</sup> TCA 7-86-105(b)(3).

<sup>44</sup> TCA 7-85-105(b) (4).

<sup>45</sup> TCA 7-85-105(b)(5).

<sup>46</sup> TCA 7-86-105(b)(7)(A).

<sup>47</sup> If multiple Police or Fire Departments were represented they were included as municipal representatives.

<sup>48</sup> Testimony (transcript) at Nashville Public Hearing “Status and Future Challenges of Tennessee’s E-911 System,” December 1, 2004.

<sup>49</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Report and Order and Further Notice of Public Rulemaking) 11FCC Rcd 18676 (July 26, 1996) and CC Docket 94-102 (Report and Order and Further Notice of Public Rulemaking) 11FCC Rcd 18676, 18682-97 (June 12, 1996) (“E911 First Report and Order”) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>50</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Second Memorandum Opinion and Order) 14 FCC Rcd 20850, 20853 (November 19, 1999) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>51</sup> States tend to avoid the use of the term tax when dealing with 911 financing. However the GAO (General Accounting Office) determined several years ago that certain 911 surcharges (by the District of Columbia and by Georgia) were indeed taxes and not payable by the federal government (because of the federal government’s immunity from state and local taxes). See GAO decisions B-288161(April 2002) and B-301126 (October 2003).

<sup>52</sup> Vermont imposes a general surcharge on wireline and wireless users that is used for several purposes, including the funding of universal service and E-911 services.

<sup>53</sup> Wisconsin will impose a wireless surcharge beginning in December 2005 (per conversation with Wisconsin Public Service Commission on May 3, 2005).

<sup>54</sup> See Minnesota Statewide 9-1-1- Program information (for 2003) at website [http://www.911.state.mn.us/911\\_national\\_status.asp](http://www.911.state.mn.us/911_national_status.asp).

<sup>55</sup> Eleven states did not have data with which to narrow down a comparable average rate.

<sup>56</sup> Declines have occurred for several reasons: substitution of wireless service and VoIP service for traditional wireline service, shift to high-speed Internet broadband service from dial-up service, shift by business to T1 and PRI circuits that consolidate and share lines and which are treated as a single line by some service providers.

<sup>57</sup> TECB made an extra distribution of wireless funds to ECDs in FY 2003-04 that would have occurred in FY 2004-05 to better synchronize the accounting cycles of the TECB and the ECDs.

<sup>58</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Report and Order and Further Notice of Public Rulemaking) 11FCC Rcd 18676 (July 26, 1996) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>59</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Report and Order and Further Notice of Public Rulemaking) 11FCC Rcd 18676, 18682-97 (June 12, 1996) (“E911 First Report and Order”) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>60</sup> Public Chapter 1108, Tennessee Public Acts of 1998.

<sup>61</sup> Information provided by the TECB.

<sup>62</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Second Memorandum Opinion and Order) 14 FCC Rcd 20850, 20853 (November 19, 1999) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>63</sup> See *Revision of Commission Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket 94-102 (Report and Order and Further Notice of Public Rulemaking) 11FCC Rcd 18676, 18682-97 (June 12, 1996) (“E911 First Report and Order”) as cited in the Tennessee Emergency Communications Board 2003 Annual Report.

<sup>64</sup> General Accounting Office, “Uneven Implementation of Wireless Enhanced 911 Raises Prospect of Piecemeal Availability for Years to Come,” (GAO 04-55) November 2003.

<sup>65</sup> Assumes no surcharge changes.

<sup>66</sup> The current \$1 wireless surcharge (per month per customer) is higher than the current average residential wireline surcharge (\$.87).

<sup>67</sup> Data from TECB website.

<sup>68</sup> The analysis of overall statewide 911 surcharge revenue data used in tables 1 and 2 was based on data from the Federal Communications Commission, not data collected from individual Tennessee ECDs, nor the TECB. While annual data on wireless surcharge revenue is available from the TECB, no comparable revenue data series is currently available on an annual basis for wireline 911 surcharge revenue. ECDs file annual financial reports with the audit division of the Comptroller’s office. Each report presumably contains information on wireline fees collected from wireline providers. However no summary of that data is currently available for the years analyzed using the FCC data.

<sup>69</sup> Total 911 revenue, not total 911 revenue available to the ECD. ECDs receive only 25% of wireless revenues produced from the \$1 wireless surcharge.

<sup>70</sup> See previous description of existing fees.

<sup>71</sup> FCC ruling on November 9<sup>th</sup> relating to the Minnesota’s efforts to impose intra-state regulations on Vonnage Holding Corporation (relating to VoIP services).

<sup>72</sup> The November 9<sup>th</sup> FCC decision to declare VoIP an interstate service did not make state taxes and fees illegal but did leave the issue ambiguous; it also left ambiguous the status of state universal service and E-911 fees.

<sup>73</sup> On May 19, 2005 the FCC issued an Order requiring certain VoIP providers to supply E-911 as a mandatory feature to their customers. This FCC Order was preceded by similar action by the Canadian Radio-television and Telecommunications Commission (CRTC) that mandated a similar requirement on Canadian VoIP providers in a decision on April 4, 2005. However the FCC has not definitively addressed the issues of local 911 fees and universal service fund (USF) fees on VoIP service but does not prohibit states from collecting these fees.

<sup>74</sup> The court's supported the FCC's power to make reasonable decisions regarding the nature of broadband service under the powers granted to it by the Telecommunications Act of 1996.

<sup>75</sup> *Prodigy Services Corp. Inc. v. Johnson*, August 12, 2003. The Tennessee Supreme Court denied a review of the decision of the Tennessee Court of Appeals on December 22, 2003. The Appellate Court ruled that online information services were not taxable telecommunications services.

<sup>76</sup> The Internet Tax Freedom Act (ITFA) was originally passed in 1998 and extended several times since its original passage (recently extended in December 2004 to November 2007). Among other things, it prohibits the taxation of Internet access (broadly defined) by any state or local government that did not impose such a tax prior to October 1, 1998.

<sup>77</sup> Chapter 499, Publics Act of 2005; see Sections 48-56. The attempt to broaden statutory language to cover VoIP service under the umbrella of 'telecommunications' is not unique to Tennessee. See Nagel and Lev, p. 933.

<sup>78</sup> Telephone providers in Tennessee that already have nexus with Tennessee and collect sales tax on wireline and wireless service, would be obligated to collect sales tax on VoIP services if they enter the VoIP market.

<sup>79</sup> Observation by Dan Brekke in article titled "VoIP and Taxes (Again)," at website <http://ipinferno.blogspot.com/2205/02/voip-and-taxes-again.html>.

<sup>80</sup> TCA 7-86-103(9).

<sup>81</sup> Based on interviews and testimony at the public hearing held by the Tennessee Emergency Communications Board.

<sup>82</sup> Tennessee Attorney General Opinion, U89-16, February 16, 1989, Tennessee Attorney General Opinion, U92-137, December 29, 1992, Tennessee Attorney General Opinion, 95-064, June 19, 1995, and Tennessee Attorney General Opinion, 97-091, June 23, 1997.

<sup>83</sup> The referral method was deleted from the ECD Law as a response method in 1998.

<sup>84</sup> Claiborne County passed a referendum in August 2000 to increase landline fees to the maximum \$1.50 residential and \$3 business. The additional revenue was used to replace the local government contributions. Claiborne County is only one of two ECDs to pass the increase through a referendum.

<sup>85</sup> Current assets which includes cash and cash equivalents, investments, and accounts receivable was used a measure of cash reserves.

<sup>86</sup> Since metro areas generally have a higher ratio of business lines to residential lines, and the sample of ECDs used includes three of the four largest metro areas in the state (only the Knox County ECD was excluded), the estimated business share of wireline surcharge revenue of 50.8% is likely higher than the actual state-wide share.

<sup>87</sup> TCA 7-86-306(8).

<sup>88</sup> TCA 7-86-303(d)(3).

<sup>89</sup> (TCA 7-86-303(d)(9)).



## **APPENDICES**

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**APPENDIX 1. TACIR SURVEY OF ECD DIRECTORS (RESPONSE STATUS AS OF JULY 2005)**

<b>ECD</b>	<b>No Response</b>	<b>Responded</b>	<b>ECD</b>	<b>No Response</b>	<b>Responded</b>
Anderson		X	Knox		X
Bedford	X		LaFollette	X	
Benton		X	Lake	X	
Bledsoe	X		Lauderdale		X
Blount		X	Lawrence		X
Bradley	X		Lewis		X
Brentwood		X	Lincoln		X
Bristol		X	Loudon		X
Campbell		X	Macon	X	
Cannon		X	Madison		X
Carroll		X	Marion		X
Carter		X	Marshall	X	
Cheatham	X		Maury		X
Chester	X		McMinn		X
Claiborne		X	McNairy		X
Clay	X		Meigs		X
Clinton		X	Monroe	X	
Cocke		X	Montgomery		X
Coffee		X	Moore	X	
Crockett	X		Morgan		X
Cumberland	X		Oak Ridge	X	
Davidson		X	Obion	X	
Decatur		X	Overton-Pickett		X
Dekalb	X		Perry		X
Dickson		X	Polk		X
Dyer		X	Putnam		X
Fayette		X	Rhea		X
Fentress		X	Roane		X
Franklin	X		Robertson		X
Gibson		X	Rutherford		X
Giles		X	Scott		X
Grainger		X	Sequatchie		X
Greene		X	Sevier		X
Grundy		X	Shelby		X
Hamblen		X	Smith	X	
Hamilton		X	Stewart	X	
Hancock		X	Sullivan		X
Hardeman		X	Sumner		X
Hardin		X	Tipton		X
Hawkins	X		Trousdale	X	
Haywood		X	Unicoi		X
Henderson	X		Union		X
Henry		X	Van Buren	X	
Hickman	X		Warren		X
Houston	X		Washington		X
Humphreys		X	Wayne		X
Jackson	X		Weakley		X
Jefferson	X		White		X
Johnson		X	Williamson	X	
Kingsport	X		Wilson		X
			<b>TOTAL</b>	<b>30</b>	<b>70</b>



## APPENDIX 2. SURVEY OF EMERGENCY COMMUNICATIONS DISTRICTS

### Tennessee Advisory Commission on Intergovernmental Relations Survey of Emergency Communications Districts

#### General

1. Emergency Communication District: \_\_\_\_\_
2. Contact and Title: \_\_\_\_\_
3. Phone Number: \_\_\_\_\_
4. E-Mail Address: \_\_\_\_\_
5. # of Primary PSAPs in district: \_\_\_\_\_
6. # of Secondary PSAPs in district: \_\_\_\_\_
7. Which of the following best describes the E-911 response system in your Emergency Communication District? (Choose only one.)
  - 1 PSAP answers calls and directly dispatches emergency response
  - 1 PSAP answers calls and transfers calls to appropriate agency to dispatch response
  - 1 PSAP answers calls and dispatches some directly and transfers others for response
  - Multiple PSAPs answer calls and directly dispatch emergency response
  - Multiple PSAPs answer calls and transfer to appropriate agency to dispatch response
  - Multiple PSAPs answer calls and dispatch some directly and transfer others to appropriate agency to dispatch response
  - Other (please specify) \_\_\_\_\_

---
8. How many fully functional answering stations are available in your ECD?
9. How does your ECD operate:
  - As an independent unit of government
  - More like a division of county or city government
  - Other (please specify) \_\_\_\_\_

Why?

10. How would you rate the quality of E-911 service in your district?

- Excellent     
  Very Good     
  Good     
  Fair     
  Poor

**Staffing**

11. Total Number of E-911 Call takers/Dispatchers Positions by Employer

Employer	# Full Time	# Part Time	Answer Non-Emergency Calls? (Yes/No)	Other Duties? (Yes/No) Specify Below
ECD				
Sheriff				
City Police				
County Fire				
City Fire				
EMS				
Other				

12. How many PSAP call takers/dispatchers do you tend to have on duty at the following times of day?

Day Shift	
Evening Shift	
Night Shift	

13. How are pre-arrival instructions for medical calls handled in your district?

- Our PSAP provides pre-arrival instructions  
 We refer pre-arrival instructions to another organization.  
 Pre-arrival instructions are not available.

**Equipment**

14. How would you rate the adequacy of your equipment to handle E-911 calls in your district?

- Excellent     
  Very Good     
  Good     
  Fair     
  Poor

15. Age of equipment (please provide the requested years in service and anticipated year to replace information in the following table).

Equipment	Years in Service	Anticipated Year to Replace
911 System (CPE)		
Logging Recorder		
CAD		
Mapping		
Radio		
Other:		
Other:		

16. a. What capital expenditures does your ECD expect to make in the next 3 years? (Include a brief description, estimated purchase date, and expected cost.)

b. How does your ECD plan to fund these capital expenditures?

17. Does your ECD have a policy on the time between replacements on E-911 equipment?  Yes  No

If so, what is the goal?

### Tennessee Emergency Communication Board

18. Please evaluate the assistance of the Tennessee Emergency Communication Board to local Emergency Communication Districts in the following areas.

	Excellent	Very Good	Good	Fair	Poor	No Opinion
Wireless E-911 Implementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial Oversight of ECDs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical Assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial Assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Additional comments related to the Tennessee Emergency Communication Board.

**Funding**

20. What local E-911 operating costs did E-911 service fees (both landline and wireless) cover in your ECD in FY 2003-04? (Check all that apply.) If the fees only cover a portion of these costs, please estimate the percent covered.

Category	Check if fees cover costs	Percent covered (if less than 100%)
Equipment needed to answer E-911 calls	<input type="checkbox"/>	
E-911 technology to get the calls to the PSAP	<input type="checkbox"/>	
Addressing	<input type="checkbox"/>	
Address Markers	<input type="checkbox"/>	
E-911 Administrative Staff	<input type="checkbox"/>	
E-911 Call takers	<input type="checkbox"/>	
E-911 Dispatchers	<input type="checkbox"/>	
Radio costs related to E-911	<input type="checkbox"/>	
Building costs to house E-911 personnel and equipment	<input type="checkbox"/>	
Computer Aided Dispatch (CAD) Systems	<input type="checkbox"/>	
Mapping Systems	<input type="checkbox"/>	
Logger/Recorders	<input type="checkbox"/>	
Tariffs to service providers (LECS) to receive 911 calls	<input type="checkbox"/>	

21. What local operating costs do you think E-911 service fees (both landline and wireless) should cover? (Check all that apply.)

- E-911 technology to get the calls to the PSAP
- Equipment needed to answer E-911 calls
- Addressing
- Address Markers
- E-911 Administrative Staff
- E-911 Call takers
- E-911 Dispatchers
- Radio costs related to E-911
- Building costs to house E-911 personnel and equipment
- Computer Aided Dispatch (CAD) Systems
- Mapping Systems
- Logger/Recorders
- Tariffs to service providers (LECS) to receive 911 calls
- Other \_\_\_\_\_



22. Who should set the E-911 service fees for landline phones and up to what level?

- ECD Boards up to a maximum level established in law
- ECD boards up to a certain level with review and approval up to a maximum level by the Tennessee Emergency Communication Board.
- ECD boards up to any level
- A uniform statewide rate collected centrally and redistributed back to the districts

23. How do you think E-911 service should be funded in Tennessee?

24. Has your ECD received any Homeland Security funds? If so, please list the amount?

25. Has your ECD or 911 director participated in the local and district Homeland Security councils.

### **Organization**

26. Current E-911 technology allows call takers/dispatchers to effectively answer and dispatch calls for a larger geographical region.

- Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

27. Call taker/dispatchers can be trained and effectively handle calls of multiple public safety agencies.

- Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

28. Call takers/dispatchers can be held accountable when handling calls for multiple public safety agencies.

- Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

29. For cost effectiveness, E-911 systems need to handle a minimum level of calls.

Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

30. Personnel cost savings are possible by combining PSAPs (both primary and secondary) within a county.

Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

31. Non-personnel cost savings (equipment, maintenance, administration) are possible by combining PSAPs (both primary and secondary) among more than 1 county.

Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

32. Effective management control is possible by combining PSAPs (both primary and secondary) among more than 1 county.

Strongly Agree     Agree     Neutral     Disagree     Strongly Disagree

**Expenses**

33. Please provide the total 911 operating costs in the following table (ECD Uniform Chart of Accounts). Total costs include those related to the technology to get the calls to the PSAP, the answering of the E-911 call, and the dispatching of emergency service to the caller. Under the TECB Revenue Standards, this includes all required and permissive expenditures. Costs include expenditures funded through the ECD budget including intergovernmental revenues as well as expenditures funded directly by local governments. FY 2002-03 audited costs for your ECD to be used in the first column are included in the attached Excel spreadsheet.

<b>Operating Expenses</b>		<b>FY 2002-03 Audited Costs</b>	<b>Additional Costs Paid Directly by Local Governments</b>
<b>4000</b>	<b>Salaries and Wages</b>		
4001	Director		
4002	Administrative Personnel		
4003	Dispatchers		
4004	Telecommunications/Call takers		
4005	Data Processing Personnel		
4006	Custodial Personnel		
4007	Maintenance Personnel		
4008	Overtime Pay		
4009	Part-time Personnel		
4099	Other Salaries and Wages		
<b>Subtotal Salaries and Wages</b>			
<b>4100</b>	<b>Employee Benefits</b>		
4101	Social Security		
4102	Medicare		
4103	Life Insurance		
4104	Medical Insurance		
4105	Dental Insurance		
4106	Disability Insurance		
4107	Unemployment Compensation		
4108	Retirement Contributions		
4109	Other Fringe Benefits		
<b>Subtotal Employee Benefits</b>			

Operating Expenses		FY 2002-03 Audited Costs	Additional Costs Paid Directly by Local Governments
<b>Other Services</b>			
<b>4200</b>	<b>Contracted Services</b>		
<b>4201</b>	Addressing/Mapping Expenses		
<b>4202</b>	Advertising		
<b>4203</b>	Auditing Services		
<b>4204</b>	Accounting Services		
<b>4205</b>	Administrative Fees - Service Charge		
<b>4206</b>	Architects		
<b>4207</b>	Contracts With Government Agencies *		
<b>4208</b>	Contracts With Private Agencies *		
<b>4209</b>	Data Processing Services		
<b>4210</b>	Engineering Service		
<b>4211</b>	Facility Relocation Expenses		
<b>4212</b>	Fees Paid to Service Providers		
<b>4213</b>	Fiscal Agent Charges		
<b>4214</b>	Financial Advisory Services		
<b>4215</b>	Impact Payments *		
<b>4216</b>	Janitorial Services		
<b>4217</b>	Legal Service		
<b>4218</b>	Maintenance Agreements		
<b>4219</b>	Mapping/Data Base Consultants		
<b>4220</b>	NCIC/TBI/TIES Expenses		
<b>4221</b>	Other Consultants		
<b>4225</b>	Pest Control		
<b>4226</b>	Responder and Dispatcher Surveys		
<b>Lease /Rental</b>			
<b>4227</b>	Communications Equipment		
<b>4228</b>	Building and Facilities		
<b>4229</b>	Furniture and Fixtures		
<b>4230</b>	Office Equipment		
<b>4231</b>	Vehicles		

Operating Expenses		FY 2002-03 Audited Costs	Additional Costs Paid Directly by Local Governments
<b>Maintenance and Repairs</b>			
4232	Communications Equipment		
4233	Building and Facilities		
4234	Office Equipment		
4235	Vehicles		
4299	Other Contracted Services		
4300	Supplies and Materials		
4301	Office Supplies		
4302	Custodial Supplies		
4303	Data Processing Supplies		
4304	Postage		
4305	Small Equipment Purchases		
4306	Uniforms and Shirts		
<b>Utilities</b>			
4307	Electric		
4308	Gas		
4309	Water		
4310	General Telephone		
4311	Cell Phones and Pagers		
4399	Other Supplies and Materials		
<b>Other Charges</b>			
4401	Bank Charges		
4402	Board Meeting		
4403	Claims and Judgments		
4404	Debt Issuance Cost		
4405	Dues and Memberships		
4406	Employee Testing and Exams		
<b>Insurance</b>			
4407	Workers' Compensation		
4408	Liability		
4409	Building and Contents		
4410	Equipment		
4411	Vehicles		
4412	Legal Notices		
4413	Licenses and Fees		
4414	Premiums on Surety Bonds		
4415	Public Education		

Operating Expenses		FY 2002-03	Costs Paid Directly
		Audited Costs	by Local Governments
4416	Responder and Dispatcher Surveys		
4417	Service Awards		
4418	Training Expenses		
4419	Travel Expenses		
4499	Other Charges		
<b>Subtotal Other Services</b>			
4500	<b>Depreciation</b>		
4600	<b>Amortization</b>		
<b>Total</b>			

\* If impact payments or contracts with governmental or private agencies are included above, whom do they go to and what do they pay for?

34. If the ECD receives contributions from local governments and the expenditures are included above, what do they pay for?

35. Do the operating costs above include building costs? Please estimate those costs.

36. Do the costs above include any costs for radio systems? If yes, how much and what costs are covered?

37. Do the costs above include equipment and/or personnel to answer non-emergency calls? If yes, estimate what percent of the budget covers non-emergency calls.

38. Are there needed expenditures that the ECD or local governments have not been able to fund in your district? If yes, please list.

39. Please list the number of lines on the invoice and all fees (tariffs) paid to E-911 service providers (LECs) for each year listed in the following table.

June	# Lines	Total Fees Paid
2000		
2001		
2002		
2003		
2004		

### Revenue

40. Please provide your ECD's revenue information in the following table.

All Revenue for E-911	Fiscal Year				
	1999-00	2000-01	2001-02	2002-03	2003-04
Landline Service Charges					
Wireless Revenue					
TECB Grants and Reimbursements					
Interest					
Offsetting Revenues <sup>1</sup>					
Other Revenue					
Intergovernmental Revenue <sup>2</sup> County					
Intergovernmental Revenue <sup>2</sup> City(ies)					
E-911 Costs <sup>3</sup> Paid directly by County Governments					
E-911 Costs <sup>3</sup> Paid directly by City Government(s)					
<b>Total Revenue</b>					

<sup>1</sup> Negative revenues such as Interest Expense and Losses on Disposal of Property.

<sup>2</sup> Included in ECD budget and governed by inter-local agreements.

<sup>3</sup> E-911 cost should include the cost related to the technology to get the calls to the PSAP, the answering of the E-911 call, and the dispatching of emergency service to the caller



41. Please complete the following table showing the number of landlines paying E-911 service fees by category and year.

	June 2000	June 2001	June 2002	June 2003	June 2004
<b>ILECs</b>					
Residential					
Business					
<b>CLECs</b>					
Residential					
Business					
<b>TOTAL</b>					
Residential					
Business					

42. Do you believe you are receiving all the service fees owed from the primary service provider (ILEC) in your district?

- Yes
- No
- Not sure but probably
- Not sure but don't think so

43. Do you believe you are receiving all the service fees owed from competitive providers (CLECs) operating in your district?

- Yes
- No
- Not sure but probably
- Not sure but don't think so

44. Please complete the following table, providing information on your ECD's retained earnings/reserves

End of Fiscal Year	Net Income (Loss)	Retained Earnings (Deficit)	Cash & Cash Equivalent Balance
1999-00			
2000-01			
2001-02			
2002-03			
2003-04			

45. What does your ECD Board consider an acceptable level of reserves for an ECD?"

**Workload**

46. Please provide information on your E-911 call volume.

June	E-911 Calls	Estimated % Wireless *	Non-Emergency Calls
2000			
2001			
2002			
2003			
2004			

47. Please indicate the source of call data and the definition of the data presented and how you estimated the % wireless in the preceding table.

48. What is the estimated E-911 call capacity in your ECD with current equipment?

**Local Board**

49. Do you believe that state law should prescribe the make up of local ECD boards of directors?



### APPENDIX 3. INTERVIEWS

As part of the study of E-911 in Tennessee, TACIR staff have conducted numerous interviews either in person or on the telephone with Commission members, E-911 bill sponsors, local government officials, and E-911 subject matter experts. Individuals interviewed include:

- Mayor Nancy Allen
- Mayor Tommy Bragg
- Mayor Jeff Huffman
- Mayor Tom Rowland
- Rep. Larry Turner
- Mr. John Johnson
- Comptroller John Morgan
- Trustee Charles Cardwell
- Ms. Leslie Shechter Newman
- Sen. Ward Crutchfield
- Rep. Kim McMillan (staff)
- Rep. Tommy Head (staff)
- Mayor Brent Greer
- Mayor Richard Venable
- Alderman Bob Kirk
- Rep. Judd Matheny
- Rep. George Fraley
- Sen. Jerry Cooper
- Sen. Joe Haynes
- Randy Porter, Putnam County 9-1-1 and Chair, Tennessee Emergency Communication Board
- Buddy Schaffer, Sumner County 9-1-1 and President, Tennessee Emergency Number Association
- Joe Wilson, Sherry Bryant, Bradley County 9-1-1
- Raymond Chiozza, Shelby County 9-1-1
- Mark Lucas, Regina Copeland, Dwayne Stooksbury, Anderson County 9-1-1
- Charles Herrell, Chuck Jones, Vickie Fagan, City of Clinton 9-1-1
- Capt. Bill Mohl, Janice McGinnis, City of Oak Ridge
- Chris Masingale, Overton-Picket Counties 9-1-1
- Grant Gillespie, Humphreys County 9-1-1
- Bennie McDow, Tipton County 9-1-1
- Rex Hollaway, Bobby Thompson, Technical Consultants to Tennessee Emergency Communications Board and several local ECDs.
- David Gleason, 9-1-1 Coordinator, BellSouth
- Joe Werner and others, Tennessee Regulatory Authority
- Willie Lewis, Tennessee Telecommunications Association
- David Sturtevant, County Audit
- Allen Muse/John Garner, AT&T Wireless, former 9-1-1 Directors
- Charles Bilbrey, Office of the Comptroller
- Anthony Haynes, Director, Tennessee Emergency Communications Board
- Don Johnson, Auditor, Tennessee Emergency Communications Board
- Lynn Questell, General Counsel, named Executive Director in November 2005.
- Mike Taylor, Tipton County Commissioner, Chair of Tipton County ECD, and member of TECB.



## APPENDIX 4. PC 810 OF 2004

Chapter No. 810]

PUBLIC ACTS, 2004

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### CHAPTER NO. 810

### SENATE BILL NO. 3115

By Cooper

Substituted for: House Bill No. 3039

By Matheny, Fraley

AN ACT to amend Tennessee Code Annotated, Title 7, Chapter 86, relative to providing emergency communications districts the necessary authority to meet homeland security requirements and be self-supporting.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. The Tennessee advisory commission on intergovernmental relations is directed to conduct, within existing resources, an expedited, comprehensive study of all aspects of Tennessee's emergency telephone service (911) statutes, including, but not limited to, local emergency communications districts and their respective boards, the state emergency communications board, the provision of enhanced 911 service, and the assessment of emergency telephone service charges upon telecommunications service providers and customers.

SECTION 2. In conducting such study, the Tennessee advisory commission on intergovernmental relations shall specifically examine the funding mechanisms and the adequacy of the funding for local emergency communications districts and their respective boards, as well as the state emergency communications board.

SECTION 3. Such study shall also evaluate the feasibility and necessity of:

- (1) Increasing emergency telephone service charges on telephone land lines and wireless telecommunications services; and
- (2) Revising the statutory assessment formula for funding emergency telephone services.

SECTION 4. The Tennessee advisory commission on intergovernmental relations shall complete such study relative to emergency telephone service (911) and report its findings and recommendations, including any necessary legislation, to the general assembly no later than February 1, 2006.

SECTION 5. Tennessee Code Annotated, Section 7-86-306(a), is amended by deleting subdivision (10) in its entirety and substituting instead the following:

Respond to requests from emergency communications districts, commercial mobile radio service providers or other parties and subject to availability of funds, review and approve requests for reimbursements for expenditures or payment of obligations incurred to implement, operate, maintain, or enhance statewide wireless enhanced 911 service in conformance with any rules or orders of the Federal Communications

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Commission, and other federal and state requirements that pertain to wireless enhanced 911 service;

SECTION 6. This act shall take effect upon becoming a law, the public welfare requiring it.

**PASSED: May 20, 2004**

**APPROVED this 3<sup>rd</sup> day of June 2004**

  
JOHN S. WILDER  
SPEAKER OF THE SENATE

  
JIMMY NAIFEH, SPEAKER  
HOUSE OF REPRESENTATIVES

  
PHIL BREDESEN, GOVERNOR



## TACIR Members

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**Representative Randy Rinks, Chairman**  
**Mayor Tom Rowland, Vice Chairman**  
**Harry A. Green, Executive Director**

### **Legislative**

Senator Steve Cohen  
Senator Ward Crutchfield  
Senator Bill Ketron  
Senator Mark Norris  
Representative Tre Hargett  
Representative Kim McMillan  
Representative Randy Rinks  
Representative Larry Turner

### **Statutory**

Representative Craig Fitzhugh, Chairman, Finance Ways & Means Committee  
Senator Douglas Henry, Chairman, Finance Ways & Means Committee  
Comptroller John Morgan

### **Executive Branch**

Paula Davis, Department of Economic & Community Development  
Drew Kim, Governor's Office

### **Municipal**

Tommy Bragg, Mayor of Murfreesboro  
Sharon Goldsworthy, Mayor of Germantown  
Bob Kirk, Alderman, City of Dyersburg  
Tom Rowland, Mayor of Cleveland

### **County**

Nancy Allen, Mayor of Rutherford County  
Jeff Huffman, County Executive of Tipton County  
Richard Venable, Mayor of Sullivan County  
Ken Yager, Mayor of Roane County

### **Private Citizens**

John Johnson, Morristown  
Leslie Shechter Newman, Nashville

### **Other Local Officials**

Brent Greer, Tennessee Development District Association  
Charles Cardwell, County Officials Association of Tennessee



Tennessee Advisory Commission on Intergovernmental Relations,  
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