Montgomery County Emergency Communication District

Public Review Hearing

November 17, 2009
150 Hilbig Road, Conroe Texas

Montgomery County Emergency

Communication District

Overview

In May 1987, the Texas Legislature passed House Bill 911 to ensure that all of Texas' 18.5 million citizens would have access to 9-1-1 emergency telephone services. From anywhere in the state, dialing the digits "9" "1" "1" would allow callers to reach local emergency services quickly.

The Legislature eventually identified three ways to facilitate the implementation of 9-1-1 throughout the state by establishing:

Emergency Communication Districts

Regional Council of Governments

"Home-rule" Cities

In an April 1986 general referendum, the citizens of Montgomery County created the Montgomery County Emergency Communication District (MCECD) or more commonly called Montgomery County 9-1-1.

Montgomery County is one of the fastest growing counties in the state of Texas. At present, the population of the County is approximately 413,000 residents. In the last 8 years the county's population has increased by over 40%. The main impetus for growth is attributed to the expansion of the metropolitan Houston area with an influx of the city's suburbs into the County. As the County's population continues to increase and the county's demographics change; the demand for public safety services also increases accordingly. MCECD receives between 17,000 and 18,000 9-1-1 calls each month. Over 75% of the 9-1-1 calls are from wireless (cellular) callers. This increased demand for public safety services has a direct impact on the communications systems that support public safety agencies providing services for the residents of the county.

The Montgomery County Emergency Communication District is a separate governmental agency established by a vote of the residents of Montgomery County as a result of a special election, which allowed the creation of the Communication District. Under the recodified Health & Safety Code, 772.02, the purpose of the Communication District is to design, implement, and administer the Enhanced 9-1-1 system for residents

of Montgomery County. The enabling legislation approving the creation of the Communication District also established the make-up of the District and approved the funding mechanism.

The District is funded by a surcharge imposed on all local exchange access lines of every telephone company and all wireless and Voice Over Internet Protocol (VoIP) carriers providing telephone service within the District's territory (Montgomery County boundaries).

The District's budget is approved annually by the Board of Managers, 14 municipalities, and the County Commissioners' Court. The current fiscal year 2010 budget includes projected revenues of $3,937,768 with projected expenses of $5,517,364 with an estimated $1,579,596 of those expenses being drawn from cash reserves allocated for required Next Generation 9-1-1 (NG9-1-1) network and equipment upgrades. Projected non-allocated end of fiscal year 2010 cash reserves are $1,651,465.

In June, 1998, the District's Board of Managers hired Robert M. Gunter as Executive Director who has since been replaced by Gordon K. Lopez in January, 2009 subsequent to Mr. Gunter's retirement. On October 1, 1998, the Board of Managers approved the District's 1999 budget, which included funding a new communication center, replacing the old 9-1-1 system (equipment), and the installation of a digital 9-1-1 network.

The District financed the building by obtaining a fifteen (15) year lease purchase agreement at a rate of 4.6% and financed the new 9-1-1 system (equipment) by using a seven (7) year lease purchase agreement at a rate of 4.9%. The 15,000-sq. ft. communication center was built large enough to allow the current operations (9-1-1 call-taking, the Sheriff's dispatch and Hospital District's fire and EMS dispatch) to double in size. The building's second floor is the communication center that can handle up to thirty-two call-taking/dispatch positions. The first floor is used by MCECD's administrative, addressing, mapping and IT departments.

The communication center was completed April 1, 2000 and new, at the time, state-of-the art digital 9-1-1 equipment and an Integrated Services Digital Network (ISDN) was installed with the center becoming fully operational in May of that same year. The District was the first District in the State of Texas to build a communication center and the first Public Safety Answering Point (PSAP) location in Texas to install "digital 9-1-1" equipment and an ISDN network.

On March 27, 2002, the District tendered a check in the amount of $1,061,130.35 to pay in full the balance due on the Equipment Lease/Purchase agreement. Then on July 22, 2002, the District tendered a check in the amount of $1,369,021.22 to pay in full the balance on the Building Lease/Purchase agreement.

The technical requirements of 9-1-1 services have increased with the expansion of new communications technologies and state and federal 9-1-1 public safety regulations have

become more complicated. With changes introduced since the 2008 Presidential elections, FCC federal oversight and auditing of 9-1-1 and other public safety operational and funding venues is becoming more intense down to the state and local government levels. In light of grant monies becoming available for public safety initiatives via the new Administration's stimulus packages; such auditing will more than likely increase.

The District funded, in partnership with the City of Shenandoah and the Woodlands Fire Department, a back-up center that supports the county's needs in the event that the two primary PSAP centers, MCECD Consolidated Center and Conroe Police Department, should have to be evacuated.

The purpose of the 9-1-1 system is to deliver emergency telephone calls to public safety agencies. Thus, MCECD is not a telephone company, nor is it a public safety agency such as a police, fire or EMS organization. The District coordinates and facilitates Enhanced 9-1-1 service and provides addresses for all county residents. Its primary purpose is to provide the network and equipment for the Montgomery County Sheriff's Office (MCSO), the Conroe Police Department (CPD), the Montgomery County Hospital District (MCHD) and the Woodlands Fire Department (WFD) to:

- Answer all 9-1-1 calls within seconds.
- Assure the caller is connected to the correct agency.
- Train public safety personnel on the use of the 9-1-1 equipment and features.
- Assure that everyone has a physical address.
- Assure that location technology is in place for wireless 9-1-1 calls.
- Educate the public on when and how to use 9-1-1.

9-1-1 service fees are used for the 9-1-1 network, telephone and PSAP equipment, MCSO and CPD call-takers, database services, public education, training and staffing.

The District's budget for FY 2009/2010 includes funds for the following items:

9-1-1 Equipment	$1,860,000.00
9-1-1 Network	$ 400,301.00
Wireless Contracts	$ 103,459.00
Emergency Notification Services	$ 126,800.00
MCSO & CPD Call-takers	$1,165,794.00

Reserves:

1. Allocated for three months operating	$1,379,341.00
2. Allocated for building and mechanical repairs	$ 150,000.00
3. Projected Non-Allocated Cash EOY Fiscal 2010	$1,651,465.00
Total Reserves	**$3,180,806.00**

Montgomery County Emergency

Communication District

Enhanced 9-1-1 System

The Montgomery County Emergency Communication District's enhanced 9-1-1- service is an emergency telephone system, which includes a high-speed, integrated services digital network (ISDN), digital PSAP call taking equipment, and a data management system (database). (Figure A)

Positron 9-1-1 equipment purchased by the District in 2004/2005 is used in its communication centers comprised of the Montgomery County Sheriff's Office, Conroe Police Department, Montgomery County Hospital District and the Woodlands Fire Department. It is provided by AT&T (formerly Southwestern Bell) and Positron Public Safety Systems. The Positron System is a software driven system providing instructions that control the digital Nortel PBX's, HP servers and workstations. It is a completely digital system that provides enhanced features for 9-1-1 and administrative use.

The network uses integrated service digital network (ISDN) trunks from AT&T's 9-1-1 Tandem Selective Routing (SR) central office (CO) switch in Houston to each PSAP. Each telephone company provides high-speed Signaling System Seven (SS7) trunks from each telephone central office to AT&T's tandem switch (Figure B). Voice Calls and an Automatic Number Identification (ANI) 10 digit telephone number string are routed over the SS7 trunks to the tandem which in turn reroutes the call and ANI to the correct PSAP via the ISDN trunks previously mentioned. (Figure C & D)

There are four major telephone companies serving Montgomery County:

AT&T (formerly Southwestern Bell)
Consolidated Communications
Verizon Southwest
Embarq (formerly Sprint)

The four telephone companies are called Local Exchange Carriers (LEC). There are 70 other Competitive Local Exchange Carriers (CLEC) and resellers, who offer competitive services. All these companies have contracted with MCECD to provide 9-1-1 services. AT&T has more customers within the county's boundaries than the others. In addition 27 VoIP entities provide services in the county.

The Enhanced 9-1-1 System provides the following features:

- ***Automatic Number Identification (ANI)*** provides the call-taker and dispatcher with the telephone number of the caller.

- ***Automatic Location Identification (ALI)*** provides the street address associated with the telephone number and displays it on a screen at the call-taker/dispatcher positions. ALI also provides the type of telephone service (coin, business, residential), public safety agencies serving this address, and the name of the telephone and wireless customer. ALI information is always verified.

- ***Selective Routing (SR)*** the "tandem" provides automatic routing of 9-1-1 calls to a predetermined public safety agency. This allows a public safety answering point (PSAP) to receive only calls from telephones within their jurisdiction. MCECD's database coordinator keeps the Master Street Address Guide (MSAG) up-to-date. The MSAG is used to program the selective router.

- The ***9-1-1 Database*** is information or data that includes phone numbers, address information, and emergency service providers of citizens served by 9-1-1.

- ***Selective transfers***, "function keys", labeled "Fire", "EMS", "Police", etc. on the call-taker and dispatcher workstations are used to select a single button (click of the mouse) and transfer the 9-1-1 caller to the appropriate agency based on the location of the caller.

- ***Default Routing*** provides the capability to route an incoming call to a predesignated default PSAP when incoming calls cannot be selectively routed.

- ***Alternate Routing*** allows 9-1-1 calls to be routed automatically to a designated alternate location if all 9-1-1 service lines to a primary PSAP are busy, or a PSAP closed down for a period.

- ***Data Management System (DMS)*** is a system of manual procedures and computer programs used to create, store and update the data required for the selective routing and ALI service features. MCECD updates the DMS daily.

- ***Trunks***, also called "telephone lines" are provided by each telephone company and wireless carrier. Trunks are used to connect their customers to the Tandem (SR). Trunks are also used to connect the Tandem to each PSAP.

Figure A: Typical PSAP Equipment

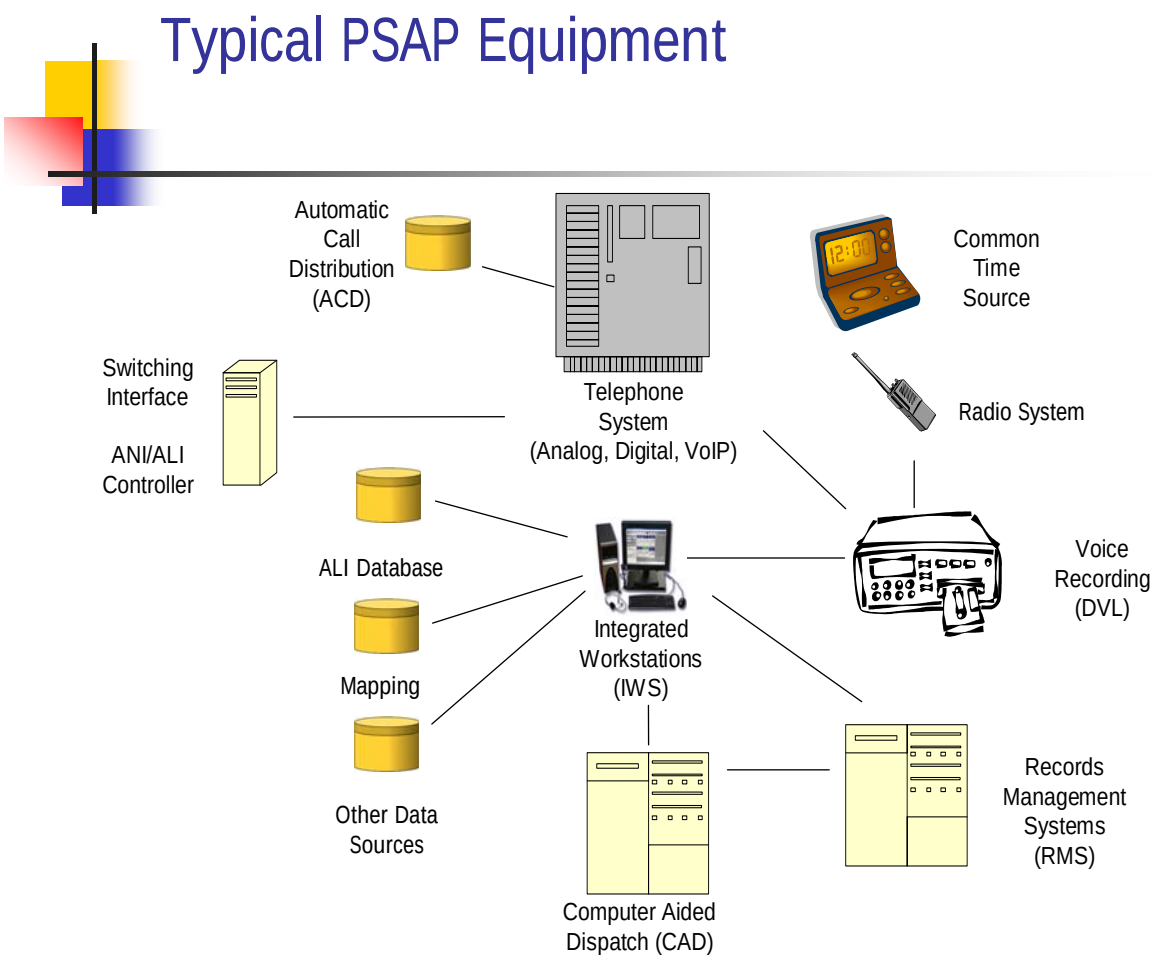


Figure B: Selective Routing

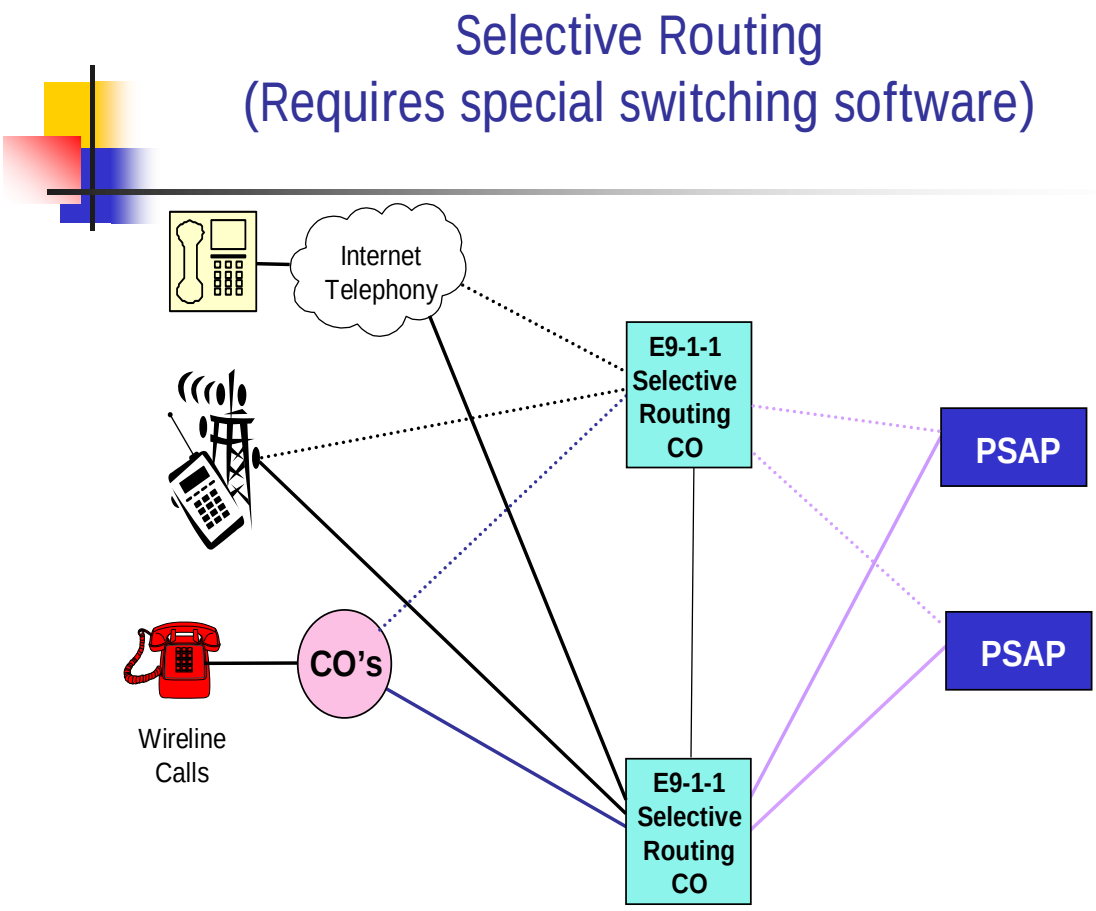


Figure C: Typical E9-1-1 Call Routing

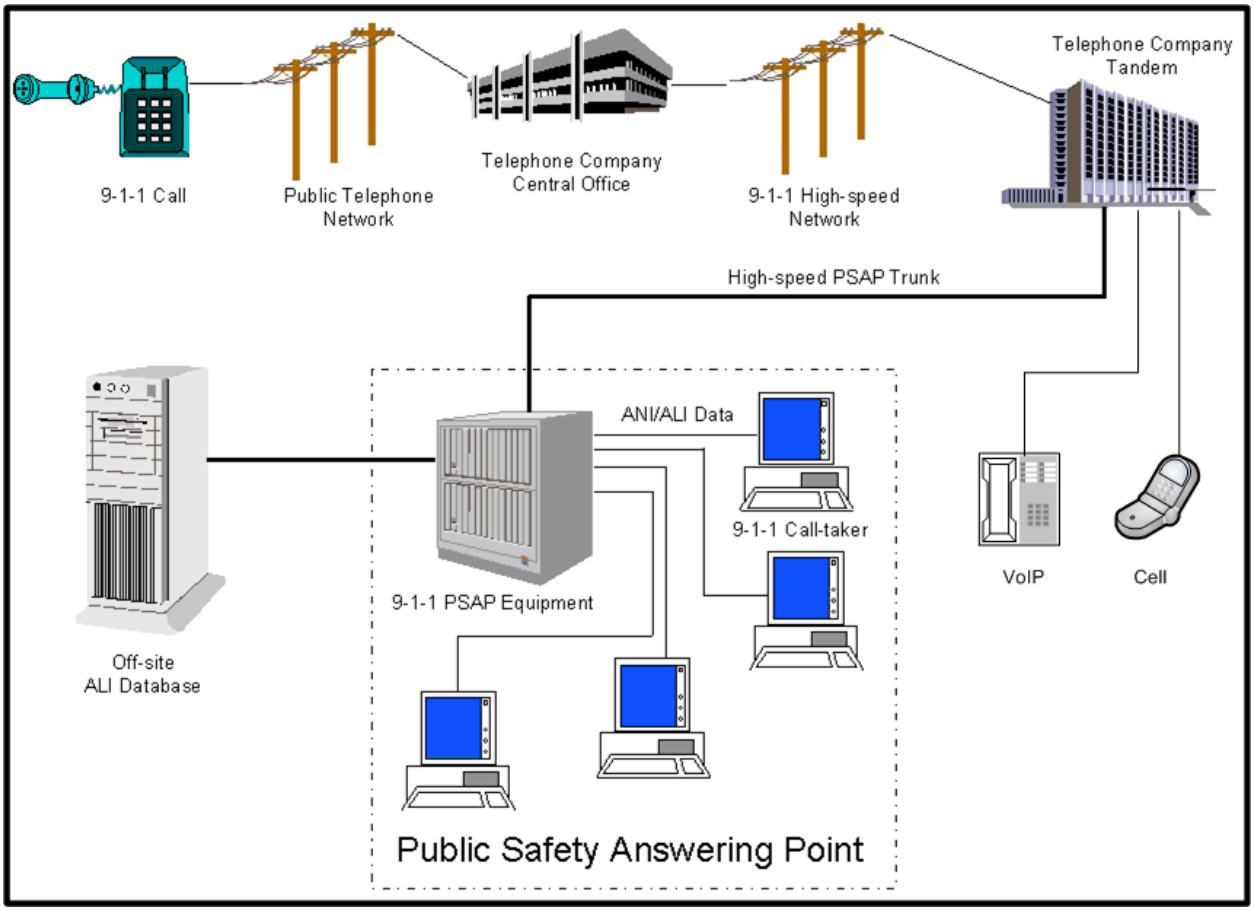
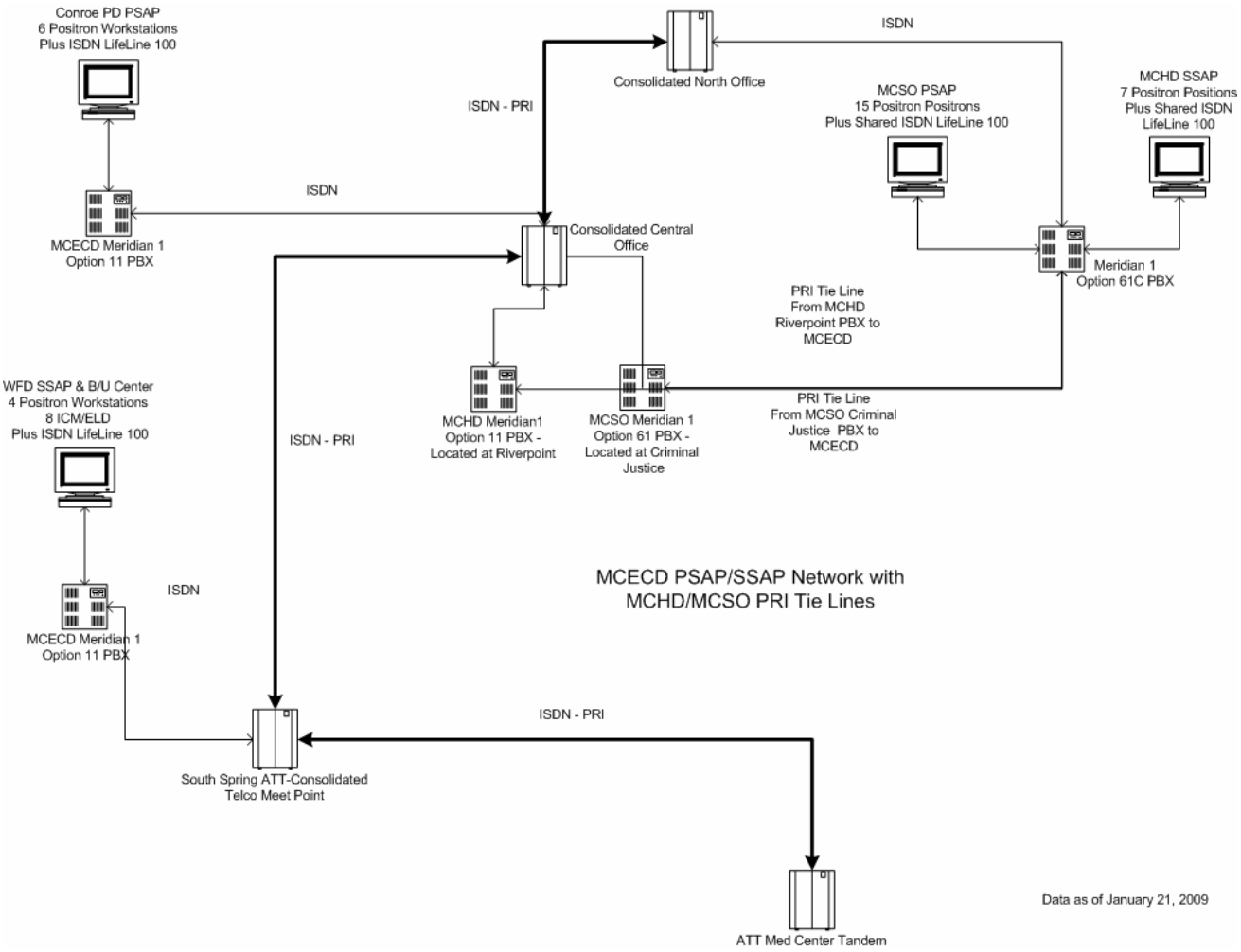


Figure D: MCECD Current Routing Diagram



Montgomery County Emergency Communication District

Next Generation 9-1-1 (NG9-1-1)

Technology is rapidly outpacing the 9-1-1 systems in use today. Newer technologies, like wireless and Voice over Internet Protocol (VoIP) phones, are now available for general public use. These new technologies have forced 9-1-1 systems to make changes in the way they receive calls.

The concept of Next Generation 9-1-1 (NG9-1-1) is designed to resolve these current issues and to reduce future issues with new technologies. The primary building block of NG9-1-1 is the Emergency Services Internet Protocol Network (ESInet). The ESInet consists of both the IP enabled transport and enhanced applications. The IP enabled network is the foundation of the ESInet.

In the 9-1-1 industry you will frequently hear use of the term NG9-1-1 today. This term does not represent a fully established set of standards, but rather it portrays a conceptual vision of the future. Usually this term defines a vision of where 9-1-1 is going, or at least the direction in which it is moving. In order to gain a better understanding of what NG9-1-1 entails, the following offers a review of some of the issues and groups with a stake in this vision.

The computer industry developed a method to send voice from computer-to-computer employing a technology called VoIP. Do not be confused by the use of the term “internet” here as in this application, Internet Protocol (IP) actually refers to a group of protocols used by computers to integrate various types of equipment. This technology is not restricted to the internet, but merely reflects the use of a protocol suite developed for the internet. As this technology became more mature and more widespread, various groups looked at the potential application and subsequent impact it could have on the 9-1-1 and public safety industry. For the purpose of this discussion, we are only referencing these new technologies as they apply to the delivery of 9-1-1 calls to the PSAP within the 9-1-1 infrastructure and not in the context of callers using VoIP for their telephone service.

Most callers utilizing VoIP on private phone systems and through phone service provided by internet service providers are already being received by 9-1-1 centers as they exist today including the PSAPs of MCECD. To do this, a complex system had to

be developed to deliver these calls. VoIP calls are converted to analog and the location data is added using pseudo-telephone numbers and addresses which have to be provided by the VoIP user to deliver the call to the legacy 9-1-1 system.

An Emergency Service IP Network (ESInet) is an advanced network which routes 9-1-1 calls directly to the appropriate PSAP via a managed, uniform, dedicated, digital network utilizing standardized components and IP technology. An ESInet supports the direction in which the public safety industry is heading and provides a solid technical foundation for PSAPs of the future. Most public safety industry leaders, both on PSAP and vendor sides, agree 9-1-1 is moving toward IP-enabled networks similar in concept to the local area networks (LANs) found in most offices today. It is a generally accepted belief by most people associated with the 9-1-1/public safety industry that the amount of data sent to PSAPs today is considerably less than PSAPs in the future will receive. While it is difficult to predict the future, data relative to such services as telematics, Automatic Crash Notification (ACN), Text Messaging and Geographic Information Systems (GIS), just to name a few, are good examples of the types of additional data that are likely, and can easily be supported by an appropriately-sized NG9-1-1 system solution. (Figure E)

The deployment of the systems for NG9-1-1 can be developed over a relatively short period. (Reference Figure F, Deployment Timeline) The basic building block for an NG9-1-1 capable network is an IP network. The deployment of an IP-enabled network is the first step in moving towards providing those advanced NG9-1-1 services. In addition, this type network can be used for other purposes in the interim. This transport system could be used by various services and would allow for expansion and integration of new services, over time, for delivering 9-1-1 calls and also other public safety related or administrative services. The IP network immediately provides a means for efficiently transporting 9-1-1 calls and associated data across PSAP boundaries including PSAPs administered by other 9-1-1 agencies which the current Selective Router Tandem centric network does not now allow. It also allows for disaster recovery and support across regional networks keeping 9-1-1 operations active when region wide crisis occur such as hurricanes in the Texas gulf regions. IP-enabled Customer Premise Equipment (CPE) should follow shortly after the IP-enabled network is installed. The development of coordinated regional ESInet services with other 9-1-1 entities in the area such as Greater Harris County 9-1-1 (GHC9-1-1), etc. would then follow local IP projects.

The current Administration's goal in the communications arena is to put in place a national broadband initiative with the intent of bringing internet and other digital services to every community in the nation, and, in particular, rural communities. This will be a project in size and scope to the 1930s TVA projects which brought electrification to all of rural America. As such, the transport mechanism for that endeavor will be IP enabled networks since that protocol has proven over the last three decades flexible enough with sufficient and diverse frequency allocations to meet the communications needs of today and into the future for small to large networks.

MCECD is in the process of researching the use of IP enabled networks and advanced IP enabled 9-1-1 call taking equipment to replace the current systems installed in the county's PSAPs and which are reaching obsolescence: also to prepare the foundation for advancing to NG9-1-1 applications. MCECD during the last quarter of 2008 contracted Kimball Technology; well known in the 9-1-1 Industry for its consulting work in call center and network environments, to analyze the current MCECD Public Safety profile and infrastructures and to develop a Request for Information (RFI) which was submitted to various 9-1-1 providers for cost estimates and designs for an IP enabled NG9-1-1 solution for the county's PSAPs. Various 9-1-1 vendors and providers responded. Kimball analyzed the solutions, developed and generated a summary report providing recommendations, guidelines, cost estimates and an approach to upgrading current network and systems infrastructures for future NG9-1-1 applications while supporting current legacy applications and protocols. MCECD's next immediate step is to research exact pricing structures and cost recovery methods; develop contracts with providers and proceed towards initiating an IP network and equipment upgrade project which should complete within the next 18 to 24 months. This will position the District well in order to meet the rapidly expanding communications needs of the public, and will prepare its 9-1-1 applications to meet the criteria now being established by the FCC for the Administration's national broadband initiative.

Figure E: NG9-1-1 ESInet IP Enabled Network

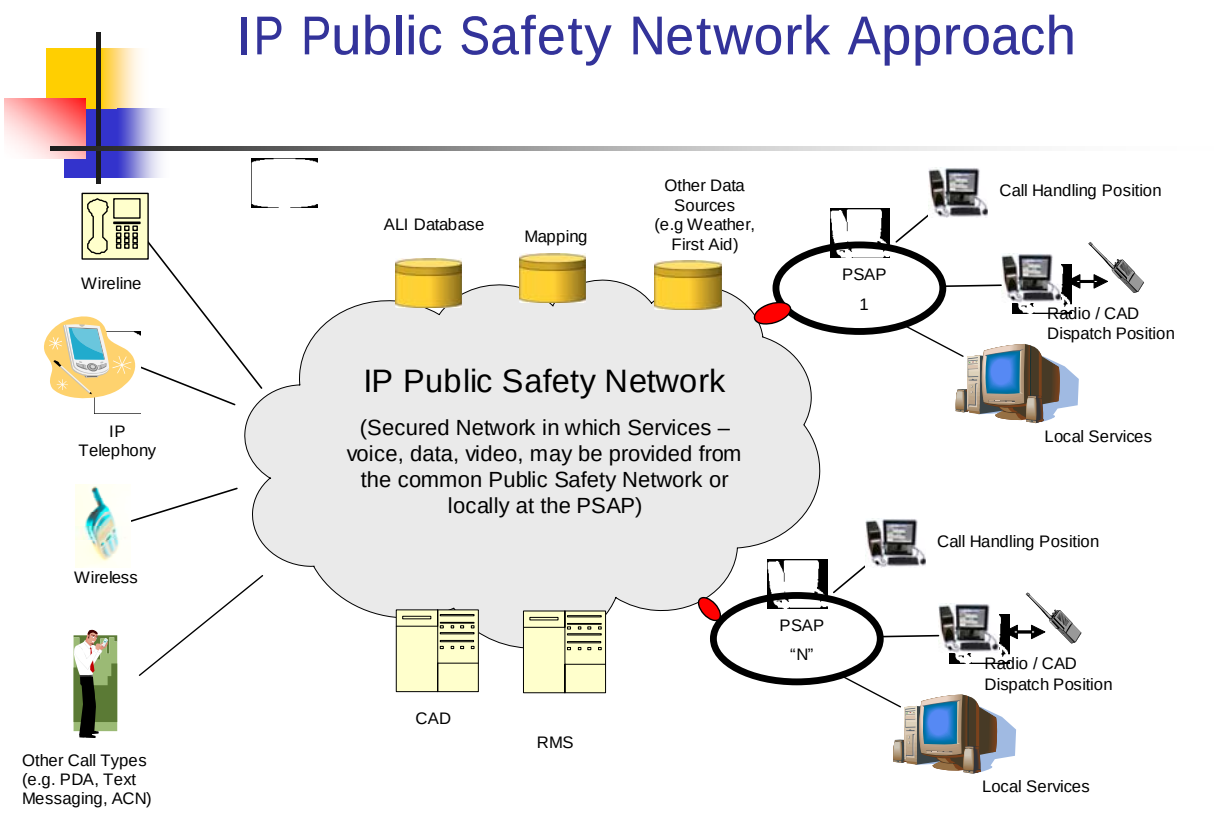
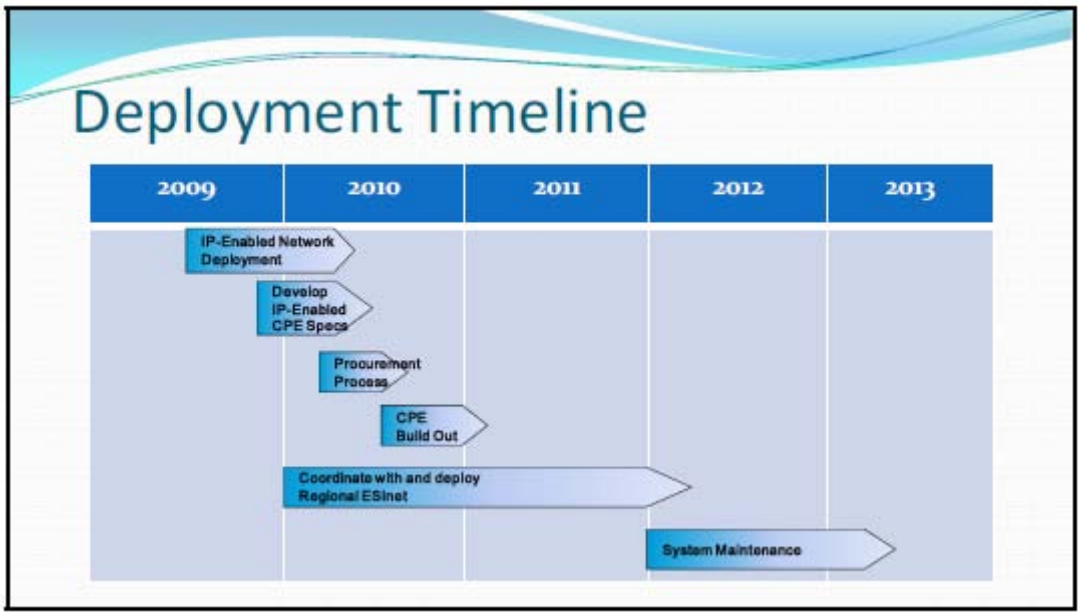


Figure F: NG9-1-1 Deployment Timeline



Montgomery County Emergency Communication District

Board of Managers

The Board of Managers is made-up as described below:

Two members representing the county are appointed by the Commissioners' Court.

Two members are appointed by the mayors of the Cities and Towns.

One member is appointed by the Montgomery County Fire Chief's Association (MCFCA).

One non-voting member is appointed by the principal telephone service supplier.

Current Appointments

Montgomery County Fire Chief's Association	Jody Binnion, President
Mayors of Cities and Towns	Paul Virgadamo, Vice President
Mayors of Cities and Towns	Ruben Garza, Secretary
Commissioners Court	Ann Carr, Treasurer
Commissioners Court	James Simon, Member
AT&T	Alfonso Martinez, Ex-Officio

Montgomery County Emergency Communication District

Mission and Goals

Mission

The mission of the Montgomery County Emergency Communication District is to protect and enhance public safety and health by providing enhanced 9-1-1 emergency communication services throughout the county.

Goals

Serve Montgomery County's resident by providing the services that will improve and enhance their quality of life.

Strive to improve the District's services in order to provide the best possible access to emergency services and assisting responding agencies in reducing response times.

Improve public safety services within Montgomery County by implementing wireless Phase I and Phase II for all wireless telephone customers and Voice over Internet Provider (VoIP) within the county.

Cultivate and strengthen Montgomery County emergency Communication District's partnerships among Montgomery County, local governments, special districts, state government, home-rule cities, and telephone companies.

Protect the public's interests by making sound business decisions and enforcing district policies.

Appropriately use public funds by preparing and auditing the budget annually.

Support the county by providing addresses for county residents.

Support the Montgomery County Sheriff's Office and the Conroe Police Department by providing funds for call-takers.

Assist emergency service agencies by providing geographic information (GIS).

Assist emergency service agencies with information systems (MIS) expertise.

Montgomery County Emergency Communication District

Staff

The administrative staff of the District is made up of nine full time positions and currently the 9-1-1 call-taking staff is made up of one full time position.

Executive Director	Gordon K. Lopez
Systems Operations Manager	Russell Steffee
GIS Manager	Chiu-Wen Ray
Database Manager	Jeanne Frey
Executive Assistant	Terri Gill
GIS Analyst II/Facility	Tom Franey
GIS Analyst II	Margaret Keen
GIS Analyst II	Ty Donley
Systems Technician	Roberto Gutierrez
Telecommunicator	Dorothy Brown-Willis

A brief summary of job responsibilities and information on obtaining full description can be found within the District's personnel manual.

Montgomery County Emergency Communication District

Funding Structure

The Montgomery County Emergency Communication District was created by the State with all the power to carry out its mission, which includes collecting a fee, not to exceed 6% of the primary telephone service provider's equivalent base rate. Initially the rate was set at 5%. In April of 2000, the rate was increased to 6% to help fund the upgrade of the aging 9-1-1 system (equipment, network, and database) and to build a modern communication center.

The monthly fees range from $0.62 to $1.66 for residential lines and $1.29 to $2.23 for business lines and static VoIP customers. The Commission on State Emergency Communications (CSEC) collects a $0.50 monthly fee from all wireless customers. Nomadic VoIP fees are $.50 monthly per line and are remitted directly to the District.

The monthly residential and business line fees are collected by each company providing telephone service and remitted to the District. The wireless fee is remitted to the State. The State sends each District a share of the total, based on the population of the area the District serves. Each telephone company retains funds for administrative costs, currently set at one (1%) percent.

In addition to the service fee, there is a 9-1-1 equalization surcharge of 0.3 (three tenths of one percent) and a Texas Poison Control surcharge of 0.3 (three tenths of one percent) monthly on intrastate long distance calls. These surcharges were authorized by the Texas Legislature to finance these services in counties without adequate population to support them. These fees are remitted to the CSEC.

2009/2010 Budget

Adopted by the 9-1-1 Board of Managers on July 20, 2009

	Budget Line Item Totals
Interest Income	56,291
Miscellaneous Revenue	61,152
Service Revenue	3,937,768
TOTAL INCOME	**4,055,211**
Bank Charges	3,758
Total Payroll (Salaries, Retirement, Taxes & Benefits)	1,207,426
City of Conroe 9-1-1 Call-taking Services (Reimbursement)	263,261
Montgomery County 9-1-1 Call-taking Services (Reimbursement)	902,533
Travel (Lodging, Meals, Transportation)	42,021
Insurance (Auto, Premise, Errors & Omissions, Liability, Property & Employee Dishonesty)	30,446
Mileage (Personal Auto Reimbursement)	6,800
Other Professional Services (Legal, Auditor, etc.)	103,400
GIS Addressing & Mapping (Equipment & Software)	72,800
Public Relations, Meetings & Organizational Dues	37,273
Professional Development (Education & Conference)	23,270
Records Management (Equipment & Software)	7,080
Wireline Carrier Contracts (Telcos – 9-1-1 Network & Database)	357,101
Next Generation Contracts (VoIP – 9-1-1 Network & Database)	43,200
Wireless Carrier Contracts	103,459
Leased Equipment & Services	4,040
Emergency Equipment & Services (Video Conferencing & Satellite)	126,800
Office Equipment & Software (Maintenance & Service)	2,500
Building Cleaning & Supplies	4,285
Office Supplies	12,542
Vehicle (District owned)	4,938
Office Computer Equipment	47,500
Building Machinery & Equipment	44,595
Facility Maintenance (150 Hilbig – primary center & 29955 I-45 N – back-up center)	24,135
9-1-1 System & PBX (Service Contracts)	1,860,000
Local Telephone Service	82,001
Utilities	100,200
TOTAL EXPENSE	**5,517,364**
Net Income – Revenue Over Expenses (9/30/2010)	(1,462,155)
Cash Beginning of Year (10/01/2008)	4,642,961
General Account Reserved for three months operating	(1,379,341)
Reserve – Allocated for building & mechanical repairs	(150,000)
Projected Non-allocated Cash – End of Year (9/30/2009)	1,651,465

2008/2009 Budget

Adopted by the 9-1-1 Board of Managers on June 19, 2008

	Budget Line Item Totals
Interest Income	128,160
Miscellaneous Revenue	40,352
Service Revenue	4,111,553
TOTAL INCOME	**4,280,065**
Bank Charges	4,676
Total Payroll (Salaries, Retirement, Taxes & Benefits)	1,407,875
City of Conroe 9-1-1 Call-taking Services (Reimbursement)	263,261
Montgomery County 9-1-1 Call-taking Services (Reimbursement)	902,553
Travel (Lodging, Meals, Transportation)	69,563
Insurance (Auto, Premise, Errors & Omissions, Liability, Property & Employee Dishonesty)	27,846
Mileage (Personal Auto Reimbursement)	2,500
Other Professional Services (Legal, Auditor, etc.)	61,400
GIS Addressing & Mapping (Equipment & Software)	14,550
Public Relations, Meetings & Organizational Dues	34,097
Professional Development (Education & Conference)	21,655
Records Management (Equipment & Software)	7,080
Wireline Carrier Contracts (Telcos – 9-1-1 Network & Database)	413,707
Next Generation Contracts (VoIP – 9-1-1 Network & Database)	43,200
Wireless Carrier Contracts	516,504
Leased Equipment & Services	8,440
Emergency Equipment & Services (Video Conferencing & Satellite)	166,400
Office Equipment & Software (Maintenance & Service)	3,100
Building Cleaning & Supplies	13,545
Office Supplies	12,340
Vehicle (District owned)	2,538
Office Computer Equipment	30,160
Building Machinery & Equipment	60,095
Facility Maintenance (150 Hilbig – primary center & 29955 I-45 N – back-up center)	58,647
9-1-1 System & PBX (Service Contracts)	1,806,097
Local Telephone Service	76,415
Utilities	98,450
TOTAL EXPENSE	**6,126,673**
Net Income – Revenue Over Expenses (9/31/2008)	(1,846,608)
Cash Beginning of Year (10/01/2008)	3,840,995
General Account Reserved for three months operating	(930,000)
Reserve – Allocated for building & mechanical repairs	(150,000)
Daily Operating Account	(500,000)
Projected Non-allocated Cash – End of Year (9/31/2009)	414,387