CONSOLIDATING THE 911 PUBLIC SAFETY ANSWERING POINTS IN WASHINGTON PARISH, LOUISIANA

December, 2002

Table of Contents

Section 1: Executive Summary

1.0 Scope of Project

GeoComm was retained by the Washington Parish Communications District for the purposes of examining 911 call answering and emergency communications dispatching services operated by the two cities of Bogalusa and Franklinton and the Sheriff within Washington Parish, and to assess the feasibility and viability of consolidating these 911 call taking and dispatching services as provided today by the three agencies, into a single consolidated dispatch center. A summary of the steps utilized to accomplish the project can be found in Appendix A.

1.1 General Observations:

Infrastructure: In our rather wide experience base in jurisdictions of a population and situation similar to Washington Parish, we must say we were somewhat surprised with the relative lack of shared infrastructure improvements. The sharing of major communications and data systems within counties and parishes is a hallmark of many recent development projects in localities of similar size and make-up to Washington Parish.

When we reference shared infrastructure we speak of shared computer-aided dispatch (CAD) systems, shared records system platforms, shared radio systems, GIS mapping systems and closely coordinated (electronically) E911 telephone systems and networks. At present, these systems in Washington Parish are either totally lacking or relatively isolated with little operational commonality between the various agencies. (See Page 121 for additional details)

The status of two way radio technologies in the PSAP (Public Service Answering Points) operations in Washington Parish represents the general "state of the art" in two way radio development over 40 years ago, a situation similar to many PSAP centers. Some of the PSAP's and/or field units may have newer desk top control station radio equipment, but the base station equipment is generally obsolete and in need of replacement. The radio communications systems and ancillary equipment range from strikingly obsolete to relatively current. Operational and some technical deficiencies in the radio infrastructure threaten the safety of public safety responders (especially fire/EMS) . (See Page 63 for additional details)

1.2 Staffing: There are generally inadequate staff on duty at each of the three 911 dispatch centers to handle even a modest surge of 911 calls, not to mention the flood (in unpredictable spikes) of such calls that are starting to arrive as wireless E911 services are implemented.

The working conditions for 911 telecommunicators/dispatchers are sometimes below standards. Active supervision is most often not present. Some of the workspaces are occasionally cluttered, crowded and have inadequate current state of the art consideration of increasingly important ergonomic factors.

With all three PSAP's involved in EMS (Emergency Medical Service) response assignments without any coordination between PSAP's, there is apparently a current inability to effectively coordinate their response in the present system and process. This is a liability risk and may occasionally delay the response of ambulances to emergencies.

There is also a serious deficiency during times of major emergencies involving multi-agency response during times of severe weather, which is characteristic of the area. This will place citizen safety at risk.

Some of the 911 dispatch centers in the Parish have entirely too little routine volume of activity of any kind (not just 911 calls) to justify continued and significant taxpayer support, not to mention the need to upgrade most of these facilities to newer and now becoming industry standard technologies. (See Page 17 for additional details)

1.3 Recommendations:

GeoComm has determined that consolidating the services of the 3 PSAPS, and implementing a number of new processes and technologies is a viable, feasible and appropriate outcome.

This consolidation recommendation includes the following sub-recommendations:

1. Move all current fire and law enforcement dispatching duties in the parish to a new Washington Parish Communications Center. (See Page 19 for additional details)

2. Implement five staffed fully compatible workstations at a new Washington Parish Communications Center on a 24 x 7 basis. (See Page 19 for additional details)

3. Convert all current dispatcher class employees in three agencies to become employees of the Washington Parish Communications Center ("WPCC").

   The WPCC should be staffed on "Day 1" with all of the same people who are currently serving as dispatchers at the three law enforcement agencies all doing pretty much what they do today, with the addition of two additional workers per shift.

   One of these two new workers will serve as a 911 call taker/provider of EMD (Emergency Medical Dispatch) service, and the other will serve as the

Primary Fire Dispatcher, back up 911 call taker, back up EMD provider and Shift Supervisor. (See Page 19 for additional details)

4. Implement a professional management, supervision, training, and employee certification system at the new WPCC. (See Page 19 for additional details)

5. Utilize the existing Washington Parish Communications District board to manage the new WPCC but include representation from public safety services (including PSAP operators), the Parish government and the governments of the "contributing PSAPs" of today, with a particular emphasis on adding representation from the Fire and EMS services as appropriate. (See Page 55 for additional details)

6. Implement a pay and benefit plan not less than the highest at any of the three current PSAP's. (See Page 49 for additional details)

7. Implement a new CAD (Computer Aided Dispatch) System as part of "Full Capacity" dispatch consoles using ergonomically friendly furniture. (See Page 124 for additional details)

8. Link the consolidated CAD system to the existing agency RMS (Records Management System) to allow the seamless generation of agency reports by field officers when they return to their headquarters. (See Page 124 for additional details)

9. Provide 7 digit call answering capability for the law enforcement agencies at the WPCC capable of being answered in a manner appropriate to those agencies and to the nature of the 7 digit call in question. (See Page 128 for additional details)

10. Provide an "automatic ring down" phone near the present law enforcement dispatcher windows in the three current PSAP agencies to gain access to that agency's administrative phone system to leave a message or to get into an individual employee's voice mail-box. Similarly, since some of these "walk-ins" are walking in to report some emergency in their car, or on the street or wherever, it is also recommended to install something like a pay phone (which has free access to 911) to facilitate the reporting of the emergency or urgent incident. (See Page 44 for additional details)

11. Implement a GPS based AVL (Automatic Vehicle Location) system for (at a minimum) fire and EMS responders to aid in their finding rural locations in the parish. Consider implementing AVL for law enforcement responders for improved tactical control to implement a "closest car response" capability as well as an officer safety enhancement. (See Page 115 for additional details)

12. Implement improvements to the parish radio systems to enable hand-held (walkie-talkie) transmit and receive capability throughout the parish. While detailed elsewhere, these improvements include:

    a. Retain VHF frequency operations rather than move to 800 KHz or 450 MHz radio bands. (See Page 119 for additional details)

    b. Implement "Analog Simulcast" transmitter operations for the Sheriff's channel. (See Page 119 for additional details)

    c. Implement "Analog Simulcast" transmitter operations for "Emergency Government Channel" currently known as the "OEP" channel. (See Page 119 for additional details)

    d. Retain the County Fire channel as a repeater system and change to a voting receiver operation-multiple site repeater operation. (See Page 119 for additional details)

    e. Move the Bogalusa Fire Department to the Parish Fire Channel. Re-deploy the existing LOW BAND channel that the Bogalusa FD is on for AVL (Automatic Vehicle Location) data transmission. (See Page 119 for additional details)

    f. Erect a new tower on the site of the current radio tower at Dollar Road. (See Page 119 for additional details)

    g. Utilize amateur radio operators within the ARES o RACES organizations to provide secondary or ancillary emergency communications on an as needed basis. (See Page 118 for additional details)

13. Implement solid, hard data collection systems to measure all work done by time and day, position and time spent for at least one year. (See Page 124 for additional details)

14. As consolidated operations settle in, using the hard data collected in #13, begin to assess the viability of combining job functions such as merging dispatch functions across the staff for greater efficiency all or some of the day, or having the on duty staff count vary across the day from depending on the actual data collected. (See Page 124 for additional details)

1.4 General Benefits of Consolidation :

The importance of consolidation is two fold from an overall "macro" viewpoint. First, current infrastructure and organizational weaknesses make it difficult to adequately respond to even a large local event, not to mention a regional disaster. Even a police chase or crime in progress response is affected by the separation of PSAPs and radio systems. The "left hand" may not know what the "right hand" is doing. The ability to coordinate a mutual aid or multi agency response is magnified. Quite likely, the law enforcement agencies in Washington Parish may not provide this type of "back-up" assistance as often as might be beneficial, because of these obstacles. A consolidated PSAP would provide each public safety agency, whether it be Law Enforcement, Fire, or EMS, the ability to work more effectively with all other public safety agencies in the Parish.

Secondly, the increasing expectations of the public to receive pre-arrival medical emergency advice/assistance via phone BEFORE responders arrive, requires more education, training for the 9-1-1 operators, as well as equipment. Such a process is relatively expensive, especially if done in triplicate. Having only one PSAP would increase the ability to handle a number of events simultaneously, and provide for better use of tax dollars.

Thirdly, there is apparently a current inability to effectively coordinate the response to Emergency Medical Services (EMS) calls in the present system and process, and it is a liability risk and may occasionally delay the response of ambulances. Because two EMS providers are competing for service in the parish, with no apparent jurisdictional boundaries present, such EMS calls are handled on a "rotation basis", much like some PSAPs coordinate try and "spread the business around" for local tow companies.

The obvious difference between tow trucks and EMS responders is the importance of a timely response to patient outcome. Because of this EMS provider rotation arrangement (in conjunction with three PSAPs attempting to follow their own rotation scheme) no single PSAP is presently able to necessarily ensure that the closest EMS unit responds to medical emergencies. In addition, at least one ambulance company has encouraged callers to *call them directly without the use of 9-1-1*. In such a case of a call direct to the ambulance company, none one of the county PSAPs is necessarily aware of a medical emergency in their jurisdiction.

One PSAP coordinating and assigning all EMS activity would ensure a quicker response (AVL or Automatic Vehicle Location could be a particular aid in these areas) and the ability to effectively provide pre-arrival instructions to the caller. It will allow for a coordinated EMS response, without having three different PSAPs keep "ambulance rotation logs" and attempt to find an available unit, which may not be close to the incident.

1.5 Benefits to Agencies and Local Governments:

- Reduce yearly departmental expenses by approximately $ 100,000 per agency at the current one dispatcher per shift level.

- Eliminate the need to add additional dispatch staff when the current staffing becomes inadequate. This is estimated to occur by the year 2005 and would require an additional $ 100,000 in yearly funding per affected agency.

- Elimination of significant capital expenditures and recurring maintenance expenses for dispatch related equipment.

- Elimination of recurring training and certification expenses for dispatchers.

- Improved tactical law enforcement control and faster response times with AVL and call mapping.

- Consolidated dispatchers will be able to provide responding agencies with history of emergencies at the address being responded to

- Consolidated dispatchers will be able to provide responding agencies with emergency pre-planning information for residence or business being responded to.

- Improved officer safety with AVL.

- Improved Law Enforcement / Fire / EMS coordination.

- Reduction of law enforcement agency dispatch related liability exposure by its transfer from the cities and the Sheriff to the WPCC.

- Reduction of law enforcement agency EMS / ambulance related dispatch liability exposure by its transfer from the cities and the Sheriff to the WPCC.

- Ability to place additional personnel “on the streets” by eliminating the need to have officers / deputies “fill in” when a dispatcher is absent from work, and the freeing up of the one full time Bogalusa fire fighter currently acting as a “dispatcher” in their Main Station.

- Centralized dispatcher with primary fire dispatch responsibilities will be able to provide improved service to the fire departments.

- In Bogalusa, one full time fighter position per shift will be now available without an increase in cost (see above).

1.6 Benefits to Existing PSAP Staff

- Creation of a PSAP with more people on duty all the time than is ever the case at any of the current PSAPs to deal with issues such as wireless 911 call spikes and other activity surges. Dispatch help for overloads is instantly available, as well as more scheduling flexibility, easier access to time off, break time, etc.

- Ability to utilize state of the art communications and dispatch equipment and be able to communicate with “anybody, anywhere” in the parish.

- Able to immediately play back digital record of emergency call to determine hard to hear information on all phone lines and radio channels.

- Ability to plot locations for wired and wireless 911 callers instantly on a computer map, and to track and direct fire and EMS responders via the AVL system.

- Higher rates of pay for many to most of the employees.

- Career path opportunities with the creation of 5 supervisory "Lead Telecommunicator" positions.

- Initial and recurring formal training opportunities.

- Creation of the position of dedicated Primary EMS and Fire Dispatcher will reduce load on current law enforcement dispatchers.

- Improved work environment in a professional organization dedicated to dispatch and dispatchers.

1.7 Benefits to the Citizens of the Parish, Visitors and Businesses :

- Faster and better coordinated emergency responses by all agencies.

- Ability of dispatchers to locate where the emergency is whether it be called in by land telephone or wireless cell phone. The citizen will never be “lost”, even if due to injuries he is not able to locate himself. The emergency responders will never be lost and not able to find a citizen’s house.

- Emergency Medical Dispatch personnel available to guide the caller in performing life-saving first aid prior to ambulance arrival.

- Information concerning residence or business layout and special medical needs of residents stored on computer for fire department or EMS use if requested by owner.

- Busy signals or “please hold” instances in time of emergencies will be minimized or eliminated.

- Probable reduction in fire insurance costs to the citizen due to improved fire communications capability and improved fire department rating.

- Efficiency in funding utilization will reduce overall costs thereby reducing the need for tax increases in the future.

1.8 Capital Cost of the Consolidation

Based on our estimates, we see the following potential one time costs and cost categories being incurred in implementing a new consolidated PSAP located at the Communications District site on Dollar Road. We have not been able to precisely determine all costs yet, as some of them are dependent on what other underlying decisions are made. Where we feel we have a good sense of costs, they are reflected.

Line Item	Cost	Reference
Building	$ 500,000	(See Page 146)
Implement Simulcast	$ 458,000	(See Appendix D)
Radio system upgrades	$ 200,700	(See Page 104)
Dispatch Console Equipment	$ 200,000	(See Page 104)
New 911 CPE System	$ 160,000	(See Page 26)
Professional Fees	$ 112,000	(See Page 138)
Incident Command System	$ 100,000	(See Page 129)
Dispatch Console Furniture	$ 65,000	(See Page 104)
CAD System	$ 65,000	(See Page 124)
AVL System Head End	$ 60,000	(See Page 115)
Dispatch Mapping	$ 40,000	(See Page 126)
Recorder	$ 30,000	(See Page 128)
Total	**$ 1,990,700**	

1.9 Operating Cost of the Consolidated PSAP

GeoComm has estimated that the total annual operating costs (not including any rents, leases, maintenance or utility costs of such a facility) would be in the range of $760,000 per year.

We have established that the operation of a new consolidated PSAP would require 24 FTE (full time equivalency) employees, and that the annual recurring costs for these staff would be in the vicinity of $714,000 per year in 2002 dollars. Generally, outside of long term capital costs for buildings, data and radio systems, etc. such personnel expenses generally consume about 83% of a PSAP operating agency's annual budget. However, with the Washington Parish Communications District picking up the cost of many of these items from their funds (recurring 911 costs, CAD costs, etc.) it would seem more appropriate to peg this "non-personnel cost" figure to be in the range of 6.5% instead of the typical 17%. We added this 6.5% and arrived at the $760,000 per year figure.

Assuming that approximately $760,000 would be required each year to pay for the continued operation of the WPCC (not counting ant debt retirement for construction or equipment) the dual questions of who should pay, and via what mechanism need to be addressed.

In Louisiana, the Parish is permitted to collect a 911 surcharge of 55¢ per residential line per month (17,077) now, and $1.43 per month for business lines (3,122) now. These two fees together (along with some revenue from the cellular 911 surcharges at 85¢ per month -20% to the cellular carrier) generate approximately $219,521 per year for the Parish Communications District.

If the Parish were to take advantage of the legally permissible opportunity to increase the residence line surcharge by $1.20 per month (to a total of $1.75 on 17,077 lines), and the business line surcharge by the same $1.20 per month (to a total of $2.63 per month on 3,122 lines), this revenue stream would grow to $449,677 per year, plus a presumed average of $68,000 per year in cellular 911 surcharge fees, for a grand total annual revenue of about $517,677.

This additional levy falls short of the required $760,000 per year by approximately $ 242,000 per year. There are two approaches to covering this shortfall. First, the Communications District may wish to ask for additional funding via the telephone surcharge route by increasing line rates by a total of $ 2.20 per line per month. This would result in a fee of $ 2.75 per month per residential phone line and $ 3.63 per month per business line.

A second approach is to ask that proportional fees be paid by the City Councils of Bogalusa and Franklinton and the Washington Parish Sheriff's office, based on a formula intended to make participation fair, to fund this shortfall over and above the Communications District's capacity to levy the local telephone surcharge. With these funds, the Board would pay for the entire operation of the new consolidated communications center.

As operational efficiencies are put into place and WPCC operating and labor costs are reduced, the savings can be passed back to the governmental agencies. It is entirely possible that with accurate call volume data and resulting "load balancing" analysis, that much of the "governmental agency" user fees can be eliminated. Even if "user fees" reduce the agency yearly estimated savings of $ 100,000, substantial savings will still exist.

Therefore, assuming that the requested capital funding from the US Congress or other federal agency materializes to pay for the new facility and equip it, increasing the 911 surcharges as indicated above should just about cover all of the costs of running and staffing the WPCC of the future. And we recommend that course of action.

1.10 Risks of Not Implementing the Consolidation

While it is our recommendation that all three PSAP's be consolidated, it is only appropriate that we spend some time examining the prospect of making no changes at all. We refer to this as the do nothing option. ***What would be the "downsides" of doing nothing and keeping things just as they are today?*** We believe the following list provides a good accounting for that question:

• *It is inevitable that there will be the need to replace much of the radio infrastructure in use in the 3 PSAP systems today*. Many of the components are obsolete with the remaining elements getting old. The FCC is always seeking more efficiency in the use of radio spectrum (frequencies for which the FCC issues licenses). It is highly likely that sometime in the not too distant future the FCC will change the rules regarding the "bandwidth" of the VHF radio frequency licenses in use by these agencies in Washington Parish. If and when this happens (and depending on how), this may make the equipment in Washington Parish completely obsolete and require replacement to avoid being interfered with and creating interference for others. When this equipment is replaced, it would be far more cost effective to act as a unified system and implement as much shared infrastructure technology as possible. If everyone stayed independent and did not coordinate their efforts, fragmentation, diminished communications interoperability and extra cost would be incurred.

• *The ability to process significant spikes or influxes of 911 calls that will be inherent with wireless E911 will remain low*. With rarely (if ever) more than 1 dispatcher currently on duty at a full function workstation at any one of the PSAPs at any one time, wireless 911 callers during these major peaks may have their calls go unanswered or answered only after long ring delays.

In 1998, most PSAPs estimated that fully 20% of all of their 911 calls received were wireless 911 calls. Industry statistics and projections indicate that the number of wireless users, and the number of their calls to 911 is increasing at nearly 25% per year. *It seems to be a reasonable projection that by 2005, fully 60% of all 911 calls will be from wireless phones.* These wireless calls will be in addition to the current level of land line calls being received. This scenario points to a theme that will be throughout this report. Specifically, that (due to wireless 911) the paradigm for the staffing of a 911 PSAP is about to change radically. It is apparent to us that without the benefits and efficiencies that consolidation brings, the existing law enforcement PSAP agencies will be required, in the future, to increase their existing dispatch staff to handle this increased call volume.

There is also a serious deficiency during times of major emergencies involving multi-agency response during times of severe weather, which is characteristic of the area. This will place citizen safety at risk.

• The ability to provide for 24 x 7 supervision and relief for dispatchers will continue to be very limited. If it is desired to implement EMD, and with EMD requiring training and

certification, the practicality of “having one of the guys off the street” fill in for the dispatcher on a rest break (which is often now the case) will be gone.

• The need to continually find, recruit, train and retain dispatcher staff in relatively small organizations offering a limited career path and flexibility of assignment will persist.

• Opportunities for advancement, career enrichment and advanced training will be less available to any dispatch staff employed by the individual agencies.

• The costs of implementing technologies and processes of all types, but particularly "hardware dependent" technologies where hard things have to be purchased, will be higher for each independent PSAP than they would for a consolidated PSAP. Some examples include EMD, “dispatch mapping” of 911 call locations, AVL monitoring, etc.

• More money would be spent by each unit of government than is necessary. We have determined that a three PSAP consolidation will present the eventual opportunity to provide better service at less cost than if each of the three remained independent (as they are today) and was to implement the important improvements we have recommended.

• In fairness, it should also be pointed out that staying independent as things are today will mean that each city will retain the full benefits of having its own staff on duty, 24 hours of every day in a municipal or parish building, prepared to do many, many tasks, a lot of which are not specifically related to 911 call taking and dispatching, and at a relatively economical pay rate. Furthermore, doing nothing definitely avoids the potential of labor unrest when jobs are eliminated, work forces and seniority lists are merged, etc.

• It is entirely possible that when one of today's PSAPs is "consolidated out of existence", the agency that operated that PSAP will incur new and (likely) added costs to its budget to replace some of the important but "non-dispatching" related tasks that are today being performed by PSAP staff who would no longer be present.

Conclusion: While "doing nothing" may be an alternative, for the above reasons (and others), it is not one we recommend.

Section 2 : Staffing and Personnel – General Comments

2.0 Staffing:

There are generally inadequate staff on duty at each of the three 911 dispatch centers to handle even a modest surge of 911 calls, not to mention the flood (in unpredictable spikes) of such calls that are starting to arrive as wireless E911 services are implemented. The radio communications systems and ancillary equipment range from strikingly obsolete to relatively current. Operational and some technical deficiencies in the radio infrastructure threaten the safety of public safety (especially fire/EMS) responders. The working conditions for 911 telecommunicators/dispatchers are sometimes below standards. ***Active*** supervision is most often not present. Some of the workspaces are occasionally cluttered, crowded and have inadequate current state of the art consideration of increasingly important ergonomic factors.

Some of the 911 dispatch centers in the Parish are too lightly staffed, and have entirely too little routine volume of activity of any kind (not just 911 calls) to justify continued and significant taxpayer support, not to mention the need to upgrade most of these facilities to newer and now becoming industry standard technologies.

2.1 Workloads:

The collection of hard data from most of the 911 PSAPs in the Parish was not particularly fruitful. In most cases, there are not processes in place to track activities in any meaningful way. For example, there appears to not be any process in place for counting the number of 7 digit telephone calls answered by the dispatcher(s). Nor is there any counting done for how many phone calls dispatchers are required to place to support field operations. Counting of 9-1-1 calls answered is haphazard, and the counting of activities to which police, fire or EMS units ultimately respond is not centralized or uniform, if counted at all.

This absence of hard data typically complicates the process of arriving at solid conclusions about two key elements:

1. How busy are each of the 9-1-1 PSAPs today?
2. How busy would a consolidated PSAP be?

Clearly, if one cannot determine with certainty how much work is being done in one facility today, one would have even more trouble determining how much work would need to be done (or how much work could be saved) in a consolidated PSAP facility.

We must hasten to point out that this absence of "good activity counting" in not unusual. We would estimate that if one were to visit all of the approximately 6,000 PSAPs in the USA, one would find a similar state of affairs in over half of them. Simply put, there have "always been" dispatchers (at least in the memory of any currently serving folks), and

“there will always be dispatchers” so why does one need to count every thing dispatchers do in order to prove either of these facts?

Unfortunately, if one sets out on a process to determine whether or not the existing staffing for any one PSAP is or is not adequate, it becomes very difficult if one does not know and cannot measure how busy the existing staff at that PSAP are. Furthermore, if one is attempting to arrive at conclusions as to “how much more efficiency” could be obtained in a consolidated PSAP as opposed to three separate PSAPs, not knowing how efficient (or lack thereof) any of the existing PSAPs are today makes supporting that conclusion with hard data very difficult.

With these caveats out of the way, it is important to note that it is GeoComm’s recommendation that the Parish should consolidate all three existing PSAPs into one new consolidated facility, but due to the way in which we are recommending this be done, issues of how busy any of today’s PSAPs are become somewhat secondary.

In other words, <u>we are not recommending that there be any reduction in staff</u>, at least at the outset of any consolidation. Since we are not talking about there being fewer staff, the question of whether or not the existing staff (if all housed in one new PSAP) could handle the current workload is somewhat academic. To a certain degree, the workload would be smaller at a new consolidated PSAP than at each of the “donor PSAPs” today (since some of the work generated by walk-in traffic. etc., would go away), and if the current staff of all three PSAPs have been deemed to be adequate (we were not advised of any moves to increase today’s staffing at any of the “donor” PSAPs) for today’s separate-PSAP workloads, they ought to also be more than adequate for tomorrow’s consolidated PSAP workload.

GeoComm has determined that consolidating the services of the 3 PSAPS, and implementing a number of new processes and technologies is a viable, feasible and appropriate outcome using the following staffing plan :

1. Implement five workstations at the new WPCC with the following tasking 24x7:

    a. Workstation 1:
        i. Answers 911 calls
        ii. Plots callers location on GIS map (wired or wireless 911 calls)
        iii. Provides Emergency Medical Dispatch (EMD) services to callers
        iv. Enters response events into new CAD system for local police, Parish Sheriff, appropriate fire responders and/or EMS responders.
            1. WPCC CAD uses data link to EMS CAD systems to send “event header info” to their CAD systems to automatically create a response event for them in their CAD.
        v. Sends faxed map of caller’s location to fire/EMS responders.

vi. Acts as back up for radio dispatch of fire or local police needs.

b. Workstation #2:
   i. Acts as Primary Fire Dispatcher to receive all fire response events entered into CAD and handle all paging, and FD responses to events.
      1. Frees up Bogalusa Fire Department Station 1 dispatcher to add one additional fire responder on duty 24 hours a day.
   ii. Acts as back-up 911 operator and EMD service provider
   iii. Is the Lead Dispatcher on every shift for on-sight supervision.

c. Workstation #3:
   i. Acts as the police dispatcher for the Bogalusa PD doing pretty much what the BPD dispatcher does today at the BPD facility.
   ii. Is available to take overflow 911 calls from WS #1 and WS #2 above.
   iii. Is available to handle overflow traffic from WS #2, 4 and 5.
   iv. Is available for short-term "break coverage" for any other function in the WPCC.

d. Workstation #4:
   i. Acts as the police dispatcher for the Franklinton PD doing pretty much what the FPD dispatcher does today at the FPD facility.
   ii. Is available to take overflow 911 calls from WS #2 and WS #3 above.
   iii. Is available to handle overflow traffic from WS #2, 3 and 5.
   iv. Is available for short-term "break coverage" for any other function in the WPCC.

e. Workstation # 5:
   i. Acts as the dispatcher for the Parish Sheriff's department doing pretty much what the WPSO dispatcher does today at the WPSO facility.
   ii. Is available to take overflow 911 calls from WS #1 and WS #2 above.
   iii. Is available to handle overflow traffic from WS #2, 3 and 5.
   iv. Is available for short-term "break coverage" for any other function in the WPCC.

2.3 Importance of Consolidation :

The importance of consolidation is twofold. Currently, both infrastructure and organizational inoperability would make it difficult to adequately respond to even a large local event, not to mention a regional disaster. Even a police chase or crime in progress response is affected by the separation of PSAPs and radio systems. The "left

hand" may not know what the "right hand" is doing. The ability to coordinate a mutual aid or multi agency response is magnified. Quite likely, the law enforcement agencies in Washington Parish may not provide this type of "back-up" assistance as often as might be beneficial, because of these obstacles.

Additionally, the increasing expectations of the public to receive pre-arrival medical emergency advice/assistance via phone BEFORE responders arrive, requires more education, training for the 9-1-1 operators, as well as equipment. Such a process is relatively expensive, especially if done in triplicate. Having only one PSAP would increase the ability to handle a number of events simultaneously, and provide for better use of tax dollars.

There is apparently a current inability to effectively coordinate the response to Emergency Medical Services (EMS) calls in the present system and process, and it is a liability risk and may occasionally delay the response of ambulances. Because two EMS providers are competing for service in the parish, with no apparent jurisdictional boundaries present, such EMS calls are handled on a "rotation basis", much like some PSAPs coordinate try and "spread the business around" for local tow companies. The obvious difference between tow trucks and EMS responders is the importance of a timely response to patient outcome. Because of this EMS provider rotation arrangement (in conjunction with three PSAPs attempting to follow their own rotation scheme) no single PSAP is presently able to necessarily ensure that the closest EMS unit responds to medical emergencies. In addition, at least one ambulance company has encouraged callers to *call them directly without the use of 9-1-1*. In such a case of a call direct to the ambulance company, none one of the county PSAPs is necessarily aware of a medical emergency in their jurisdiction. One PSAP coordinating and assigning all EMS activity would ensure a quicker response, and the ability to effectively provide pre-arrival instructions to the caller. AVL could be a particular aid in there areas. (As to whether or not the new WPCC would actually page out or radio dispatch the actual private service ambulance crews, that is unknown. It is certainly possible, but as a somewhat unique public-private issue, it has not been addressed here. However, if it were to be considered, it may be appropriate to consider a fee based approach since the current EMS providers are paying a cost today for their own dispatchers, and if they did not need to have dispatchers, they ought to pay something for that savings.)

It is important to consider the expense and staffing impact of EMD (Emergency Medical Dispatch) certified 911 call takers or dispatchers. A medical director should oversee the system (but does not have to be an employee of the WPCC). This would be an ER physician that reviewed the system protocols, and made recommendations on training, revisions, etc. If you provide EMD, you also ought to have a quality assurance (QA) program in place. Certified QA personnel would review and rate a percentage of your overall EMD incident call volume, usually about 3% or 25 calls a week (whichever is greater), although with the Parishes relatively low overall 911 call counts (certainly less than 50 per day parish-wide) and with EMD qualifying incidents being only a small portion of all 911 calls (perhaps 6%), it might be difficult to amass 25 calls in a week to

which EMD services were provided. Nevertheless, EMD/QA is necessary to ensure all personnel are following the protocol, and should not be overlooked.

Call-processing times are much greater when EMD is used. If a call taker merely has to say, “911, what is your emergency?”, and when the caller says “Heart Attack”, the call taker merely gets (or verifies) an address and says, “OK, I’ll start an ambulance”, it takes far less time than if the 911 call taker questions the caller more thoroughly and provides necessary pre-arrival/post-dispatch instructions that are customized for that particular medical condition/injury. A PSAP that has only one employee on duty at a time should probably not attempt to provide EMD services on a general basis. It is probably not possible to provide EMD correctly and dispatch units in a timely fashion, without even thinking of what would be done if a 2nd 911 call were to ring in while on the phone and trying to provide EMD guidance to the 1st caller. EMD callers to which a dispatcher is providing instructions on how to get a “blue baby” breathing again ought not be put on hold!

A consolidated PSAP would provide each public safety agency the ability to work more effectively with all other public safety agencies in the Parish. It will allow for a coordinated EMS response, without having three different PSAPs keep “ambulance rotation logs” and attempt to find an available unit, which may not be close to the incident. Furthermore, while not specifically required, the use of one main dispatch radio channel for all law enforcement, instead of the current arrangement of three separate channels, would allow all law enforcement officers to be aware of any major incident in progress or other emergency occurring in the Parish. This ability to receive and deliver timely information can save lives.

Geo Comm is recommending that the preferred configuration for the consolidation of the E911 PSAP operation in Washington Parish be as follows:

- A new broad based "PSAP Users Board" be tasked to own, operate and manage, this new PSAP serving Washington Parish, and that this PSAP Users Board be a creature of either Parish Government or the Communications District.

- This governing board should have representation from public safety responders, local elected officials and professional staff from the operating PSAPs.

- This governing board should appoint and supervise a Manager of Emergency Communications.

- A new fully function PSAP should be established at the Dollar Road site in close proximity to the existing Parish-owned communications tower. This PSAP should be staffed as follows;

    - 24 Full Time Equivalent (FTE) staff.

• Within these 24 FTE, 4 positions should be for "Lead Dispatchers" who would be working supervisors.

• One of these FTE positions should be a professional Manager of Emergency Communications, and one should be a technical systems coordinator.

There will be a need for technical support for computer systems administration. This could be a joint responsibility with Parish IT staff, if possible. A separate IT manager would be recommended as the PSAP environment continues to become more technically challenging. Other duties and responsibilities assigned to each of the Lead dispatchers would include quality assurance (1), training (1), mapping and E9-1-1 data maintenance (1), administrative duties/customer service as required (1). The Manager would be required to both direct and contribute work product in all these areas. This suggested staffing would provide five dispatchers (one being a Lead) on duty 24 X 7, Due to training, vacation and sick time, it normally takes just under 5 FTEs to staff one position, 24 hours of every day.

• Implementation of five console workstation positions where both radio and 911 telephone duties can be performed. Each console's equipment should be identical. In addition to the five consoles, an additional training position would be desirable. This position would not be fully functional, but would be used for new hire and continuing education training. It should be equipped as a 9-1-1 answering position including Computer-Aided Dispatch (CAD) software. The equipment could also be used on the ‘live” system in cases where call volume is very high, such as major storms or other events that generate a high number of 9-1-1 calls. The Lead Dispatcher could use this position for making administrative changes to the CAD system, researching call histories and generating reports.

Section 3 :
Operational, Cost and Organizational Issues

3.1:The Current Environment

The Enhanced 9-1-1 service environment in Washington Parish consists of three separate types of entities.

A. Those Agencies which answer 911 telephone calls. (The PSAP Operating Entities)

In Washington Parish there are three such entities. The Police Departments of the Cities of Franklinton and Bogalusa and the Washington Parish Sheriff for those parts of the Parish not served by the other agencies These PSAP Operating Entities answer the 911 calls, collect and record information from the callers and either dispatch the appropriate responders via their own two-way radio systems and equipment, or hand the call of to the local fire department or on call EMS provider who then dispatches on their own equipment. The PSAP dispatchers also collect information regarding types of incidents, who was assigned to handle the event (only from within their agencies, not usually including fire and EMS responders), track their response times and how they disposed of the events.

B. The 911 Communications District

Under Louisiana Law, Enhanced 9-1-1 service was developed by, paid for (meaning 911 surcharge levied by) and implemented under the auspices of what are generally Parish level organizations called 9-1-1 Communications Districts. The districts, working with the PSAP entities, developed the E911 plans, addressing, Emergency Service Boundaries (ESNs) policies, procedures and regulations and purchased and installed all of the component parts of the E911 telephone network and equipment in place in the Parish. In Washington Parish, it is the responsibility of the Communications District to deliver the 911 calls to the 911 dispatcher's ear (so to speak) and to provide the communications mechanisms needed to facilitate dispatching responders to the incident.

To do this, the Washington Parish Communications District has acquired and manages an Enhanced 9-1-1 network and system. They have purchased Enhanced 9-1-1 trunks, selective routing of E911 calls and networking from Bell South Communications, and E911 ALI (Automatic Location Information) database services from Intrado.

This configuration means that Washington Parish participates in an "Enhanced 911 Network", with all 3 PSAPs participating on an integrated network, with complete and seamless call and data transfer capabilities between the 3 PSAPs.

C. **The Responding Entities:**

With the PSAP Operating Entities providing the general E911 call answering and radio dispatching functions, the third type of 911 entity are those agencies which actually respond to and provide service at the scene of public safety incidents. The best way to summarize how the responders are organized and dispatched in Washington Parish is as follows:

• Franklinton Police/Fire have their 911 calls answered by Franklinton Police and are dispatched by Franklinton Police (FPD). Franklinton EMS calls are transferred to either of the ambulance services, depending on who is up in the rotation. According to a written "911 call log" inspected during our site visit on September 26th, the Franklinton PSAP had received twenty (20) calls to 911 in the previous 15 ½ days (two of which were immediately before a hurricane). This would equate to .78 calls to 911 per day, or 285 per year. Additionally, data observed in their "CAD" system indicates that between January 24, 2002 and September 26, 2002 (approximately 9 months) there were between 1,502 and 1,257 total "incidents" logged. If we split the difference between these two numbers we arrive at 1,379 incidents, which would equate to about 5.1 logged incidents per 24 hour day over the approximately 270 days in those 9 months. As noted elsewhere, no data was provided regarding 7 digit call activity, but those numbers would clearly be higher than the 911 call count, as the dispatcher also acts as the "department administrative operator" for incoming calls.

In data provided to us, the FPD states that the annual cost for their 911 Communications Center is $65,000. On the surface, we find this figure to not likely be accurate. For example, they report the wages for their dispatch personnel to be $8.00 per hour for the 1st year and $10.00 per hour thereafter. If we average these two and come up with $9.00, and then apply that to the known 8,768 hours in a year --- we come up with a total of $78,912 in straight wages for either dispatchers (and they report 4 FT dispatchers) or somebody other than dispatchers (police officers??) who probably get paid even more doing the work, and that doesn't even begin to count the employer share of FICA (7.15%), pension, health insurance, etc. not to mention phone line costs, equipment maintenance costs, etc. Typically, when we have counted ALL of the real costs associated with operating a minimally staffed PSAP (1 dispatcher per shift, 8,768 hours per year) we see figures more in the $100,000 to $115,000 per year range on the very low end of the pay scale.

(Note: the Franklinton PSAP is currently located about 500 feet from the Washington Parish Sheriff's PSAP. The Bellsouth provided Positron Lifeline 100 equipment at the Franklinton PD PSAP is a "client" off a "host"

ANI/ALI controller that is located at the Sheriff's PSAP. It is connected to that "host" via direct cabling. This was a cost effective way to achieve the required functionality and it avoided the requirement to install another rather expensive Positron "ANI/ALI Controller" at the Franklinton PSAP. However, these "client to host" connections have a finite limit on the distance between them. Bellsouth technical staff report that distance to be 1,000 feet. A new facility for Franklinton is planned and construction slated to start in the near future. The current ability for Franklinton to receive 9-1-1 calls directly from the Sheriff's Positron PSAP equipment will not be possible with the further distance of the new facility.

3.2 Franklinton PD's move and E911 Equipment issues

This Franklinton PD 9-1-1 equipment issue does open the opportunity for the Parish to re-examine the entire question of Enhanced 9-1-1 telephone equipment. As we understand it, the District is now paying some $7,000 per month to BellSouth for two categories of things:

- Lease charges being paid to BellSouth for the Positron 911 equipment at the 3 PSAPs.

- Monthly charges for dedicated 911 voice circuits running from the several telephone company exchanges in the Parish to the Bell South 911 tandem router, and from the BellSouth 911 router to the three PSAPs, and for ALI data circuits from the 3 PSAPs to the BellSouth ALI database maintained for BellSouth by Intrado.

In our experience, it is **NOT A REQUIREMENT** that a PSAP Board lease their E911 equipment from their 911 service provider (BellSouth). Rather, the PSAP entity should be able to own the equipment outright. We have examined the published *BellSouth Louisiana E911 PSAP Equipment Price List* and, for example, we have determined that the total of all lease payments for a single 2 position PSAP could easily run to $2,000 per month. It must also be added, that with these "lease payments", one also gets BellSouth service on the equipment.

Nevertheless, spending at least $2,000 per PSAP for this equipment per month comes out to $24,000 per year, and one does not end up owning the equipment, ever. We have seen many cases where PSAPs have purchased outright high quality PSAP equipment for a 2 position PSAP for less than $75,000. Generally speaking, any cost benefit analysis we have done or seen for PSAP equipment clearly favors outright purchase or a 5-7 year lease purchase and a maintenance contract in any time frame of more than 3 or 4 years.

Additionally, there is a problematic timing issue with the Franklinton PD's move. Specifically, we have established that the Positron equipment cannot be extended. Therefore, for "real" 911 call answering capability to be provided to the Franklinton PD, one of two approaches would have to be taken:

A. Purchase or lease from BellSouth another obsolete Positron LifeLine 100 ANI/ALI controller for the new Franklinton PD PSAP and connect it to the existing two Positron IAP workstations, since those two workstations can no longer be remoted off the controller back at the Sheriff's office. This would cost at least $2,200 up front (one time charge) plus at least $1,500 per month not currently being spent. There would also have to be new dedicated 911 trunks run from the BellSouth 911 router to the new Franklinton PD PSAP, instead of those running to the Sheriff's office controller today. After accomplishing this, there would be essentially the same capabilities that exist today, for more money, remoted a little farther away than they are today.

B. Purchase outright, or lease-purchase a new, state-of-the art and much more flexible Enhanced 9-1-1 equipment suite. For example, a system such as the CML ECS-1000 could be purchased and installed at the new consolidated PSAP facility. That system could act as the E911 ANI/ALI controller for the PSAP workstation equipment at the new consolidated PSAP as well as performing that functionality for E911 PSAP equipment located remotely at other PSAPS *(that is one of the unique features of its design)*. Furthermore, on "day one" (since the new consolidated PSAP would not be built yet) this new ECS-1000 equipment could be located at the current Sheriff's office and "drive" two PSAP workstations there, plus two PSAP workstations at the new Franklinton PD PSAP, as well as two PSAP workstations at Bogalusa, and all of the Positron equipment could be returned to BellSouth and the several thousand dollars in lease payments would go away. In fact, it is highly likely that the 7 year lease purchase costs for a new $175,000 CML equipment suite would not be too much more than what is being paid today to rent the Positron equipment from BellSouth. Today, for example, if around $4,000 is being paid to BellSouth the rent the current Positron equipment, that means that over the 84 months of the next 7 years, that means that $336,000 would spent renting the current equipment. It seems reasonable to expect that for less than that, one could pay off a 7 year lease on this CML (or similar) equipment and have a maintenance agreement for it. Then, once the new consolidated PSAP is done, the workstations at the Franklinton PD PSAP could be moved into the new WPCC (along with those from Bogalusa and the WPSO) and the consolidation would be complete.

NOTE:
The next two pages contain copies of the BellSouth E911 PSAP Equipment Rental Charge Price List. These are provided merely as an indicator of how expensive it can be to rent this equipment from BellSouth

BELLSOUTH BUSINESS SYSTEMS E91 1 PSAP Equipment

Price List | First Revised Page

Birmingham, Alabama | Effective: August 3, 2001

Louisiana

Obsoleted effective August 3, 2001. Not available for additions, new installations or transfers (N)

		Nonrecurring	Monthly Charge	USOC
A. Automatic Number and Location Identification Feature				
Standard System				
I.	Basic Master ANI/ALI Controller	$2,040.00	$1,555.00	E9SRI
2.	Trunk Interface Equipment	-	115.00	P98R4
3.	Redundant Power Supply	-	62.00	E98RB
4.	Redundant CPU Option	-	150.00	E98MC
5.	CAD Interface Option	-	75.00	E9SRA
5.	On Demand ALL Print Option	-	40.00	E98MP
7.	ANI/ALI Transfer Option	-	70.00	E9SMT
B. Automatic Number and Location Identification Feature — Small System				
I.	Small Basic Master ANIJALI Controller	2,234.00	950.00	E9851
2.	Network interface Module	.	115.00	E985N
3.	Redundant Common Control Option	-	225.00	E985R
4.	Shelf Universal Upgrade Kit			
	One (1) may be required per shelf	-	8.00	E98SA
5.	SIO Universal Upgrade Kit			
	One (1) may be required per original ISO card	-	7.00	E9SSB
6,	COM Universal Upgrade Kit			
	One (1) may be required per original COM card	-	7.50	E98SC
7.	NIM Universal Upgrade Kit			
	One (1) may be required per original NIM card	-	9.00	E98SD
8.	Shelf e/w KSI Unit —first shelf only	-	444.50	E985E
9.	Shelf e/w KSI Unit - shelves 2,3,4 and 5	-	349.50	E98SF
10.	Redundancy Package - first shelf only	-	187.50	E98S0

BELLSOUTH BUSINESS SYSTEMS E91 1 PSAP Equipment Price List

First Revised Page 2

Birmingham, Alabama Effective: August 3, 2001

Louisiana

Obsoleted effective August*t 3, 2001. Not available for additions, new installation or transfers (N)

		Nonrecurring	Monthly Charge	USOC
B. Automatic Number and Location Identification Feature — Small System (continued)				
11.	Redundancy package	-	$160.50	E9SSH
12.	Conversion from 4 ft. cabinet to 7 ft. Cabinet (Includes cabinet)	-	102.00	E9SSJ
13.	Interconnect Panel (4X60)	-	17.00	E98SK
C. Display Equipment				
1.	Intelligent Control Module (ICM) w/CRT	-	125.00	E9SFM
2.	Integrated Display Module (IDM)	-	80.00	E9
3.	Intelligent Answering Position (IAP) Desktop mount	-	92.50	E9LDA
4.	Intelligent Answering Position (IAP) Panel Mount	-	92.50	E9LDE
5.	Intelligent Answering Position (TAP) Control Module, including line/lamp concentrator - Desktop	-	94.00	E9LDC
6.	Intelligent Answering Position (IAP), Control Module, including line/lamp concentrator - Panel Mount	-	94.00	E9LDD
7.	Intelligent Answering Position (IAP), Line/Lamp Concentrator	-	43.00	E9LDE
8.	Line Module, Desktop, 30 buttons	-	31.50	E9LDF
9.	Line Module, Panel Mount, 30 buttons	-	31.50	E9LDG
10.	Line Module, Panel Mount, 60 buttons	-	61.50	E9LDH
I1.	Intelligent Operator Terminal (IOT) Display software with database manager and key	-	54.50	E9LDJ

Prices highlighted in boxes above are merely samples of the BellSouth monthly rental charges for various piece parts necessary to equip an E911 PSAP. The purpose, while not an inventory of all the piece parts in Washington Parish, is to indicate how the monthly rental bill can add up very quickly!

• **Bogalusa Police & Fire** have their 911 calls answered by Bogalusa Police. Calls for fire department are transferred to the main fire station across the street. A fire fighter on duty answers the phone, takes down information and stays behind at the fire station to provide dispatch services on the call. The fire fighters rotate this duty, resulting in no "regular dispatcher" for this assignment. The fire calls are not transferred on the 9-1-1 network. Therefore, no enhanced 9-1-1 information is generally provided to this fire "dispatcher". This means that even if such capabilities as "dispatch mapping" of wired or wireless 911 call locations were to be implemented, the BFD could not take advantage of them or even print out or fax maps to the other station, since this is all driven by the receipt of 911 ALI data with the E911, and the E911 calls can't be transferred to the BFD station as they do not have E911 equipment.

The Bogalusa Police PSAP is funded by the City of Bogalusa, but they apparently do not have the ability to breakout the PSAP costs from the entire Police Department budget costs. However, like Franklinton, Bogalusa reports employing 4 full time dispatchers (who, at 40 hours per week with two weeks of vacation and NO sick leave and NO holiday time off would each work 2,000 hours per year, which would total to only 8,000 of the 8,768 hours in a year). Therefore, either the dispatchers are working overtime (reportedly 96 hours per year per dispatcher) or being filled in for by other police personnel.

If we accept the above 8,768 hour figure, and take the Bogalusa provided dispatcher wage figures of not less than $9.15 per hour up to (apparently) as much as $9.25 per hour (including longevity but not including shift differential or overtime pay), then the annual direct personnel costs would be in the vicinity of $81,000, plus approximately 22% in city paid fringes (pension, FICA, health, etc.) for a likely annual total of $98,820, again <u>not counting overtime, or shift differential pay.</u> With these exceptions, it is clear that Bogalusa ends up spending close to the $100,000 to $115,000 per year for all direct and indirect labor costs we estimated above for Franklinton.

The workload at the Bogalusa PD PSAP is also a little difficult to quantify. According to the data provided by the BPD, they handled 18,953 "calls/events" in the past year. This would appear be a number reflecting times the dispatchers get "complaint calls" that result in some form of action being taken by the dispatcher. This number does not, apparently, include general incoming 7 digit calls asking for information, etc. Therefore, a reasonable assumption would seem to be that the dispatchers probably handle something in the vicinity of 25,000 total events per year, not counting inquiries made to the State DMV and crime system data terminal.

Bogalusa EMS responses are handed off to the EMS service up “in the rotation”, and are transferred to that entity, or information relayed by the dispatcher. (The EMS providers do not have E911 capabilities.)

• **Washington Parish EMS Services** are provided by the Washington Parish Ambulance Service (recently taken over by EmergiStat) and by Magic/Fair City EMS. Each service receives requests for responses from all three PSAPs, and dispatches their own personnel. The rotation arrangement is addressed earlier in this document.

• **All other fire, police agencies in the Parish** have their 9-1-1calls answered at the Washington Parish Sheriff's (WPSO) Comm Center, located in Franklinton. There, the single dispatcher operation is responsible for receiving and radio dispatching (or at least transferring calls or passing information off to) all other public safety responders in the county. This includes all fire districts. (It does not include the two city fire departments, Bogalusa and Franklinton) As in the other two PSAPs, the dispatcher must answer all calls for service, both 7 digit and 9-1-1, processing EMS and fire calls and track all Sheriff’s units as well as any fire units they may be handling. In this single dispatcher center, it only takes two active incidents to overwhelm the dispatcher. This single dispatcher cannot effectively monitor all tactical communications (which would include a call for additional help, or a request for an ambulance) AND track all Sheriff units on duty, responding to their requests for information, and continuing to answer 9-1-1 and 7-digit calls for service. One must remember that in public safety, ensuring responder safety is critical. This means the dispatcher(s) must correctly interview callers to ensure the public safety responders have adequate information to assess the needs and danger of the incident. They must also monitor all radio traffic, to include emergency calls for assistance, and log all pertinent information on the call. The dispatcher must routinely check the status/safety of the responders at regular intervals. Answering 9-1-1 AND monitoring and responding to more than one radio channel makes it easy for a single dispatcher to become overwhelmed, and not provide the necessary quality of service to both the public and the public safety responders. For this reason, as well as many others, a large number of counties/parishes around the USA are reorganizing the delivery of public safety communications to a more cost-efficient and effective structure. Commonly, this structure involves the consolidation of several small PSAPs into a single communications center that serves a number of police, EMS and fire departments.

The WPSO reports employing 4 full time persons in the role of dispatcher, and paying each of them $1,050 per month salary. Assuming these four people work the 768 or so hours necessary to fill out an 8,768 hour year at time and one half overtime rates, this would mean that about $57,300 is

spent on dispatcher salaries per year, or an average of just over $6.50 per hour. If we add to that the presumed 22% "fringe benefit additive" we come up with a grant total of around $69,900 per year for direct and indirect labor costs.

Therefore, in total, about $300,000 (an admittedly rough estimate) is spent annually from local tax revenues by the cities of Franklinton and Bogalusa and the Washington Parish Sheriff's Office for the tasks of 911 call answering and associated dispatching services for their respective constituencies. That comes out to about $6.83 per person per year (43,926 population, 2000 census figures) for every permanent resident of the Parish, not counting the significant one time and recurring expenditures funded for these cities by the Communications District with their E911 surcharge revenues.

It is ESSENTIAL that we point out here that this is an EXTREMELY LOW per capita cost being paid for these critical services. It is dramatically lower than we have ever seen before in any County type jurisdiction in which we have done this work. This is largely due to the relatively low levels of staffing at each PSAP agency (4 is the absolute minimum number of staff at which one could even begin to try and cover a 24 x 7 operation), as well as the relatively low hourly wage rates paid to these positions

3.3 The Impact of Wireless 9-1-1

In 1996, the FCC (*The only entity that can effectively regulate wireless carriers. The states, through bodies like the State Utilities Commission [ICC in Louisiana] have no authority over them.*) issued a set of regulations to the wireless carriers which required them to ***create the capability to*** receive and transmit wireless E911 calls in a fashion more appropriate for the Enhanced 911 networks and PSAPs of the USA. These regulations had a Phase 1 and a Phase 2.

Perhaps the most challenging aspect of wireless E911 calls relates to the number and irregularity of the volume of wireless E911 calls, as well as the added time necessary to process a 911 call that does not contain a good address from ALI data.

In 1998, most PSAPs estimated that fully 20% of all of their 911 calls received were wireless 911 calls. Industry statistics and projections indicate that the number of wireless users, and the number of their calls to 911 is increasing at nearly 25% per year. ***It seems to be a reasonable projection that by 2005, fully 60% of all 911 calls will be from wireless phones.***

In and of itself, this could be problematic. However it only scratches the surface of the potential problem. More specifically, not only will more people have these phones, and will these more people place more 911 calls, but because of more

people having these phones and these people being “out and about” in a position to observe more “911 reportable incidents”, there will be a vast increase in the number of 911 calls being placed to report any single visible incident.

For example, 15 years ago, if there was a car-truck accident on State Hwy 16 near Franklinton, it would be likely that some dispatch center might receive one or two phone calls from folks who took the time, had the interest, had a quarter and exited the highway to find a pay phone to dial “0” (or even a free call to 911) to report said accident. Today, it is a reasonable assumption that within the 1st five minutes of such accident, that not less than 20 calls would be dialed to 911 from wireless phones in the cars of passers-by or those involved in the accident. Not only is this more calls than are “needed” for the PSAP to know that there has been an accident at that location and to start the appropriate responders to the scene, but it is also more calls than any PSAP staffed with one operator can possibly hope to answer, while ***at the same time that operator is trying to dispatch the responders to this emergency and handle other normal traffic.*** And each and every one of these 911 calls must be answered promptly, and completely, as it cannot be assumed that each 911 call is about the same event and could, therefore, be ignored.

This scenario points to a theme that will be throughout this report. Specifically, that (due to wireless 911) the paradigms for the staffing of a 911 PSAP are about to change radically.

Section 3.4 Staffing and Operations – Review of Specific Issues

3.4.1 General operational issues:

The first question that needs to be answered regarding any sort of 911 PSAP operation is: ***What services do these PSAPs provide and how are they performed?*** Before we examine that question, however, it may be helpful to understand how we got where we are today.

Historical background: A 911 PSAP is a relatively new creation in the world of emergency services delivery mechanisms in the USA. 911 first arrived on the scene in 1968, in what was called "Basic 911" (B911). With B911, 911 calls placed from any phone connected to a telephone company central exchange office (CO) were routed directly to the one PSAP (Public Safety Answering Point) which served the community in which that CO was located.

In many (it sometimes seems like all!) communities around the USA, the geographic boundaries of any telephone CO are rarely concurrent with political jurisdictional boundaries of cities, villages or counties. This means that CO boundaries often serve phones in more than one community or Parish. This single fact significantly delayed the implementation of B911 systems. The reason for this was that if of all the phones connected to CO #1 were 50% in Parish or City A and 50% in Parish or City B, ***to which Parish/City PSAP should 911 calls from a given phone been sent?***

Since the USA's public safety services grew up around those services being provided by cities and counties, their dispatching also generally followed city and/or Parish lines. Therefore, Basic 911's inability to route 911 calls to the PSAP necessarily appropriate for the jurisdiction from which the 911 call was being placed meant that Basic 911 was slow in achieving acceptance.

Enter Enhanced 911 (E911). In 1978, the USA's first Enhanced 911 systems were demonstrated to great fan-fare in Alameda County, CA and Orange County, FL In addition to the obvious advantages of providing Automatic Number Identification (ANI) and Automatic Location Information (ALI) with the 911 calls, E911 also provided the critical capability to **selectively route** E911 calls to the PSAP determined to be appropriate for the address from which that E911 call was being placed.

This literally meant that if a Parish or City boundary went down a given street, and callers on the East side of the street were in Jurisdiction A and those on the West side of the street were in Jurisdiction B, 911 calls from the East side could be routed directly to Jurisdiction A's E911 PSAP, and those from the West side could be routed directly to Jurisdiction B's E911 PSAP, even if these callers were served by the same telephone exchange central office.

This single fact made E911 a viable option and its acceptance has swept across the USA, despite no federal mandates (at least not until 2001) and no (or minimal) federal funding assistance.

How E911 has been implemented in individual jurisdictions has varied greatly across the USA. Specifically, the issue of which level of government would implement E911 was the 1st question that needed to be answered.

In many cases, the early adopters of E911 were major urban cities, without their surrounding Parish, County or suburbs participating. They were often followed by their suburban city counterparts in implementing E911.

The key point in this historical development discussion is that the agency that became an E911 PSAP was almost always that same agency that provided police and fire dispatching before E911. In other words, if Community A operated its own police/fire dispatch operation prior to E911, it most often continued to provide that service to themselves after E911 and it became an E911 PSAP.

By not having to face the often difficult political questions of which police, sheriff, fire or ambulance dispatching operations would have to be selected to ***"get out of the initial emergency call answering business***", E911 planners were able to avoid these politics and concentrate on making the technology of E911 work.

For this reason, there are numerous cases in the USA where some very small police, fire, ambulance and even sheriff's departments retained their relatively cost ineffective dispatching operations and became E911 PSAPs.

This is not to say that there are not areas where the hard issues of "PSAP consolidation" were not examined and even resolved (partially or fully) prior to the implementation of the area's E911 system. But it has certainly been the exception.

To summarize, the reason Washington Parish now has 3 PSAPs is mostly historical. Those agencies that provided 7 digit "emergency call answering" and police and fire dispatch services tended to become today's E911 PSAPs.

Washington Parish has done nothing "more wrong" than most other counties/parishes in it's historical progression to this point, with respect to the number of 911 PSAPs in the Parish.

There was also a significant set of non-telephone system technical issues that surrounded these decisions as well. These issues related to public safety two-way radio systems. Around the mid 1970's the concept of "walkie-talkies" for public safety agencies first arose. Although these hand held radios became a backbone of the movement to *"get cops out of their cars and on the streets, in*

the parks and in the schools", it was not without a technical price. Before a low power hand held radio could be effective it has to:

a.) Be able to hear the dispatcher when the dispatcher needed the officer, and
b.) Be able to get its radio signal back to the dispatcher so the officer could be heard by the dispatcher.

Generally, the existing radio systems serving Parish wide organizations (like Sheriff's departments) were not capable of serving hand held radios (except, perhaps near the Sheriff's office in the Parish seat). Therefore, since the local police department probably already had its own small area radio system for their limited jurisdiction land area, it became a natural for the local police department to serve as a dispatch center and be able to serve such portable radios.

If, in this environment, it had been suggested that all emergency call answering and dispatching be done at the full Parish-wide level, it would have required a massive investment in two way radio repeaters (for signal boosting) and satellite receivers (for picking up weak, distant portable radio signals). Such expenditures were often prohibitive and it meant that it only made technical and economical sense to have the E911 PSAP be the same agency which already had a radio system that served the local emergency responders. It also meant that one didn't have to try to meld the widely varied operational procedures of two or more agencies into a larger more "monolithic" dispatching agency.

Now, let's get back to the basic question of the services provided by PSAPs, in general. These services can be generally categorized as follows:

• Answering of phone calls (or dealing with walk-in visitors) for public safety responses, emergency and not so emergency.

• Collecting information from these persons regarding their need, where it exists, its urgency, etc.

• Keeping track of where responders are, who is available and who isn't, due to their status or other service demands.

• Determining which and how many responders ought to handle the incident in question.

• Notify other agencies, departments for assistance in receiving information and or giving information/requesting services. (Call the power company for a structure fire, notify the appropriate gas company, notify neighboring jurisdictions of suspicious or criminal activity, call federal or state law enforcement, fire or emergency management when appropriate, and a few more investigative phone calls than you would expect.)

• Using some form of communications system to notify the appropriate number and type of responders of the need to respond (paging, two way voice radio, “fire bar” telephone notification systems, fire sirens, etc.) and to where they should respond and for what type of event.

• Collection of data regarding the responders. Who got sent? How many were sent? When were they sent? When did they arrive? What did they do at the scene? When did they leave the scene? When a prisoner was in custody, and mileage information, When were they back “in quarters”, and so forth.

• Provision of follow-up information to the responders. Added details provided by the caller or subsequent callers.

• Provision (over the two-way radio) of incident and non-incident related information to field units, such as running vehicle registration checks, driver’s license checks, local record’s checks, etc.

• Receipt (over the two-way radio) of information from field responders or requests for service from field responders. This runs the gamut from “Tell the street department that we need sand at the corner of Main and 1st”, to “Advise the State that their stop light at Highway 13 and Main street is stuck on green”, to “Tell the Chief that the party he is interested in is now at his place of employment”, and so forth.

• Occasionally (more often than not in smaller agencies) serve as clerical staff, typing police reports, doing filing, copying, handing out forms to the public at the front counter, entering data into local, state and national crime and other data banks, etc.

• Serving as the communities’ “24 hour security desk” performing tasks such as monitoring local security and utility alarms (bank alarm, fire water flow alarms, low pressure alarms in city water supply, etc.), turning on FAA required lights on water and radio towers, serving as the local “warning point” for natural disasters, and even serving as the local “lost and found desk”.

• Serving as jail matrons and jailers. Often dispatchers are required to, at least, monitor local jail “lock-up” cells, usually via closed circuit TV monitors, and (if they are females) to serve as female matrons for female prisoners and or female arrestee searches.

The above list covers the range of services that usually need to be provided by somebody at or for public safety agencies. ***If they have historically been performed by the 9-1-1 staff, and if those staff are no longer there (through***

consolidation) then some provisions need to be made for their continuation or abandonment, on a local option basis.

3.4.2: 911 and 7 digit call handling issues:

3.4.2.1 Multiple simultaneous 911/7 digit callers.

In any PSAP environment, it is a fact of life that there are occasionally more incoming phone calls than there are hands and ears to answer them promptly. This situation has been somewhat "controlled" by the sheer design of the regular and E911 telephone networks. Specifically, if a PSAP has only 4 incoming 7 digit lines, there can only be four simultaneous incoming 7 digit calls, regardless of how many dispatch staff may be on duty. Further, with E911, not only are there are also a limited number of "lines" serving any given PSAP, but the E911 network in the community also has a finite number of E911 trunks that can carry simultaneous 911 calls from one telephone Central Office (CO) to the E911 network. This is referred to as "network congestion control". Simply put, it means that if there are 4 E911 trunks from (for example) the Franklinton local telephone company central office to the Bellsouth E911 selective router serving Washington Parish, that not more than four persons using phones connected to the Franklinton CO can simultaneously get through to 911. A 5th person would typically receive a "fast busy" signal indicating that the network is busy.

Having said all of this, any PSAP must recognize the possibility that there might be a flurry of either 911 or 7 digit calls at any instant. Referring back to the earlier discussion on wireless 911, the likelihood of such a flurry is now significantly greater than in the past (with the exception, perhaps, of wide spread weather disasters such as a tornado). In the past, for every house fire, car accident or similar local event, there would only be a few wired calls coming in the first few minutes. Now, with wireless, that could easily be dozens.

These issues present significant staffing challenges for any PSAP. In the past, one could look at historical data on call loads and incident loads and make a pretty good educated guess as to how many operators to have on duty on any given shift. Now, in even the most serene community, if something like a well-traveled state highway runs through or near it carrying dozens to hundreds of persons passing through, with many to most carrying cell phones, an event as seemingly minor as a car spinning out into a ditch during a rainstorm can cause for literally dozens of 911 calls within a very few minutes.

And every single one of these calls must be answered as if each was a new emergency situation. Unfortunately, neither 911 calls nor 7 digit calls have the capability of "pre-announcing" their relative urgency. A ringing 911

line must be presumed at any instant to be the “event of the decade” in that community until answered and determined to be otherwise.

How is an agency which has traditionally staffed its PSAP with one Telecommunicator on duty (and only has work spaces for two) supposed to be able to handle such a flurry of activity?

3.4.2.2 Call handling priorities: In an environment where there are or will likely be more phone calls at any given moment than there are staff available to answer them, it becomes necessary to establish call handling priorities. These priorities should be:

1. Answering ringing incoming 911 calls.
2. Answering ringing incoming calls on 7 digit lines which are published as alternatives to 911.
3. Answering ringing incoming calls on 7 digit lines which are published or known as "administrative lines".
4. Answering ringing incoming calls on 7 digit lines which are unpublished or known only to department staff for internal calls.

Where this can become difficult is when the limited staff on duty need to place callers on hold in order to fulfill the above priorities. One of the more prevalent myths about 911 is that all 911 calls are life-threatening emergencies and cannot afford to ever be put in hold. This is not generally true. The large majority of all 911 calls, while requiring prompt attention, would certainly not be harmed if the operator had to place them on hold while quickly answering another equally high priority line. Simply put, it is not usually a problem for a 911 operator to place a 911 call on hold momentarily, grab another ringing 911 line and quickly ask ***"911 is this an emergency?"*** and if the caller says "no", then either ask the caller to "please hold" or to call back on the non-emergency number, and then return to the original call. A competent 911 operator can often handle 2 or 3 calls at essentially the same time, provided none of them are of the medical emergency or "crime in progress" type of call.

When this becomes a problem is when the call answering tasks have to compete with radio traffic or data inquiry tasks. One of the recurring themes we heard in Washington Parish when we analyzed the satisfaction of public safety field personnel (particularly fire fighters) with their dispatching services is along the lines of:

"*Why is it that when I call in on the radio, the dispatcher(s) often don't answer me promptly….they are always over on the other channel paying attention to the _____(pick your other agency, police, fire or EMS) or on the phone talking to someone about some _____(pick your other agency, police fire or EMS) problem. Don't they understand that I am out here in the real world and I need a response right away?"*

This phenomenon is often inherent in what is called **"one stage consolidated dispatching**". This term "one stage dispatching" refers to a

dispatching system where the on duty operators are all (generally) equally responsible for answering incoming phone calls and dealing with two way radio traffic, counter traffic and/or running data checks such as driver's license checks and so forth. The term "consolidated" dispatching is used here to refer to a PSAP which provides direct and total services to a variety of response agencies, usually law enforcement, fire and EMS.

The problem is often more apparent in "cross service" issues. By this we mean it is most often a problem with fire service and/or EMS personnel feeling that they are being slighted by dispatch staff whom they perceive as "paying more attention to law enforcement personnel and issues". This perception is somewhat to be expected, since the vast majority of the workload carried by these dispatchers is law enforcement related. *(Note that in all of the 3 Washington Parish PSAPs under study the ratio of police events dispatched to fire and/or EMS events likely exceeds 5:1, meaning that well over 80% of the events handled were police events.)* Further, since dispatchers are regularly inter-acting with law enforcement personnel 24 hours a day, and only dealing with fire and EMS personnel on those relatively rare occasions when they have been dispatched to a call, it would be understandable for them to identify more with law enforcement. Add to this the fact that in most cases in the USA (and certainly in Washington Parish) these dispatchers are actually employed by, often wear the uniforms of, work under the supervision of, and usually in the physical space of the law enforcement agency.

None of this is said to minimize the frustration that is felt by a fire fighter when they are desperately trying to get an answer on the radio from a dispatcher, unaware that that dispatcher is on a phone call that does not lend itself to being placed on hold, or on another radio channel *(that the fire fighter is not listening to or aware of)* handling what may be an equally as important transmission. It is said, however, to develop an understanding of the foundation of some of these complaints and how they are often the result of "systems issues" brought on by too few dispatchers, handling too many simultaneous tasks, with equipment that does not facilitate "multi-tasking" (such as radio console/telephone headset interfaces), and for agencies whose mission is sometimes in time conflict with other agencies, rather than an intentional act of a dispatcher "ignoring" a field unit.

In many cases, where staffing is adequate and systems are appropriate, many of these issues can be resolved by:

A. Assigning individual telecommunicators to discrete tasks as in:

    1. Only answering the phone
    2. Only dealing with law enforcement on a law enforcement radio channel

3. Only dealing with fire/EMS matters on appropriate radio channels.

B. Implementing "Two Stage Dispatch" under which one group of staff only answer incoming phone calls, and another group of staff only do radio work, for both law enforcement and fire/EMS or for these services independently.

C. Implementing and/or fully utilizing technology solutions designed to relieve a large portion of radio work for dispatchers. Mainly, these are Mobile Data Terminal (MDT) systems interfaced with Computer Aided Dispatch (CAD) via which responders can perform their own data inquiries, receive detailed information on dispatches, and update the CAD system as to their arrival at events, clearing from events and so forth. Without full and effective use of MDTs and CAD, all this activity has to be done over the radio, commanding dispatcher time and attention and radio channel time.

D. Implementing simple technologies such as effective telephone-console-headset interfaces which essentially allow a telecommunicator to talk on the phone and radio at the same time, without the listeners on either end knowing that they are doing both tasks at once.

E. Implementing something in-between one-stage and two-stage dispatching. By this we mean, have primary duties assigned as you would in a two stage operation, but each person and position is fully capable of performing any and all duties. In this scenario, dispatcher A has primary responsibility for radio, and dispatcher B has primary responsibility for phones, and so forth. When one is busy, the other dispatcher can “cover” or assist in managing the workload. Other dispatcher could handle “overflow” for other positions. This 1.5 stage is what we recommend for Washington Parish. It could effectively mean that when any one agency has a “really big deal” going down, they could instantly have 2, 3 or even 4 dispatchers to share the duties without having to regularly employ and staff that many positions in their own Police Department.

3.5: 7 digit calls and calls for local agency personnel (during and after hours). One of the problems in considering the "shutting down" of any given PSAP and the assumption of that's PSAP's "dispatching tasks" by some larger "consolidated" agency, is ***what to do with those 7 digit calls***? We typically see data regarding a PSAP's activity levels, that there are lots of 7 digit phone calls answered in PSAPs. This would certainly also be the case in the three Washington Parish PSAPs if data were being collected on 7 digit call volumes.

But, why is the proportion of 911 calls to 7 digit calls so low. There are several possible reasons for this:

1. A large portion of persons desiring service or information from the police, fire or EMS services still do not dial 911. They dial the number they know (maybe from memory) that they know will connect them directly their "local folks", often thinking that 911 is some distant and remote service.

2. Many persons think that an event has to be an "immediate life threatening event" before a call to 911 would be appropriate, so they dial a 7digit number instead.

3. Many persons call the general 7 digit number for the police department because they know it will often be answered 24 x 7 and it's easier than looking up the direct dial number for the Chief's office or the Water Department or whatever.

4. Many persons have what they think <u>may be</u> a police or fire incident, question or event, but they aren't sure, so they want to call the "local police" for advice on how to proceed, but they don't want to "bother those nice folks at 911", not realizing that in many cases they'll be talking to the very same "nice folks".

5. Many have legitimate business with people other than 911 dispatchers at a given agency and the only number they know of that exists for them to call that agency is the 7 digit number for that agency's dispatch center. So they call it.

6. Some communities have decided to use their 911 dispatchers as general telephone operators and telephone receptionists and expect them to be the general telephone operator for the police department, and in some cases, City Hall in general, as well.

Having said all of this to explain why there are lots of 7 digit calls, there are still lots of 7 digit calls, and if any attempt is going to be made to consolidate any of the 911 call taking and public safety dispatching in the Parish it must be cognizant of this fact. Simply put, these 7 digit calls have to be answered by somebody (or system) some place.

Generally, it is our experience that it just doesn't work well to have an agency's 7 digit non-emergency phone line routed to and answered at a <u>distant</u> 911 PSAP. If it is well established that this is an administrative and non-emergency phone number, then there is very little that the 911 operators at a remote PSAP can do for the caller anyway, other than tell them to hang up and dial some other number.

With all of the technology now available in the area of remote call forwarding, local number portability, direct inward dial systems with voice mail systems, automated attendant systems and so forth, we are relatively confident that, on a case by case basis, the proper combination of technology and procedures can be implemented to solve this problem on an agency by agency basis in Washington Parish, if there is a will and desire to solve it.

The bottom line here is that if an agency thinks it is going to shut its 911 PSAP down and have somebody else "do 911" for them, that agency must give serious consideration to this 7 digit number issue.

Either some person will have to answer these calls at the local PD, or these lines will need to ring in at a consolidated PSAP, perhaps capable of being answered in a manner tailored to the community, or some electronic system will need to be put in place to receive the calls and at least deliver a *"we're closed, call 911 if you have an emergency, hang up and dial 9-1-1"* message.

3.6 Provision of Emergency Medical Dispatch (EMD). In Washington Parish it is occasionally desirable for persons who dial 911 calls to be offered Emergency Medical Dispatch (EMD) procedures and information. This is appropriate and to be commended. It also means that a rather high level of training and certification needs to be in place and enforced. A Quality Assurance program must be in place to review a percentage of EMD calls for compliance. The biggest issue is that every medical call should receive the same treatment. You cannot have this available just during certain times of the day or days of the week. In addition, continuing education requirements are necessary for continued certification of EMD personnel. It would be necessary for everyone to be certified in this size of center.

However, with such a process in place, unless the rules are bent or "persons wink at them", it is not permissible to have a person who is not 9-1-1 and EMD certified sit in the WPCC dispatcher's chair while the dispatcher goes to the bathroom or takes a meal or rest break (which seems somewhat rare in the Parish PSAPs as it is!). This makes operating a "one dispatcher on duty PSAP" very difficult. This means lots of dispatchers work 8, 12 or more hours without any meaningful rest, meal or other breaks. While we are not experts on the State of Louisiana labor laws, we are pretty confident that it breaks some sort of rule to not offer regular "potty" breaks and meal breaks during a shift. This does not mean that lots of people don't break these rules, but it certainly could mean that long term breaking of such a rule could be the subject of some adverse action against the employer some day.

On a related front, if one does get a call in which EMD is necessary, and one is working alone, it becomes very difficult for that one TC to provide any other service to any other 911 or 7 digit caller or person requiring radio traffic for the duration of that EMD related call. It usually doesn't work too well to put a

person on hold who is trying to give "rescue breathing" instructions to a panicked caller in a "blue baby" case.

3.7. Data collection issues:

1. **Uniform data collection issues.** As has been apparent in the preparation of this report, the quality and type of data collected in the Washington Parish PSAPs regarding activities conducted, time spent on activities, and so forth is not perfect. Without good metrics on which to base evaluations of performance and efficiency, it becomes very difficult, indeed, to make sound judgements going forward on hiring, staff deployment, quality control and a host of other aspects of service provision.

   Here are a couple of examples:

   • A CAD system collects data regarding the dispatch, en route, on scene and clear scene times for all fire units that respond to all events. Later, policy makers need to make a decision on where a new or relocated fire station should be located. By taking the historical data from the CAD system for all response times within a certain area, it is easily possible to draw time histograms which graphically depict areas where the response time exceeds a pre-set limit, and use that information to make decisions on the best location for a new fire station, so as to improve fire response times. This is an analysis that needs to be done not by the dispatch center staff, but by the planners, administrators and public policy makers for the agency in question, but they need to know the data exists, how to interface to it and how to use it.

   • A police agency wants to adjust their patrol operations to target "hot spots of crime". For this they need to know on a regular basis where police incidents are occurring. This can be accomplished by either having the CAD system available to police commanders in the field or in their stations for ad-hoc "event searches" so as to develop short-term strategies for the next day or the next shift. Or, the CAD system can be linked to the police department's internal records management system such that it would download CAD event "header data" to the police department's records system so that the local PD would have their "own copy: of the data for not only analysis, but to serve as the genesis point for all the reports that they create internally.

   Similarly, unobtrusive processes and equipment should be implemented to track 7 digit phone calls handled, and other similar time consuming tasks performed in the PSAP. It is our understanding, for example, that by having a PSAP's 7 digit phone lines fed into the 911 PSAP workstation, you may be able to capture much of the same data regarding date, time, duration, etc. of 7 digit calls as you do for 911 calls. Further, it may also be

possible to implement CALLER ID and have that data be a part of any record you could maintain. *(We have even seen PSAPs where the Caller ID phone number is captured and then submitted to the E911 ALI database serving that PSAP and the PSAP gets E911 ALI data when the caller only dialed their 7 digit line. We are not sure this is always a good idea, and are pretty sure than many E911 ALI providers --such as Bellsouth in your case-- might not look favorably on doing this).*

The bottom line here is that all of this wonderful data that is collected as a part of the 911/7 digit call receipt and dispatch process must be available (within certain parameters) to the field agencies to assist their on-going operations as well. We would like to see whatever consolidated or non-consolidated PSAP(s) that come out of this effort implement a uniform data collection criteria and process so that a consistent set of mutually understood and agreed upon data elements will be collected in a uniform manner, to permit fair "apples to apples" comparisons. Said data should include all relevant PSAP activities, not just CAD events, 911 or 7 digit calls or LEADS activity.

3.8 Public Access to Public Safety Facilities Issues

3.8.1 How and when do people get access to the facility or persons at agencies dispatched by a PSAP? This issue is not too different than the issue discussed earlier regarding the answering of 7 digit administrative phone calls. Obviously, if there is someone working at a police station, assigned to answer these phone calls 24 x 7, then dealing with walk-in visitors at that facility should not be a problem.

However, if it is an agency's decision to shut down their PSAP and to either merge with a neighbor or participate in some form of PSAP consolidation, ***and that agency has historically relied on their 911 personnel to serve in this "receptionist" role***, they will either have to redefine their "walk-in access to the public" policies for the many and varied service requests presented by these visitors, or they will have to replace the 911 staff (as "receptionists") with some other either existing or new staff positions.

At a minimum, if a facility has historically provided "walk-in access" 24 x 7, it would be sound practice to at least create the ability for persons who approach this facility to use a "automatic ring down" phone to gain (near the now locked door) access to that agency's administrative phone system to leave a message or to get into an individual employee's voice mail-box. Similarly, since some of these "walk-ins" are walking in to report some emergency in their car, or on the street or wherever, it would also be good policy to install

something like a pay phone (which has free access to 911) to facilitate these folks reporting their emergency or urgent incident.

3.8.2 How or should PSAP maintain security at its and remote facilities? This may well be a new issue to some PSAPs. *Whether or not it is an issue for a given agency depends on the history and practices of that agency.* If a facility has historically served as a PSAP, there is almost always some sort of security in place, to keep the general public from just strolling into the actual dispatch center. But the issue here is that said facility would no longer be a PSAP under a merger or consolidation plan. Therefore, measures and systems that were in place to restrict access into the actual dispatch room will no longer be adequate to restrict access into that entire facility. On the one hand, if the facility will continue to be staffed 24 x 7 by somebody, then remoting an alarm system and/or CCTV to another facility (such as the consolidated PSAP) would not be required.

However*, if the facility will now be without occupants* (except for times when one or more of the field personnel happens to be in the facility) this can become an issue. It can be more significant if one is concerned about security of public safety vehicles and equipment that is usually left outside. *(It would be a matter of considerable risk for someone to attack, damage or place some sort of an explosive device on a police car sitting outside an occupied police facility from which the culprit would fear an immediate detection --probably via CCTV-- and response. However, remove the CCTV monitoring and the threat of immediate response to their intrusion, and it becomes a lot easier and less risky for the culprit.)* How to ensure this security can be problematic, particularly if there are no secure fences or extra lighting present now.

In general we would strongly caution against assuming that effective security can be achieved remotely via expecting dispatchers in a remote PSAP to monitor a CCTV picture of a facility, or listen to audio monitoring of that facility. It is virtually impossible to guarantee that this can always be done to the level required to meet that expectation, since clearly the dispatcher's primary responsibility needs to be answering 911 and dispatching emergency units.

Having said this, facility managers who have concerns in this realm need to assess their particular needs and consider implementing security measures typical to what any other non-staffed facility with a similar risk level would have. This could include garages for at-risk vehicles, high security lighting, high fences with some type of

barbed wire on them, CCTV cameras feeding VCRs, and perhaps with motion sensing cameras which would trip an audible alarm. Having some form of intrusion alarm for such public safety facilities annunciate at a PSAP is not unacceptable and may be desirable.

Mentioning the monitoring of alarms at the PSAP reminds us that alarm monitoring (both private security and fire alarms as well as what we call "function alarms" for municipal facilities such as sewage lift station alarms) can become an issue that requires attention before any merger or consolidation can take place. Simply put, if nobody will be in the "to be vacated PSAP" to hear and react to an alarm that annunciates there today, what will need to be done to that alarm if there is a consolidation of PSAPs? Electronically, this is usually relatively simple, in that most of these alarms get their signal to the PSAP for the activation of said alarm over leased phone lines feeding that PSAP. Obviously a leased phone line that terminates in PSAP X today could be redirected to PSAP Y (a consolidated PSAP) to serve the same purpose. However, there are widely varying policies and philosophies about whether or not any PSAP should serve as an "Alarm Monitoring Service", sometimes in competition with local private businesses. If the new or consolidated PSAP management decides against monitoring such private alarm systems, then private alarms that are being monitored today by PSAPs to be closed will need to be advised and directed elsewhere for such monitoring. *(Most experts agree that the monitoring of alarms for governmental facilities, especially public safety facilities, at a PSAP is not inappropriate*).

3.9 PSAP Supervision: In general, at the local PSAPs in the Parish there is minimal to no "on the scene & in the building" dispatching professional supervision provided on a 24 x 7 basis. There ought to be.

3.10 Personnel issues:

1. **How many staff are needed?** The answer to this question is 100% driven by two subordinate questions. They are:

    a. What tasks will this staff be expected to perform, and in what manner?

    b. How many of those tasks will there be to perform? When?

We can provide some planning tools, and then use those tools to arrive at some projections of staffing levels required in a variety of consolidated PSAP configurations.

Staffing of at least a 2nd 9-1-1 position:

It is a fact that E9-1-1 communications networks are designed, at great expense and effort, to generally achieve what is called **"P.01 Grade of Service".** This is a network queuing theory which strives to ensure that not more than one person in 100, on the busy hour of the busy day of the busy week will get a busy signal when they dial 911. Therefore, since getting lots of 911 calls passed through the network without busy signals is a desirable objective (and it is), it should be equally desirable to cause for those calls to be answered in as rapid a manner as possible, by persons closest to the responsibility of dispatching the appropriate responders for the incident location.

In other words, should there not be **"P.01 at the PSAP",** as well as in the network? This would mean that there needs to be a close look at the human **call answering capacity** at the PSAP, in addition to equipment based **call processing capacity** to that PSAP.

The most cost-effective way in which the **call answering capacity** of the Washington Parish 911 network could be maximized (without resorting to having multiple calls "roll-over" to neighboring PSAPs) is to have the most number of 911 operators possible on duty in one place, to where all the 911 calls would be routed.

However, as we have established earlier, there is more done than the dispatching of events within a PSAP. For that reason GeoComm has developed a tool we think tends to capture a more complete picture of activity in a PSAP. We call this the **"PSAP INDEX OF ACTIVITY"**. It has several component parts. They are:

- Number of events dispatched: by day, month, time of day, etc.
- Number of 7 digit calls answered: by day, month, time of day, etc.
- Number of 911 calls answered: by day, month, time of day, etc.
- Number of State of driver's license, car tag, stolen vehicle, etc. type data checks performed and entries created; by day, month, time of day, etc.
- Number of other measurable incidents handled
    - Counter walk-ins
    - Accident reports sold over the counter
    - Etc.

Were all of the above to be able to be counted and added together, it would equate to the **"total number of dispatching widgets"** handled in a year by everyone who does public safety dispatching in these three PSAPS in Washington Parish today. Further, one would know when this workload occurs, and could take that data and use it to design a workload sensitive staffing pattern for the new WPCC. Unfortunately, this type of

data has not historically been collected in the 3 PSAPs and this analysis cannot be done today.

If the results of such a workload analysis would be required to carry the current decision making process to its conclusion, we would recommend that a uniform PSAP data collection system be agreed to and implemented for a period of six months so as to capture the above data in a mutually agreeable and mutually understood way. If desired, GeoComm could assist in developing and implementing such a process for the Parish.

Having and said all of this, in studies in environments similar to Washington Parish, it usually develops that a reasonable way to deploy one's staff resources looks like this:

Day shift: (0800-1600):	25% of resources
Evening shift (1600:2400):	30% of resources
'Power' shift: (1900-0300) (later starts weekends/holiday eves)	20% of resources
Night shift: (2400-0800)	25% of resources

If one is operating a "1 dispatcher on duty at a time PSAP", all of the above is irrelevant, because one would have 1 person on duty 24 hours a day no matter how busy or slack the activity level is. However, in talking about a consolidated PSAP, with numerous employees, some real opportunities exist to match the staffing with the expected and real activity loading, **provided the PSAP management is supported by and religiously uses good data systems and sources.**

However, based on our recommendations, this is generally the situation we are envisioning existing **at the outset** of operations of the WPCC. Specifically, form a staffing standpoint, it should be imagined that on "day one", at all times of the day at the WPCC, there will be one dispatcher on duty for each of the current 3 PSAP agencies, plus the addition of the 911 operator/EMD operator and the Primary Fire Dispatcher/Shift Supervisor. This is a total of 5 persons on duty, 24 hours per day.

In terms of staff requirements, a full time person, working 46.5 weeks per year (52 weeks minus 2.5 weeks vacation average, minus 10 sick days [2 weeks total] minus 1 training week) is theoretically deployable for 46.5 x 40 hrs. or about 1,860 hours in that year. However, assuming 30 minutes of break time per shift and 5 shifts per week, our staff person is really "deployable in the chair to answer the phone and talk on the radio" for 37.5 hours per week, on average.

Based on the 5 persons on duty staffing established above, we would need to fill 5 x 8,768 work hours in a year or 43,840 work hours. With each person "practically deployable" for only 1,860 hours per year, that comes

out to 23.57 full time equivalency employees to provide adequate staffing to fill 5 chairs, round the clock for a year. (Practically, it could probably be done with 23, allowing as how not everyone is going to be sick for 10 days each, every year).

In terms of how the work will be done, we have made these recommendations:

A. Full "service specific" CAD should be used.
(One where an event is entered into CAD by the person taking the call or information and then that event is routed for dispatch to a work station appropriate for the police area - based on the incident location-- or the fire/EMS dispatcher- based on event type)

B. Service specific dispatch with cross trained dispatchers
(1 group dispatches police by jurisdiction, another person or persons dispatches fire/EMS acting as "PRIMARY FIRE/EMS DISPATCHER which we refer to below as the "PFD".)

• **"24 x 7 ON SCENE SUPERVISION":** We also recommend (and have factored in to our staffing calculations) the creation of something like "Working Lead Dispatcher" positions such that there is almost always one such Lead Dispatcher on duty, 24 x 7. We see that person as a definite "working supervisor" handling relief breaks, training new employees, assisting/supervising where needed, etc. We propose that there be not fewer than 5 such working Lead Dispatchers.

In our suggested staffing configuration, we would also recommend an additional one FTE as a **PSAP Manager** who would manage the entire operation. This would bring the total recommended staffing complement up to 24 FTE.

At what (whose?) pay and benefit rates? We would recommend that the pay and benefits for these positions be **not less than the highest currently paid 911 dispatcher pay range at any of the three PSAP agencies.**

The current pay rates for dispatcher in the three PSAPs are as follows:

Agency	Start Rate	Top Rate	Steps to Top	Yrs to Top
Franklinton PD	$8.00/hr ***	$10.00/hr	1	1
Bogalusa PD	$9.15/hr	$9.25/hr *	7	30
Washington Sheriff	$6.06/hr **	$6.06/hr	N/A	N/A
Average	**$7.74/hr**	**$8.44/hr.**	**N/A**	**N/A**

Notes (*) and (***) FPD and NPD rates do not reflect shift differential pay or holiday pay. (**) The $6.06/hr for the WPSO dispatchers is their reported $1,050 per month rate x 12 months, then divided by 2,080 hours to arrive at an hourly rate.

Dispatchers at the BPD are represented by Local 89 of the Office and Professional Employees International Union (OPEIU), while the dispatchers at the FPD and WPSO have no reported union representation.

As can be seen from the above, and since we earlier stated our view that any new consolidated PSAP should pay at least as well as any of the existing PSAPs it is our recommendation that the pay rates for a new consolidated PSAP be pegged to those currently in effect at Bogalusa for the start rate and Franklinton for the top rate. Therefore, we will assume a 1st (non-probationary) rate of $9.15/hour and a top rate of $10.00/hour. Our experience tells us that few telecommunicators have 30 year careers, and (therefore) few would ever make it to a top rate of pay available at 30 years. Therefore, we would recommend that a much simpler pay plan be implemented (or negotiated with a labor union as would likely be the case). This plan would ideally have a start rate of 85% of the 1st step (non probationary) rate of $9.15 or $7.78 per hour. Probation should be 6 months, and if passed, an automatic pay raise to the Step 1 rate of $9.15 per hour. Thereafter we would like to see annual raises of about 1.75% per year for 5 years, until the top rate of approximately $10.00 per hour is reached after 5 1/2 years.

For purposes of planning in this study, we have made the assumption that all the TCs who would make up the work force at the newly consolidated PSAP would have come from "contributing PSAPs" in the Parish, and should be placed in the new pay plan at the point appropriate to their tenure at their "contributing PSAP". For example, if John Doe was a 4 year employee at Bogalusa PD, he would go to Step 4 of the new PSAP's pay plan. Under this assumption, we are assuming that the *AVERAGE* pay step for the 12 existing employees who would be going to the new PSAP would be Step 3, or about $9.64 per hour.

Paying an average of $9.64 per hour x 18 FTE @ 2,080 yearly paid hours *(18 is the total of today's current 12, plus 6 new staff, and NOT counting 5 Lead Dispatchers -- possibly promotees from today's current cadre -- and the new Manager*) = $360,922 in direct annual wage costs for line (non-supervisory) dispatchers per year.

However, elsewhere we recommend that there be 5 working "Lead Dispatchers" serving in discretionary assignments (at the discretion of the manager) and being paid an additional 5% premium. Therefore, 5 FTE (10,400 hours) of the above 18 FTE would be paid at $10.12 per hour (5% over our presumed average pay) adding $105,248 to our annual cost for a new total of $466,170 in direct labor costs..

To that we need to add the cost of the Manager position we have recommended. With the highest paid hourly worker able to be paid $10.50 per hour ($10.00 + 5% for being a "Lead Dispatcher" for an annual total of $21,840 per year) it

seems logical that the Manager should be paid at a rate 10% higher than the highest line or subordinate supervisory employee. $21,840 + 10% = $24,024 per year. Adding this to our previous running total of $466,170, we now have $490,194 in annual direct labor costs for 18 "Line dispatchers"; 5 " Lead Dispatchers" and 1 PSAP Manager.

The indirect (fringe benefit) costs over and above this would be approximately:

- FICA @ 7.65% employer =	$ 35,662/year
- MPERS @ 9% employer (*) =	$ 44,117/year
- Insurance @ $6,000/employee* x 24 FT =	$144,000/year

TOTAL INDIRECT BENEFITS COST $223,779/year

***(*) IMPORTANT NOTE**: It is questionable whether or not 911 dispatchers, who were previously employees of police departments but who would now (presumably) be employees of the Washington Parish Emergency Communications District are, in fact, eligible for membership in the Louisiana Municipal Police Employees Retirement System (MPERS). We have asked that question of the MPERS staff, and they have referred it to their outside legal counsel, but we have yet to receive their answer. It is also not known whether or not a person currently covered under MPERS could "carry that pension with them" to a new employer, even if that employer were to be MPERS qualified. We think that it would be possible, but it needs to be confirmed. It may be that a way around all of this would be to have all the WPCC staff technically be employees of one of the City Police Departments, which would then do a pass through billing to the Parish Communications District to be reimbursed all of the salary costs for these employees. Via such a system, they would technically be employees of a municipal police department in Louisiana, so they should be covered. This pension issue will also have ramifications as it relates to bringing in any deputies employed by the WPSO, as they are covered under an entirely different pension plan than are the BPD and FPD employees. Competent legal counsel schooled in the intricacies of the two Louisiana public safety pension funds, as well as the Louisiana Municipal Employees Retirement Fund, under which the Communications District would likely be a "qualified employer" should be employed to research this extremely important matter thoroughly.*

Another somewhat related issue is ensuring full and equal access to the NCIC (National Crime Information Center) system as administered by the Louisiana State Police, as NCIC usually requires that persons accessing their system be "police employees". We have been in contact with the State Police, and they assure us that a non law enforcement dispatch agency which provides information services for law enforcement personnel can have access to NCIC for those purposes, provided that an Intergovernmental Services Agreement is executed between that non law enforcement agency and the State Police meeting the administrative, auditing, security, and personnel requirements of NCIC.

- *ADDED NOTE: We are using the figure of $6,000 per FT employee per year for health and related insurance based on that number being a reasonable estimate for what such insurance may cost for each full*

time employee ONLY beginning in 2002. This is a cost element which is rising rapidly. Additionally, consideration should be given to offering a flat pay increase equal to 90% of the cost payable for employee health insurance to any employee who receives insurance coverage from a spouse's plan. In other words, if John can get covered on his wife's plan at her work at a cost that is less than 90% of what his PSAP employer's cost would be, the PSAP employer would pay John that 90% of what they would otherwise have paid for John's insurance, and John can apply that added pay to the costs of being covered under his wife's plan.

Adding together the direct and indirect labor costs we have a total annual personnel cost of $490,194 + $223,779 for a total of **$713,973**. Based on current expenditure levels in the 3 current PSAPs, it would also seem appropriate to assume an additional 6.5% over and above direct and indirect labor to cover the costs of incidentals, training fees, uniforms, maintenance, etc. This would amount to about $46,408, bringing the grand total annual expenses to **$760,381.**

This figure is significantly higher (by $460,381) than the current $300,000 estimated as annual expenditures for the three current PSAPs. (Remember that the Communications District picks up almost all of the recurring expenses for 911 related equipment and service costs, leaving personnel as the primary remaining local expense). **But for this increased 154%, the new benefits include**:

- A full time professional PSAP manager, which is not now the case.
- Higher rates of pay for many to most of the employees than currently
- Inclusion in the staff calculations of time for formal training
- Creation of 5 Line Supervisory "Lead TC" positions.
- Creation of a PSAP with more people on duty all the time than is ever the case at any of the current PSAPs to deal with issues such as wireless 911 call spikes weather related and other activity surges.
- Creation of the position of dedicated Primary Fire Dispatcher
- Ability to free up one full Bogalusa Fire fighter position per shift
- Implementation of professional Emergency Medical Dispatch services
- Creation of a career path for communications employees.

Under whose supervision? Obviously, within the PSAP operation, the staff would work under the overall direction of the Manager, as delegated to the Lead Dispatchers who, in this plan, are regularly "pulling duty" at workstations.

The bigger question is for whom do the Manager and dispatchers work?

See the item below for discussion on this issue.

Where do you find staff for a consolidation PSAP? Given the relatively limited training cycle required (particularly since most current staff are fully trained on the 911 systems and infrastructures), the general scarcity of persons willing to do

this type of work (regardless of the pay), the "drop out rate" for new hires in such facilities of more than 25% per year, and the need to "hit the ground running" in a new operation, it seems to us that the only practical and viable plan for staffing this consolidated PSAP would be to start with a nucleus of those persons who are currently employed in these positions at the existing 3 PSAPs in the Parish.

The data indicate that there are currently 12 FTE dispatcher positions at the 3 PSAPs in the Parish. Whether all 12 slots are filled as of this writing is unknown. The proposed consolidated PSAP would require 24 FTE. While it is entirely feasible that many to most of the current PSAP dispatchers could "find a home" in the new consolidated operation, with 5 of them being designated as "Lead Dispatchers" it also needs to be recognized that one or more people who want to migrate may not be taken into the new organization. *The extent to which this might occur would certainly have a lot to say about the degree to which the labor unions representing some dispatchers today become adversarial in this process*.

We recommend inviting all currently employed dispatchers to apply for jobs with the new organization, should one be formed. We recommend that all new staff become new employees of a new organization *(except as it relates to, perhaps, being a "shadow employee" of a police department for pension continuation)* and all start at "Square 1" in terms of all issues except for seniority as it applies to vacation accrual and pay steps.

Section 3.11 Administration, Control and Budget Issues:

1. Who "owns" the PSAP?
2. Who manages the PSAP?
3. Who manages the manager of the PSAP?
4. Who disciplines manager and dispatch staff?
5. Who determines who gets hired and passes probation?
6. Who determines how staff should be trained?
7. How are disparate issues and needs handled (police vs. fire vs. EMS)
8. At what level can service be “localized” and “personalized” for individual agencies?
9. Who develops overall policies and procedures for the PSAP agency?
10. Where is the PSAP located?

The above questions form the heart of the tough issues in any consideration of a PSAP consolidation. If a body can come to resolution on the majority of (hopefully all) these issues, it is likely that a consolidation effort can be successful. Absent resolution to very many of these issues, while one may open and operate a consolidated PSAP, it is not likely that those it serves will view it as a success.

We will now offer our views on each of them:

In general, we advocate that any consolidated PSAP be "functionally managed" by its user agencies in a cooperative venture. We are not favorably disposed to a situation where any single responder agency presumes to provide PSAP services for other responder agencies (with or without payment from those other agencies)y or users.

Our rationale for this position is simple: **Public safety communications is the lifeblood of public safety.** If one has no say in, or control over the communications with the general public accessing an agency's services (answering and processing 911 and other calls), and/or no control over or say in how these requests for services are managed and assigned to your agency's responders (the act of dispatching), and/or no control over or say in how the support needs of your field personnel are met and fulfilled (the act of providing radio services such as NCIC inquiries, ordering tows, etc.) then one truly has very little control over the delivery of essential public safety services.

Having said this, there are several ways to attempt to achieve this sort of cooperative and "user managed" system.

Option 1: One governmental or quasi-governmental agency owns and operates the PSAP, but management is guided/directed/advised by a Management Oversight Committee representative of public safety responders and governmental policy makers such as City Managers, Mayors, City Council Members, etc. from the served communities.

We have seen organizations where the owner/operator of the PSAP is a department of the Parish Government (rarely the Sheriff's department or City Police Department in such a shared operation) along the lines of the "General Services Department", or some such other overall support agency in Parish government which has no historical ties to and nothing to gain or lose from owning and operating a PSAP. To them it is just another Parish-wide support service they provide, similar to running data processing, the print shop, the mail room, etc.

This organization is then strongly advised and directed by the "User's Group" described above. We think it is important that any "User's Group" so empowered must reflect not only the field responder users (police, sheriff, EMS and fire personnel) but also the PSAP system users (dispatchers and PSAP supervisors) and representatives of the general public being served by the service. By this we don't necessarily mean "citizens at large", but more likely elected citizens who are elected to serve their constituents on a general governmental body such as a City Council and/or Parish Commission. We also believe that it is important to have general government management perspectives represented on such a body in the form of city/Parish managers or administrators.

Often we see a General Policy Board made up as described above, supported by one or more "operations committees" that deal with the more detailed operational issues. This overall body is then authorized to:

A. Hire, supervise, reward and fire a Manager of Emergency Communications, and through this Manager, control and manage all subordinate employees.

B. Review and make recommendations on the agency's annual budget to the funding body, if different from itself.

   Note: If this body is not a general tax levying authority (which it likely would not be) then it cannot ultimately approve and execute a budget, since it cannot raise all of the funds necessary to implement that budget. However, it can be delegated certain authority by a larger tax levying body such as the Parish Board to review, approve of and make recommendations regarding such a budget.

C. Develop and/or approve of all organizational policies and procedures.

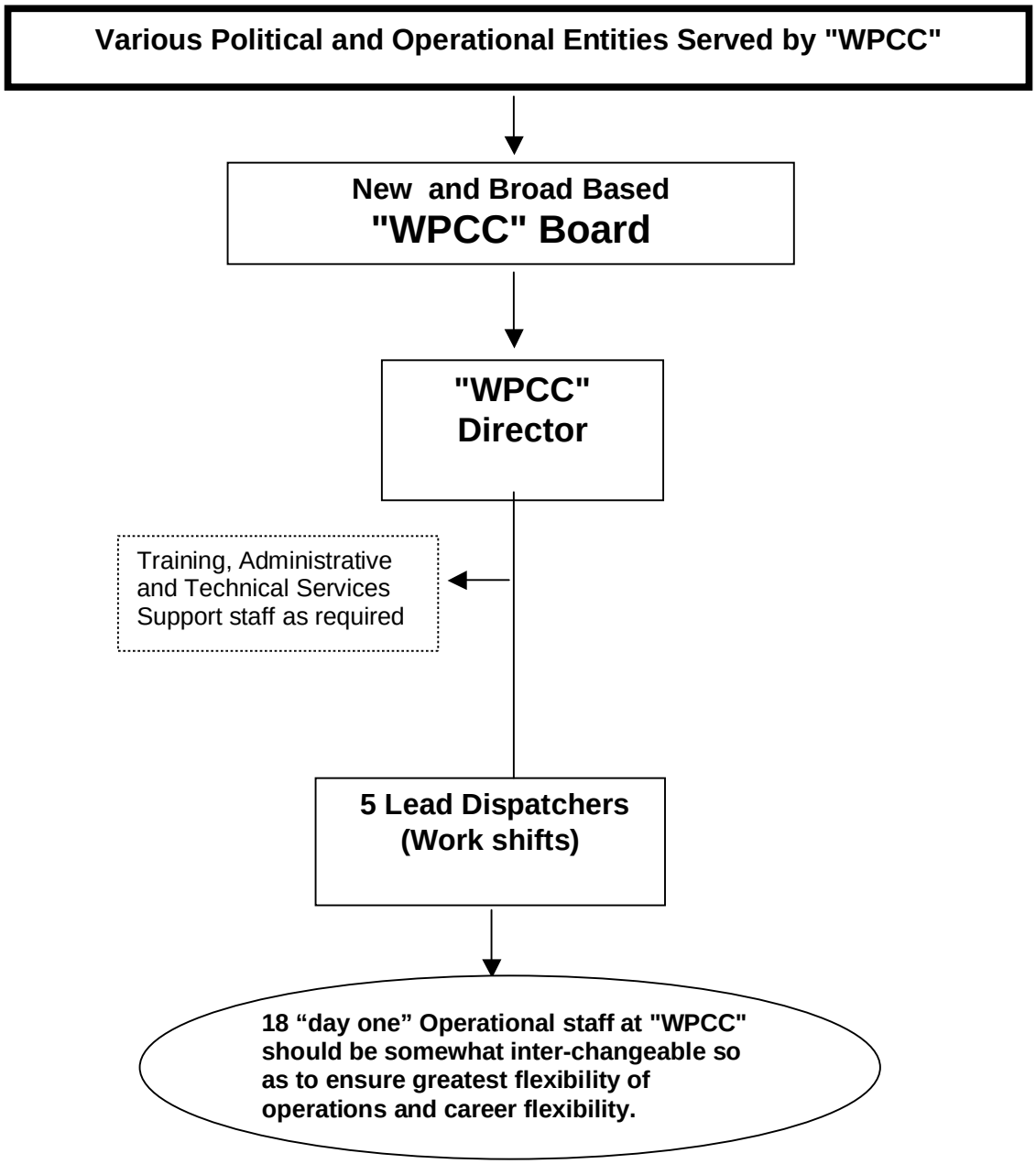
Option 2: The "Governing Body" owns and operates the PSAP.

Under this scenario, there is only a minor change to the above. Specifically, no "general services Parish agency" is the titular owner and operator of the PSAP. Instead, a "***PSAP Board"*** is. This Board would, therefore, have to be legally established under an inter-local or "joint powers" agreement. Based upon our analysis of the enabling State legislation the existing Washington Parish Communications District Board could function in the above capacity.

We would suggest utilizing the existing “Parish wide Communication District Board", with representation from public safety services (including PSAP operators), the Parish government and the governments of the "contributing PSAPs" of today, and with a particular emphasis on adding representation from the Fire and EMS services as appropriate.

Proportional fees paid by the Parish Board and the City Councils of Bogalusa and Franklinton, based on a formula intended to make participation fair, would fund this Board (if required) over and above their capacity to levy the local telephone surcharge. With these funds, the Board would pay for the entire operation of the new ***"WashComm"*** PSAP entity.

Our recommendation: Option 2.


Various Political and Operational Entities Served by "WPCC"
New and Broad Based
"WPCC" Board
"WPCC"
Director
Training, Administrative
and Technical Services
Support staff as required
5 Lead Dispatchers
(Work shifts)
18 “day one” Operational staff at "WPCC"
should be somewhat inter-changeable so
as to ensure greatest flexibility of
operations and career flexibility.

3.12: Does PSAP consolidation have to be three PSAPs or could it be for two?

Through our research, interviews and meetings in Washington Parish, it became apparent that at least one law enforcement PSAP did not consider the concept of PSAP consolidation to be very attractive to them. Assuming this to be the case, one needs to answer the question of whether or not a consolidation of two of the three Washington Parish law enforcement PSAPs into one PSAP makes sense, while the remaining one would stay independent.

Generally speaking, the reason one consolidates PSAPs is to gain certain operational efficiencies and/or economies. For example, if two "one person on duty PSAPs" in very small communities were to consolidate, both work loads could probably be handled by still having "one person on duty" and a significant percentage cost savings would accrue. However, such an action would not provide any enhancements in the call processing or dispatching capacity over the former two PSAPs. There would still be only one dispatcher on duty, with the inherent limitations of that arrangement.

For example, it is our view that the Franklinton PSAP workload itself, if added to the Bogalusa workload, would not be sufficient to justify an additional dispatcher on duty on every shift at the "gaining" PSAP. And, since one cannot add the "part of a dispatcher" that the added Franklinton workload might justify, one either ends up spending more than is needed for a full-person on duty or not as much for an impossible "part of a person" on duty (not part-time!) Another important aspect of the staffing pattern we have proposed for a potential Washington Parish consolidated PSAP is the addition of working supervisory staff (Lead TCs), a professional full time manager, and the hours calculations inherently include “relief factors” for time off for training, breaks *(often some of the PSAPs may be violating the Fair Labor Standards Act [FLSA] by not allowing break times away from the work environment).*

For this and for reasons related to the fact that none of the three candidate PSAPs is very large or very busy based on **urban** PSAP standards, we did not find consolidating down to 2 PSAPs to be of a significant enough advantage over consolidating down to one, with the possible exception being a 2nd PSAPs ability to serve as somewhat of a "back-up" to the consolidated PSAP should it become inoperable.

As we have demonstrated, even consolidating three PSAPs into one does not mean instant annual savings in operational costs. Granted, we could have gotten the annual operating costs for a 3-1 PSAP consolidation down to a level less than is currently being spent on an annualized basis. But to do that we would have had to sacrifice some of what we think are the inherent reasons for consolidation. Reasons such as increased call processing capability to handle wireless call spikes, increased training, increased supervision, increased career opportunities, increased break time to offer relief from RSI, professional management, better operational coordination and so forth.

Clearly, making it a 2-1 PSAP consolidation and leaving one law enforcement PSAP independent makes it even harder to make the numbers work, even with these added operational benefits.

Does that mean no consolidation should occur if a law enforcement chooses to not participate?

We don't think so. We think that the operational reasons for consolidation should take precedence. *A consolidated PSAP serving one municipal law enforcement agency, the Parish wide Sheriff's Office, all Parish fire service agencies and coordinating the activities of the two EMS providers, along with providing Emergency Medical Dispatch will be able to provide far better service, far more service, and better coordination of services for the public during emergencies than is the case today*. It will just be more expensive than it would be with all the law enforcement agencies participating, and somewhat less operationally effective.

Localization of Services:

On a less philosophical note, one of the above questions dealt with the issue of the degree to which the services provided by this (or any) consolidated PSAP(s) can be localized. By this we mean, "***Can this consolidated PSAP provide services of 'one flavor' to one jurisdiction and services of 'another flavor' to another jurisdiction?"***

Perhaps the best way to describe this is by example: Assume for a moment that it is legal for law enforcement agents to assist motorists who have locked their keys in their car. This is called "handling a lock-out". Assume that City X wants its police officers to provide this service as a public service and community relations tool. On the other hand, City Y, for a variety of reasons, chooses to not have their officers offer this service to their public. Can a busy PSAP make such distinctions and provide one level of service to the City X or residents/callers and another level to City Y residents/callers?

Generally, not very effectively (Obviously, the number of cities in this equation is also a factor. The more jurisdictions, the harder it becomes), unless said PSAP is supported by an appropriately configured or configurable CAD system. Here is how it could work: Call is received, the call taker enters the incident code "LOCKOUT" into the CAD system along with the location of the event (unless it was automatically inserted from the E911 ALI data). The CAD system, while automatically checking its Geo-file to validate the address in the community in question could also possibly check a "service provision table" which would be programmed to know whether the city in which the address is located does or does not provide this service. If it does, the call taker proceeds. If it doesn't, the CAD system can automatically prompt the call taker to advise the caller with

specific instructions provided by the City Y PD as to what it wants these callers to be told in these cases.

Of course, the viability of such an approach is dependent on whether or not your current CAD system can be so programmed or set-up, as we are not advocating a new CAD for this consolidated PSAP. Ultimately, though, we think it is important to strive for as much uniformity of policy and procedure between organization as is practical to eliminate these sorts of issues.

3.13: Cost and budget issues:

1. **How much does it cost to operate the PSAP?** We have established earlier that the operation of a new consolidated PSAP would require 24 FTE employees, and that the annual recurring costs for these staff would be in the vicinity of $714,000 per year in 2002 dollars. Generally, outside of long term capital costs for buildings, data and radio systems, etc. such personnel expenses generally consume about 83% a PSAP operating agency's annual budget. However, with the Washington Parish Communications District picking up the cost of many of these items from their funds (recurring 911 costs, CAD costs, etc.) it would seem more appropriate to peg this "non-personnel cost" figure to be in the range of 6.5% instead of the typical 17%. We added this 6.5% and arrived at the $760,000 per year figure.

2. **Who should pay for recurring (annual) PSAP operations and how?** Assuming that approximately $760,000 would be required each year to pay for the continued operation of the WPCC (not counting ant debt retirement for construction or equipment) the dual questions of who should pay, and via what mechanism need to be addressed. If one accepts the premise that the staffing level of 24 FTE on day one is a ‘political expediency’, and not based on how many staff would actually be needed, one can also accept the premise that this number should be able to be reduced significantly after one complete year of data collection and experience. When that happens, the annual expense would go down accordingly. For example, if (in the final analysis) it was determined by the facts and workload experience after one year that the required staffing was 3 dispatchers per shift instead of 5 (a very high probability, in our opinion), then the total annual personnel cost would be approximately 65% of $714,000, or $464,100, a savings of $249,900 per year.

   There are several philosophical approaches to this issue. They are:

   A. **"PARISH PAYS" PHILOSOPHY:** This philosophy is founded on belief that the provision of public safety communications services is (and rightfully ought to be) an appropriate Parish government based service.

As such, it is most appropriately paid for via the broadest based funding mechanism available: The general fund of the Parish.

Under this model, any agency which needs public safety communications services is eligible to have it provided and paid for by the Parish and/or any subordinate "PSAP Board" to which it may delegate the task.

B. **"EVERYONE PAYS BASED ON WHAT THEY GET" PHILOSOPHY:** The underpinning of this philosophy is that the provision of public safety communications services is the responsibility of those agencies who choose to exist outside the Parish structure (a city could choose not to have a police department and the Parish Sheriff would be responsible for basic law enforcement in that city). As such, by making that choice, they have to buy their own buildings, squad cars, uniforms, etc., they must also pay for their police officers and the provision of communications services. They can either "pay themselves" and run their own PSAP, or they could pay someone else.

Under this model we see the "pay for service" concept, which is applied in several ways around the USA. One way is to bill users by incident dispatched. Another way is to bill users based on their population and/or assessed valuation or some other measurable indices. Yet another way is to bill on the basis of transactions, but this usually requires a CAD system and a trunked radio system capable of counting transactions agency by agency to be fully equitable.

C. **"DOUBLE TAXATION/PAYMENT" PHILOSOPHY:** In this view, the belief is that the Parish taxpayers stand to benefit from the existence of a Parish-based, Parish wide communications operation, whether their community chooses to participate in it or not. That being the case, these residents should be expected to pay for their portion of the Parish service, as well as paying for their community's choice to provide this service to themselves and not use the Parish services. This is no different than when a city chooses to operate its own police department, as opposed to merely being provided whatever level of service the Parish Sheriff might be able to provide to that city.

This is often called the "double taxation model" in that it means that the resident of a community that chooses to pay for its own PSAP operation, is also paying for the Parish PSAP service, of which his/her community chooses not to take advantage. This model presumes that Model A (from above) is also in place and that the Parish is not charging its users for its PSAP's services. However, in many cases, even though some charge-back is levied to users of a Parish service, it

is rare that a Parish recovers all of the costs associated with running its PSAP by billing out to its user agencies.

D. **9-1-1 Surcharge payers pay**: In many jurisdictions around the USA, fees called "9-1-1 surcharges" are levied against phone bills to pay for a wide variety of costs. In some states those costs are limited to just the monthly recurring phone bills for the actual 9-1-1 telephone service. In other states there are very few limits, and these surcharges can be used to buy radio equipment, build buildings, buy CAD systems, do rural address, buy street signs and pay for staff salaries, both 911 administrative and 911 operators. It is becoming more and more common for these fees to be used to pay a large share of all of the recurring costs for running a 911 PSAP.

In Louisiana, the Parish is permitted to collect a 911 surcharge of 55¢ per residential line per month (17,077) now, and $1.43 per month for business lines (3,122) now. These two fees together (along with some revenue from the cellular 911 surcharges at 85¢ per month -20% to the cellular carrier) generate approximately $219,521 per year for the Parish Communications District. If the Parish were to take advantage of the opportunity to increase the residence line surcharge by $1.20 per month (to a total of $1.75 on 17,077 lines), and the business line surcharge by the same $1.20 per month (to a total of $2.43 per month on 3,122 lines), this revenue stream would grow to $449,677 per year, plus a presumed average of $68,000 per year in cellular 911 surcharge fees, for a grand total annual revenue of about $517,677.

This would be around enough to cover the projected annual recurring operating costs of the PSAP of about $511,000 per year after the predicted staff reductions in year 2 and beyond. Additional funding would be required, however, prior to predicted staff reductions.

Therefore, assuming that the requested special funding from the US Congress materializes to pay for the new facility and equip it, increasing the 911 surcharges as indicated above should just about cover all of the costs of running and staffing the WPCC of the future. And we recommend that course of action.

Section 4 : Two Way Radio Analysis

4.1 The State of Public Safety Communications in Washington Parish

The following section will provide narrative details with commentary on the radio communications equipment and facilities for the PSAP's in Washington Parish.

Before we get into the detail on each PSAP, however, this is an appropriate place to offer some general commentary on the ***"State of general public safety communications in Washington Parish today".***

In general, it has been our observation that the 3 PSAP's (dispatch centers) are relatively simple. Our specific observations are:

• The status of two way radio technologies in the PSAP operations in Washington Parish represents the general "state of the art" in two way radio development over 40 years ago, a situation similar to many PSAP centers. Some of the PSAP's and/or field units may have newer desk top control station radio equipment, but the base station equipment is generally obsolete and in need of replacement. In some instances the radio repeater/base station equipment at the radio tower is not owned by the Parish, but rather it is "rented" from a radio service shop. While this is not an entirely bad way to do business the station equipment used in this instance is not up to Public Safety standards.

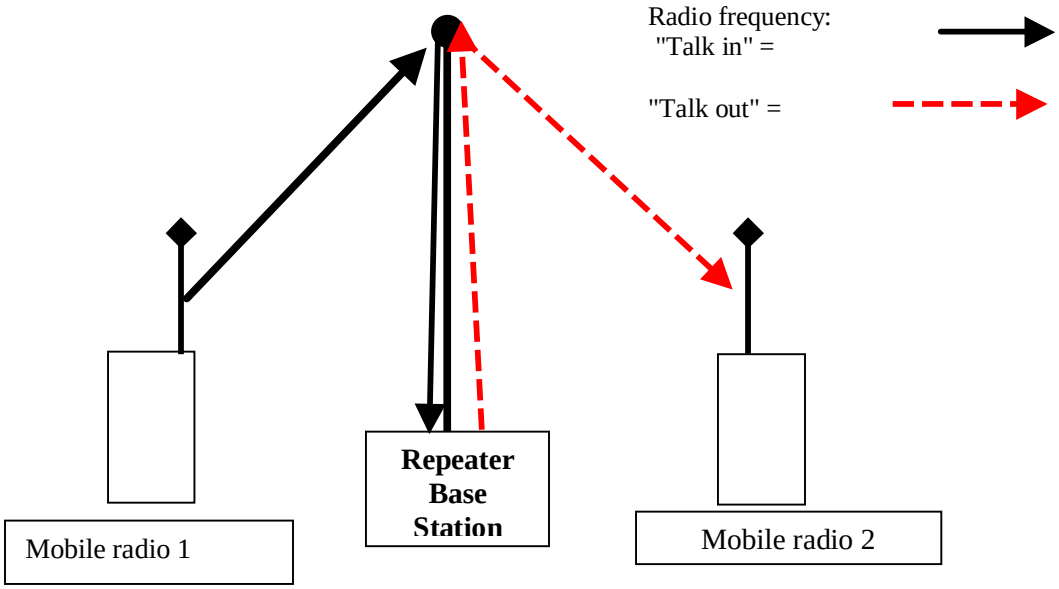
• The police radio systems in use in the 3 PSAP operations operate on the Very High Frequency (VHF) radio band (around 150 Megahertz or MHz), and one LOW BAND (about 39 MHZ) Fire Department system in Bogalusa. However, none of the individual base transmitter sites can adequately cover the total Washington Parish jurisdiction area presently served by these 3 PSAPs. Normally this would not be an issue to any one of the local agencies, but is a present communications deficiency for the Sheriffs office. However, when considering whether or not to consolidate PSAPs, one must think about whether a radio system located at any 1 PSAP could cover the entire service area of today's three PSAPS. It appears as if it would be difficult to accomplish this task, partly due to the varied terrain present in a Parish with some river valleys and cuts and bluffs. Only the radio tower currently used by the Parish Sheriff's office comes close to covering the entire Parish. To accomplish Parish Wide radio coverage, improvements to the Sheriff's system would be the most likely path to take.

Having set forth our very generalized observations of the "state of the art" in the Parish, we will now explore each of the operating PSAP entities.

A Note about radio systems in general:

Before we begin the analysis and inventory of the existing radio systems at the PSAPs, it is important that we establish and define the terms we will be using. They are:

"REPEATER" and "REPEATED": These are radio systems (also known as “mobile relay systems") in which vehicles and portables generally transmit to and hear from a high tower in the area and not directly with each other (at least the radio waves don't go directly from car to car). When one talks to the "tower" one does so on one "repeater input frequency". The repeater (located at the tower) receives the input and re-broadcasts (or repeats) it out on a repeater output frequency, which is different from the input frequency. The two frequencies make up the "channel".
How a repeater works:



Radio #1 "talks into" the repeater on one frequency at, say, 35 watts. The repeater hears it and "repeats" what it heard back out at, on a different frequency at, say 250 watts of power, so that Radio #2 can hear what Radio #1 said. This means radio 1 and 2 can talk to each other from much farther apart than they could otherwise do if they weren't talking "through the repeater". It also means that radios 1 and 2 must listen to what all other radios operating through this repeater are saying and, therefore, can know when not to talk.

An "RF control station" is essentially a beefed up mobile radio installed on the dispatcher's desk, which interacts with the repeater at the tower in the same manner as a squad car's walkie-talkie, or mobile radio interacts with the repeater. Since the repeater is operated via this "RF Control" method, as opposed to "leased lines", that means that the dispatcher has no "dominance" in control over the repeater as opposed to any mobile or portable radio. This could present a problem with some "jammer" being able to "lock up the repeater" preventing dispatch from talking.

(Note: As it relates to the security concern raised above, this method of alternate communications doesn't really solve the "jammer" problem mentioned. If the repeater output has been "hi-jacked" by an unauthorized radio that has keyed up the repeater "locking all other users out", so to speak, then the ability of this lower power, shorter antenna radio on the same channel as the repeater output to "break through" and be heard is very limited, indeed.)

Obviously, then, a "non-repeated radio channel" is one where there is no repeater and the units then communicate directly radio to radio. Repeated radio channels offer the advantage of dramatically increasing the range for car to car or portable to portable communications. ***They do absolutely nothing to improve the ability of any radio to talk in to the dispatcher!*** If any radio can't make it in to the repeater, they won't be able to talk to anyone on that repeated radio channel. An advantage of non repeated radio channels is that you can take two (or more) radios operating on such a channel and plop them down anywhere in the world (regardless of how close they may or may not be to some tower) and they can talk directly back and forth, provided they are close enough to each other.

Public Safety Answering Point or PSAP: The place where 911 calls are answered and from which police, fire and EMS units are paged and/or radio dispatched.

"VHF, UHF, HI BAND, 800 MHz", etc.: These are terms that refer to the frequency range at which a radio operates. VHF (Very High Frequency, also sometimes called High Band or HB or HF) radios operate at around 150 MHz, UHF (Ultra High Frequency) at around 450-470 MHz and 800 MHz *(they ran out of superlatives!)* operates (not surprisingly) at 806 MHz or 821 MHz. In general, radios designed to operate at one band, cannot communicate directly with a radio in another band. For example, a VHF radio cannot generally communicate directly with a UHF radio.

RADIO CONSOLES Are the pieces of furniture or computer terminals at which a dispatcher sits and through which they control the radio systems they deal with. ***Currently PSAPs in Washington Parish are not equipped with dispatch consoles, per se.*** Consoles often also contain other control switches that are not related to radio or communications, per se, but the switches or buttons need to be mounted someplace, so they get mounted in the console. Garage door opener switches are good examples of this. **IMPORTANT: THE CONSOLE IS NOT A RADIO. IT MERELY PROVIDES A PLACE FOR THE BUTTONS, ETC. THAT CONTROL RADIOS LOCATED ELSEWHERE.** In many cases, we have had dispatch staff proudly report that they have "All New Motorola Radios", when all they had was new console furniture and controls, controlling an obsolete and ill-performing radio system out in the field.

PD and FD: Are sometimes used to refer to Police Department and Fire Department.

4.2 PSAP: Washington Parish Sheriff's Office (WPSO)
Location: 1002 Main Street Franklinton LA 70438
Radio dispatcher workstations: 1
PSAP call taking workstations: 1

Washington Parish PSAP

Current PSAP Inventory

PSAP Radio System inventory and commentary:

Washington Parish Sheriff: VHF Repeater Tx-155.9250/Rx-154.9350 This VHF channel is the primary or "main" law enforcement channel for Washington Parish Sheriff's law enforcement communications. A repeater station is used for this channel, which allows the transmissions of field units to be rebroadcast to other field units (increased range) as well as being heard by dispatch. This repeater is a General Electric Master II model station. It is estimated to be 25 years old. The repeater antenna is located on the top of the Sheriff's guyed tower on Dollar road. This station configuration provides *generally* good radio communications coverage for field units in the jurisdiction area of the Washington Parish. There is a lot of room for improvement. Control and access to this repeater station by the Sheriff's Dispatch office is by use of a control station.

For back up to the primary Sheriff's repeater there is located in the radio building at Dollar road, a set of radio equipment that can be activated by a technician. This equipment can also be activated in the event of a power failure at the Dollar radio site as this back up station has a set of lead acid batteries to support its operation. There is no back up generator at the radio tower site.

Washington Parish Sheriff Talk Around. VHF 155.9250 T/R This VHF channel is a SIMPLEX (non-repeated) radio channel which serves primarily as a "talk around" the repeater station or a direct field radio unit to other field radio unit. It can also serve as the backup alternative for the main channel for Washington Parish's law enforcement communications. This channel both transmits and receives on the main Sheriff repeater base station's output frequency of 155.9250 MHz. It works as a back up/alternate communications path to the field units, providing reduced range for both "dispatch talk-out" as well as "talk in to dispatch" as this radio's antenna is only located on the Sheriff's building, and therefore not nearly as high (high = better coverage) as the main tower referenced above. It generally provides good local area radio communications coverage for field units, considering the purpose of the channel. This channel is operated on a multi frequency base control station transmitter (also it is the same radio that is used in the PSAP to access the repeater). This means that this particular base radio can only transmit on one channel at any one instant.

Radio Station Authorizations:

Washington Parish currently has authorization to operate radios on the following frequencies:

CALL SIGN OF RADIO STATION LICENSE **KNIK276**
Current license was issued 6/16/1997
License Expiration Date 8/18/2012

155.9250 MHZ FB2 (repeater station) LAT: 30-52-12N
LONG: 089-59-26W

155.92500 MHZ MO (mobile)
This is the frequency used by the mobiles and portables in the "talk around" mode. It can also be used by the PSAP control station in the event of the repeater failure.

154.9350 MHZ MO (mobile)
This is the frequency used by the mobiles and portables to access the Sheriff's repeater (155.9250) 75 units authorized.

154.9350 MHZ FX1 (control station) LAT: 30-47-08
LONG: 89-51-42
This is the frequency used by the Sheriff's Control Station in Franklinton. 1 unit authorized.

154.9350 MHZ FX1 (control station) LAT: 30-50-38
LONG: 90-09-21
This is the frequency used by the Sheriff's Control Station at the Bogalusa remote Sheriff's office - 1 unit authorized.

155.9250 MHZ FBS (back up split freq.) LAT: 30-47-08N
LONG: 089-51-42W
This authorization allows for the use of a station that could be a back up repeater or a "split frequency" station. It would be used to take the place of a failed repeater in the area of Bogalusa.

155.9250 MHZ FBS (back up split freq.) LAT: 30-50-38N
LONG: 090-09-21W
This authorization allows for the use of a station that could be a back up repeater or a "split frequency" station. It would be used to take the place of a failed repeater in the area of Franklinton, at the Sheriff's building.

FCC LICENSE AUDIT STATUS:

The required response to the FCC for indication of system build out has been completed. See below:

Reference # 253285 **Letter Sent Date:** 11-28-2001
Sent To: WASHINGTON, PARISH OF
ATTN: SHERIFFS OFC
668
FRANKLINTON, LA 70438
Known as: WASHINGTON, PARISH OF

Call sign	Radio Code	Responder	Response	Date	Comments	Terminate Date
KNIK276	PW	AUBREY JONES	Build out Completed	01-25-2002		

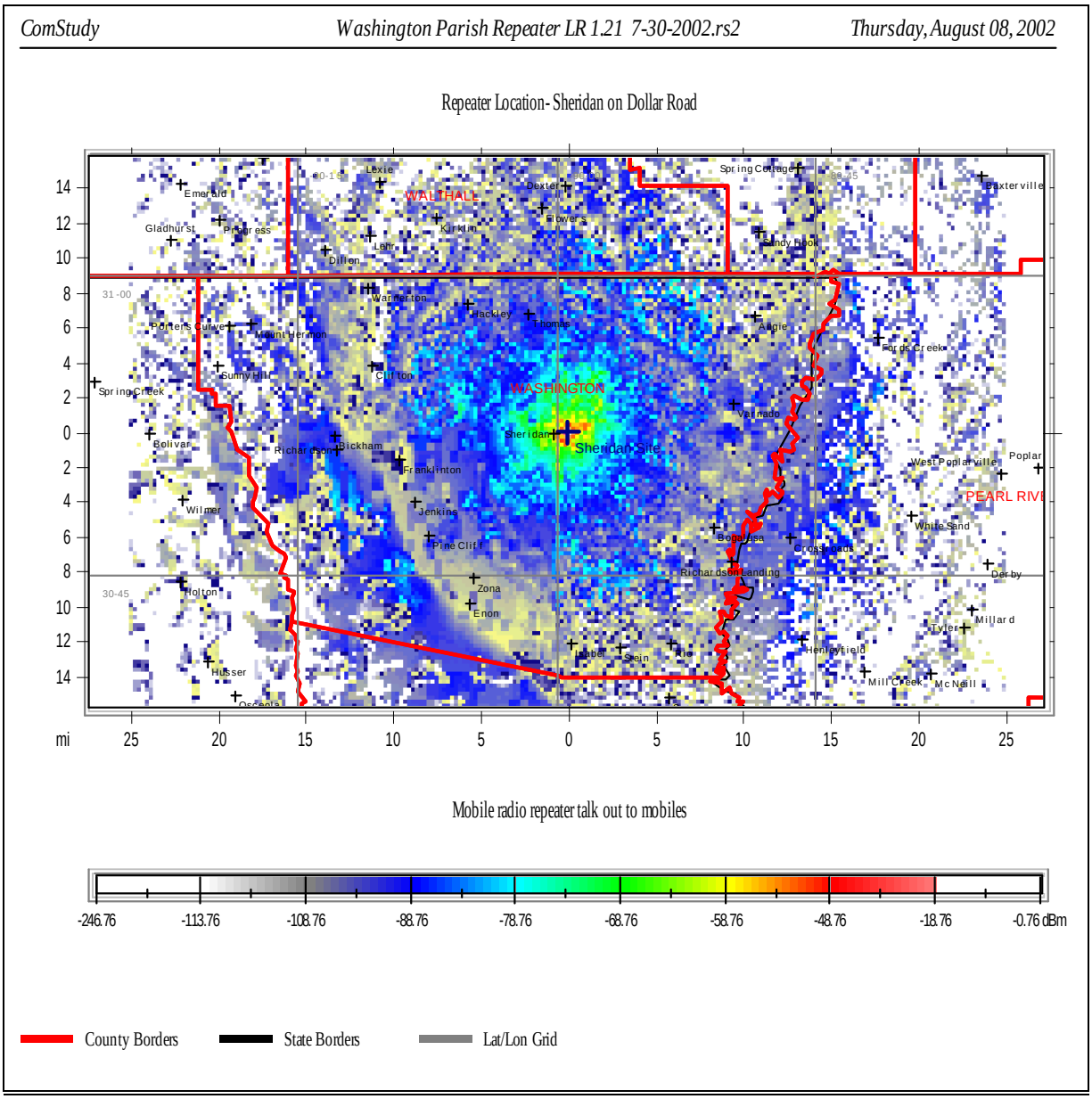
Washington Parish Sheriff Radio Communications Summary:

The radio system infrastructure equipment (repeater station and control station) at the Washington Parish operation is generally poor (repeater equipment) condition. When implemented in the current communications system many years ago, they were a good and economical choice. The current situation calls for a replacement of the repeater and control station units. The repeater site should have back up power provided in such a manner as to allow for continuous communications despite the loss of utility source. A back up repeater should be provided so as to allow for quick restoration of communications.

Equipment for the repeater operation and equipment maintenance is provided on an exchange basis for commercial use site space at the Dollar Road tower site for the Sheriff's Department is provided by Comm. Center of Covington LA.

Radio Propagation Study

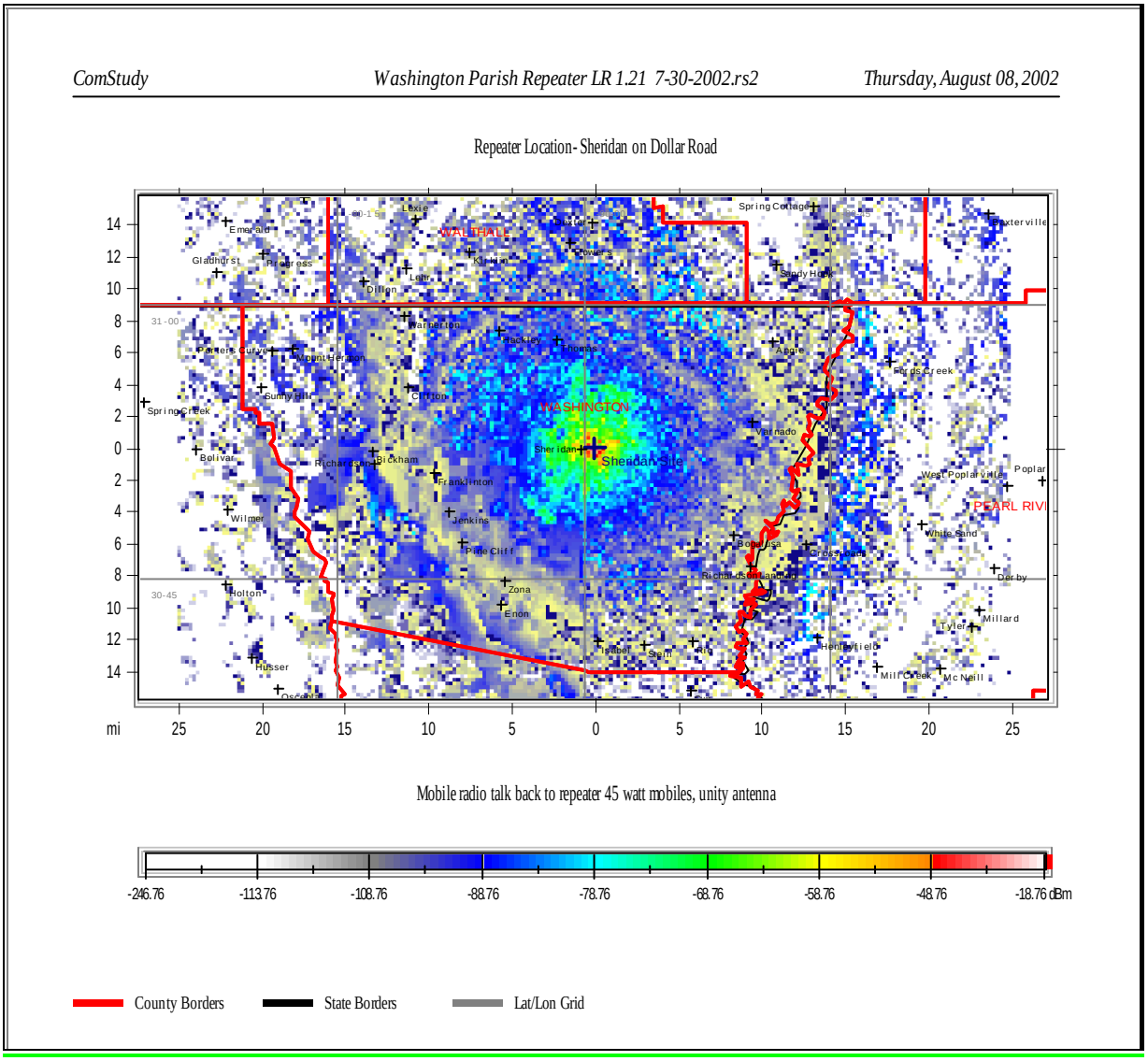
Note The following stud(ies) was created using information off the FCC license for location and antenna height. Transmit power and antenna variables were used that were derived from information gleaned during site visits and discussions held with individuals involved in this system. Land formation, land use, and a 95% reliability factor in the Longley-Rice computer model program all worked together to create the following results.



Washington Parish Sheriff's Office Repeater Talk OUT

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing that where red and orange occur, the radio signal OUT from the transmitter tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.



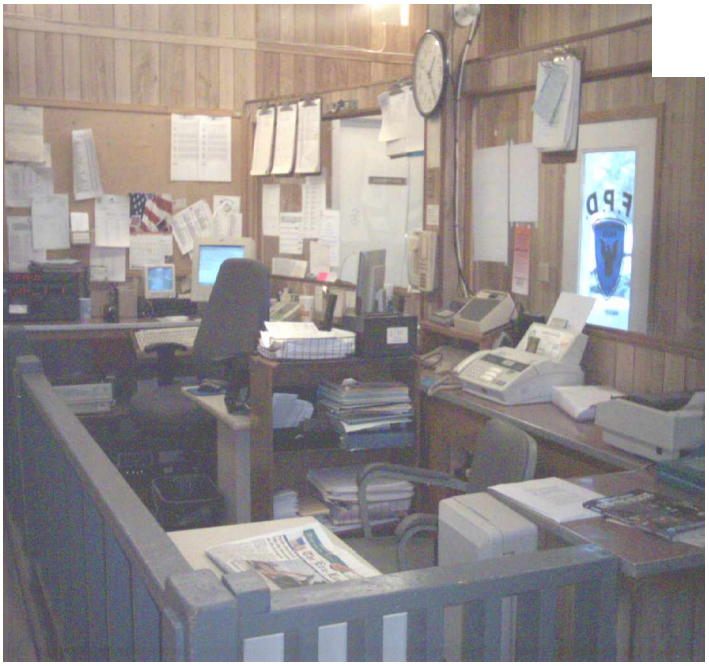
Washington Parish Sheriff's Office Repeater Talk IN

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing areas from which a typical mobile radio signal INBOUND to the main receiver tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.

4.3 PSAP: Franklinton PD
Location: 805 Pearl Street
Franklinton, LA 70438
Dispatcher workstations: 1
E911 PSAP workstations:

Franklinton PSAP



Current PSAP Inventory

PSAP Radio System inventory and commentary:

Franklinton Police Repeater 154.8150/Rx-159.1500 This VHF channel is the primary or "main" police channel for Franklinton PD's law enforcement communications. The repeater antenna is located on a water tank in the City of Franklinton. This station provides good radio communications coverage for field units in the jurisdiction area of the Franklinton PD. Control and access to this repeater station by the Police Department Dispatch office is by use of a control station in the PD dispatch office. This control station is a Motorola GM 300.

Franklinton Police Talk Around. VHF 154.8150 T/R This VHF channel is a SIMPLEX (non-repeated) radio channel which serves primarily as a "talk around" the repeater station or a direct field radio unit to other field radio unit. It can also serve as the backup alternative for the main police channel for Franklinton PD's law enforcement communications. This channel both transmits and receives on the Main Police repeater base station's output frequency of 154.8150 MHz. It

works as a back up/alternate communications path to the field units, providing reduced range for both "dispatch talk-out" as well as "talk in to dispatch" as this radio's antenna is only located on the PD building, and therefore not nearly as high (high = better coverage) as the main tower referenced above. It generally provides good radio communications coverage for field units, considering the purpose of the channel. This channel is operated on a multi frequency base station transmitter (also it is the same radio that is used in the PSAP to access the repeater). This means that this particular base radio can only transmit on one channel at any one instant.

Franklinton Fire Operations: VHF 154.370TX/153.7700-Repeater 154.3700 TX/RX Simplex Mode

This Franklinton Fire VHF channel is generally operated as a SIMPLEX (non-repeated) radio channel which serves primarily as a “talk around” the repeater station or a direct field radio unit to other field radio unit. It can also serve as the backup alternative for the main fire repeater channel for Franklinton FD’s communications.

Franklinton does its own fire call dispatch. The encoding of the radio signal to alert the fire fighters originates from the Franklinton PD PSAP. The signal is generated by an encoder (Communication Specialists PE 1000) tied to a remote control desk set console (SSC Encoder).

The base station transmit commands are sent over leased control circuits to the city water tank. At the water tank the “real” base station is located with the antenna on top of the tank. The fire base station operates in the “simplex” mode, again meaning that it is NOT a repeater. It transmits and receives on the single radio frequency of 154.3700 MHZ. This is the same frequency as the Washington Parish Fire repeater output.

The mobiles in the Franklinton fire fighting apparatus and portables have both the Parish Fire channel (repeater frequency pair) and the simplex mode of operation.

This set up of simplex operation generally provides good radio communications coverage for field units, considering the purpose of the channel. The purpose here is to cover the general area of Franklinton.

Radio Station Authorizations:

Franklinton PD currently has authorization to operate radios on the following frequencies:

CALL SIGN OF RADIO STATION LICENSE **WNPC332**
Current license was issued 7/3/1996

License Expiration Date 7/03/2001 FCC DATA BASE HAS A CANCEL DATE OF 9-02-2001 ***RENEWAL ACTION MUST BE TAKEN TO RENEW***

154.8150 MHZ	FB2 (repeater station)	LAT:	30-50-43N
		LONG:	090-08-41W
159.15500 MHZ	MO (mobile)		

154.8150 MHZ MO (mobile)
This is the frequency used by the mobiles and portables to access the Police repeater 20 units authorized.

FCC LICENSE AUDIT STATUS:

The required response to the FCC for indication of system build out has been completed. See below:

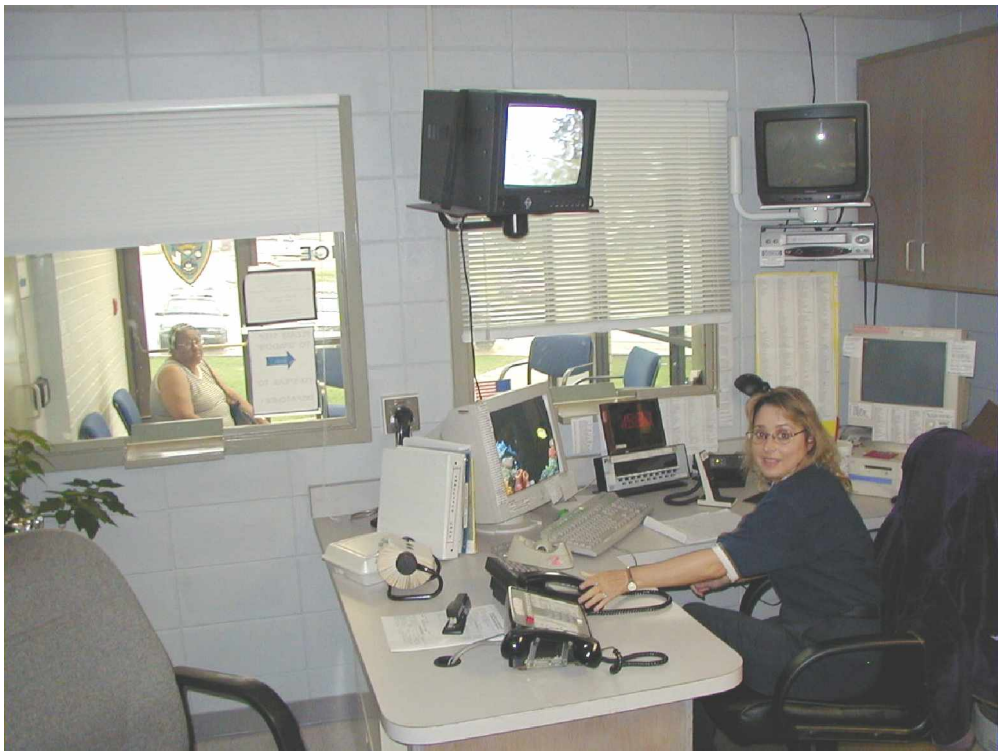
Reference # 82836 **Letter Sent Date:** 09-10-2001
Sent To: FRANKLINTON, CITY OF
ATTN: POLICE DEPT
803 PEARL ST
FRANKLINTON, LA 70438
Known as: FRANKLINTON, CITY OF

Call sign	Radio Code	Responder	Response	Date	Comments	Terminate Date
WNPC332	PW	LYNN ARMAND	Build out Completed	09-24-2001		

Radio Propagation Study

No information was available at the time of the site visits for the new tower location that the radio equipment is moving to, so no meaningful propagation analysis could be performed.

4.4 PSAP: Bogalusa Police Departme
Location: 202 Arkansas Avenue
Bogalusa, LA 70427
Dispatcher workstations: 1
E911 PSAP workstations: 1



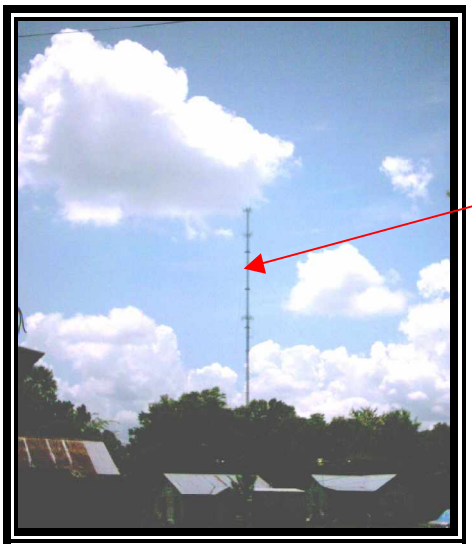
Bogalusa PD Main Dispatch Position

Current PSAP Inventory

PSAP Radio System inventory and commentary:

PSAP Radio System Overview and Inventory

<u>Police Main: VHF Repeater 154.8600TX/155.6400 RX</u> This VHF channel is the primary or “main” police channel for Bogalusa law enforcement communications. A repeater station is used for this channel, which allows the transmissions of field units to be rebroadcast to other field units (for increased range) as will as being heard at dispatch. The main repeater station for this channel is a Motorola MSF 5000 unit, built in March of 1996 it is about 6 years old, and is located at Pinnacle Tower on West Hickory in Bogalusa. Dispatchers control this repeater via use of a Radio Dispatch control station(s) instead of a leased phone lines or microwave transmitters.



<u>Remotely located base station</u>

Pictured to the left is the antenna for the remotely located police base repeater a couple of blocks away (Pinnacle tower) from the PSAP. The repeater itself is located in the radio building “shack” at the base of the tower (not visible in this photo). The telecommunicator "controls" this base repeater by reaching it using radio waves from an “RF control station".

Radio Tower in Bogalusa used by PD

<u>Bogalusa Police Talk Around. VHF 154.8600 T/R</u> This VHF channel is a SIMPLEX (non-repeated) radio channel which serves primarily as a “talk around” the repeater station or a direct field radio unit to other field radio unit. It can also serve as the backup alternative for the main police channel for Bogalusa PD’s law enforcement communications. This channel both transmits and receives on the Main Police repeater base station's output frequency of 154.8600 MHz. It works as a back up/alternate communications path to the field units, providing reduced range for both "dispatch talk-out" as well as "talk in to dispatch" as this radio's antenna is only located on the PD building, and therefore not nearly as high (high = better coverage) as the main tower referenced above. It generally provides good radio communications coverage for field units, considering the purpose of the channel. This channel is operated on a multi frequency base station transmitter (also it is the same radio that is used in the PSAP to access the repeater). This means that this particular base radio can only transmit on one channel at any one instant.

Secondary Police Channel: VHF 158.8950 TX/RX This non repeated channel is used to communicate between the Bogalusa Police Department radios without interruption to or by the separate Bogalusa Police repeater. It is located in the Bogalusa Police car radios and portables.

Alternative Repeater Channel VHF 154.7250TX/158.8950RX:
This channel is a secondary repeater channel for use by the Police department. The location of this repeater was not established. Despite the FCC license indicating the latitude and longitude the same as the primary repeater, *no equipment was labeled, listed, or definable at the site*.

Bogalusa Fire Channel: 46.0600 TX/RX This non repeated channel is used to communicate between the Bogalusa Fire Department dispatch and Fire apparatus. This station is located in the Bogalusa Fire Department fire hall.

The FCC records for this channel, call sign KIG674 indicate that it expired on April 29, 2002. It was cancelled September 1, 2002.

Siren Control Radio Channel. OEP VHF 155.0400TX/153.7400RX This RF control station is used to communicate into the siren controls in the City. This radio is a desk top configured Motorola GM 300. It controls 5 sirens. This authorization is listed under the Fire district PSAP description.
FIRE SIREN LOCATIONS:

1. Temple
2. Columbia Street
3. West 14th
4. School Board
5. LPL Rio Grande

Radio Station Authorizations:

The City of Bogalusa currently has authorization to operate radios on the following frequencies:

CALL SIGN OF RADIO STATION LICENSE **KNGQ580**
Current license was issued 10/03/1997
License Expiration Date 10/03/2002 ***NEEDS RENEWAL ACTION***

154.72500 MHZ FB2 (repeater station) LAT: 30-46-06N
LONG: 089-51-53W
This would be a repeater output frequency. Unable to determine the exact use or location of this station at time of site inspections. Radio service providers did not identify location or use of channel. It has been referred to as the "secret-mystery repeater" by some.

154.8500 MHZ FB2 (repeater station) Same as above
This is the PD's repeater station

155.6400 MHZ MO (mobiles)
This is the frequency used by the mobiles to talk into the “mystery” repeater station.
(154.8500 MHZ). 20 units authorized.

158.8950 MHZ MO (mobiles)
This is the frequency that we understand to be mated with the 154.8500 MHZ frequency above.

155/6400 MHZ FX1 (control station)
This is the frequency used by the mobiles, and the CONTROL STATION at the Bogalusa PD PSAP. IT is specified in the license per FCC requirements. If there are more control stations in use, or there would be ore in the future, then license modifications should be made to this license.

CALL SIGN OF RADIO STATION LICENSE **KIG674**
License Expiration Date 4/29/2002
Expired Date 9/01-2002 ***NEEDS RENEWAL ACTION***

The FCC records for this channel, call sign KIG674 indicate that it expired on April 29, 2002. It was cancelled September 1, 2002.

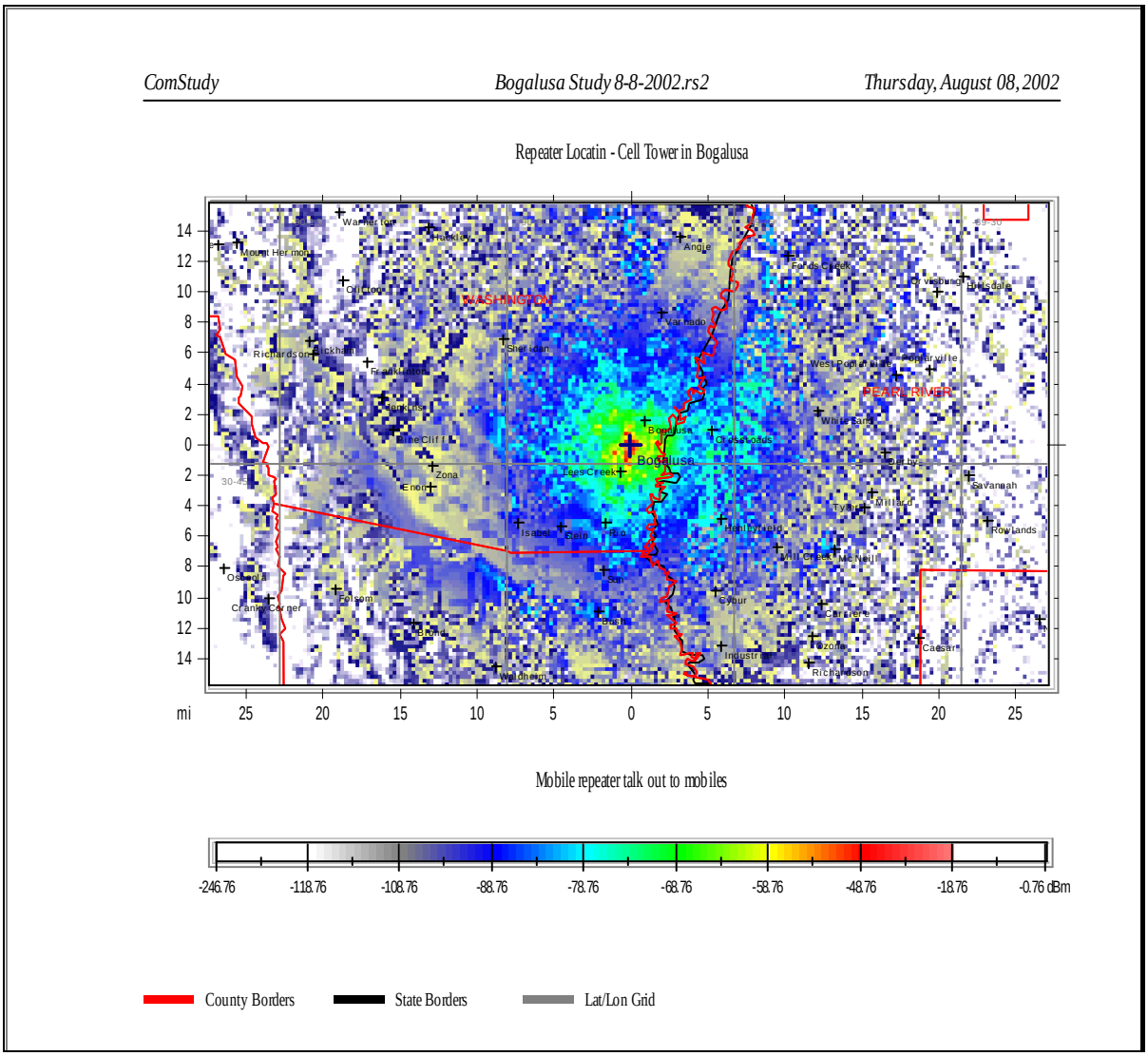
FCC LICENSE AUDIT STATUS:

The required response to the FCC for indication of system build out has been completed. See below:

Reference # 25110 **Letter Sent Date:** 08-22-2001
Sent To: BOGALUSA, CITY OF
ATTN: POLICE DEPT HARRY HOPPEN
214 ARKANSAS AVE
BOGALUSA, LA 70427
Known as: BOGALUSA, CITY OF

Call sign	Radio Code	Responder	Response	Date	Comments
KNGQ580	PW	JERRY W AGNEW SR	Build out Completed	03-07-2002	

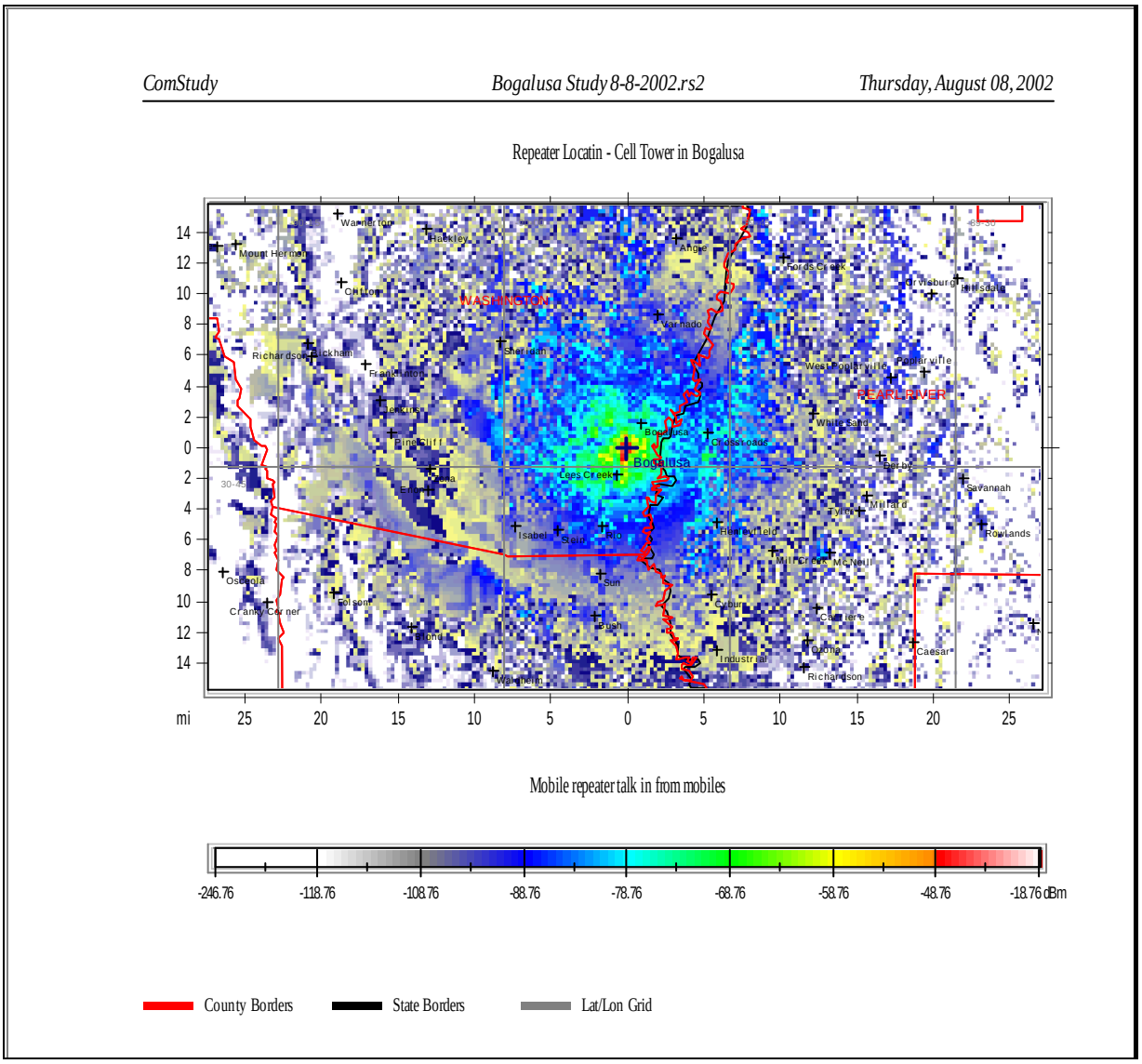
Radio Propagation Study



Bogalusa repeater talk out to mobiles

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing that where red and orange occur, the radio signal OUT from the transmitter tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.



Bogalusa repeater talk back from mobiles

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing areas from which a typical mobile radio signal INBOUND to the main receiver tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.

4.5 Washington Parish Office of Emergency Preparedness
Washington Parish Fire Districts

Location: 17380 Bill Booty Road
Bogalusa, LA 70427
Dispatcher workstations: 1

Radio System inventory and commentary:

Washington Parish Fire Operations: VHF 154.370TX/153.7700-Repeater

This Fire VHF channel is a repeated radio channel which serves as the primary voice and paging channel for the Parish.

This repeater is located at the Carlon Wascom radio tower on Thomas Melvin road just South West of the city of Pine. This structure is a newer 480 foot tower about five years old. The repeater itself is a “made up” station from several Kenwood mobile radios. The tower registration for this tower is 1021836.

The station operates at about 50 watts. The receive antenna is located at the top of the tower, and the transmit antenna is located at about the 420 foot level, South side.

For back up purposes a back up repeater is located on an old rather short "stubby" "AT&T" tower in the city of Pine. The back up tower is about 180 feet tall. This station is a Motorola MSF 5000.

Washington Parish Emergency Preparedness Channel: VHF 155.4000TX/153.7400-Repeater

This VHF channel is a repeated radio channel which serves as the emergency government needs of the Parish. It is controlled from the District 7 Office of Emergency Government facility on Bill Booty road.

This repeater is located at the Carlon Wascom radio tower on Thomas Melvin road just South West of the city of Pine. This structure is a newer 480 foot tower about five years old. The repeater itself is a "made up" station from several Kenwood mobile radios. The tower registration for this tower is 1021836.

The station is understood to operate at about 50 watts.

Radio Station Authorizations:

The Police Jury Fire Protection District, Washington Parish currently has authorization to operate radios on the following frequencies:

CALL SIGN OF RADIO STATION LICENSE **WNMC606**
Current license was issued 10/29/2001
License Expiration Date 10/05/2003

154.3700 MHZ FB2 (repeater station) LAT: 30-55-12.7N
LONG: 090-00-43.3W
This would be the back up repeater. (old TELCO tower)

154.3700 MHZ FB2 (repeater station) LAT: 30-53-12.0N
LONG: 090-02-56.0W
This would be the main repeater. (WASCOM tower)

153.7700 MHZ FX1 (control station) under the 6.1 meter rule

153.7700 MHZ MO (mobiles) Parish Wide Operation

154.2950 MHZ MO (mobiles) Parish Wide Operation

FCC LICENSE AUDIT STATUS:

The required response to the FCC for indication of system build out has been completed. See below:

Reference #	253284	**Letter Sent Date:**	11-28-2001
Sent To:	WASHINGTON, PARISH OF ATTN: POLICE JURY FIRE PROTECTION DIST LM 17380 BILL BOOTY ROAD BOGALUSA, LA 70427		
Known as:	WASHINGTON, PARISH OF		

Call sign	Radio Code	Responder	Response	Date	Comments	Terminate Date
WNMC606	PW	THOMAS P THIEBAUD	Build out Completed	12-20-2001		

CALL SIGN OF RADIO STATION LICENSE **WPJW770**
Current license was issued 8/29/2001
License Expiration Date 11/25/2011

155.0400 MHZ FB2 (repeater station) LAT: 30-55-12.7N
LONG: 090-00-43.3W
Office of Emergency Preparedness Wascom Tower Site

153.7400 MHZ FX1 (control station) under the 6.1 meter rule
This is the OEP control station on Bill Booty road, district 7 location.

153.7400 MHZ MO (mobiles) Parish Wide Operations
150 mobiles authorized

155.0400 MHZ MO (mobiles) Parish Wide Operations
150 mobiles authorized

FCC LICENSE AUDIT STATUS:

The required response to the FCC for indication of system build out has been completed. See below:

Reference #	253286	**Letter Sent Date:**	11-28-2001
Sent To:	WASHINGTON, PARISH OF COURTHOUSE BLDG FRANKLINTON, LA 70438		
Known as:	WASHINGTON, PARISH OF		

Call sign	Radio Code	Responder	Response	Date	Comments	Terminate Date
WPJW770	PW	JOHN A TAYLOR	Build out Completed	01-22-2002		

Parish Fire District's Communications Summary

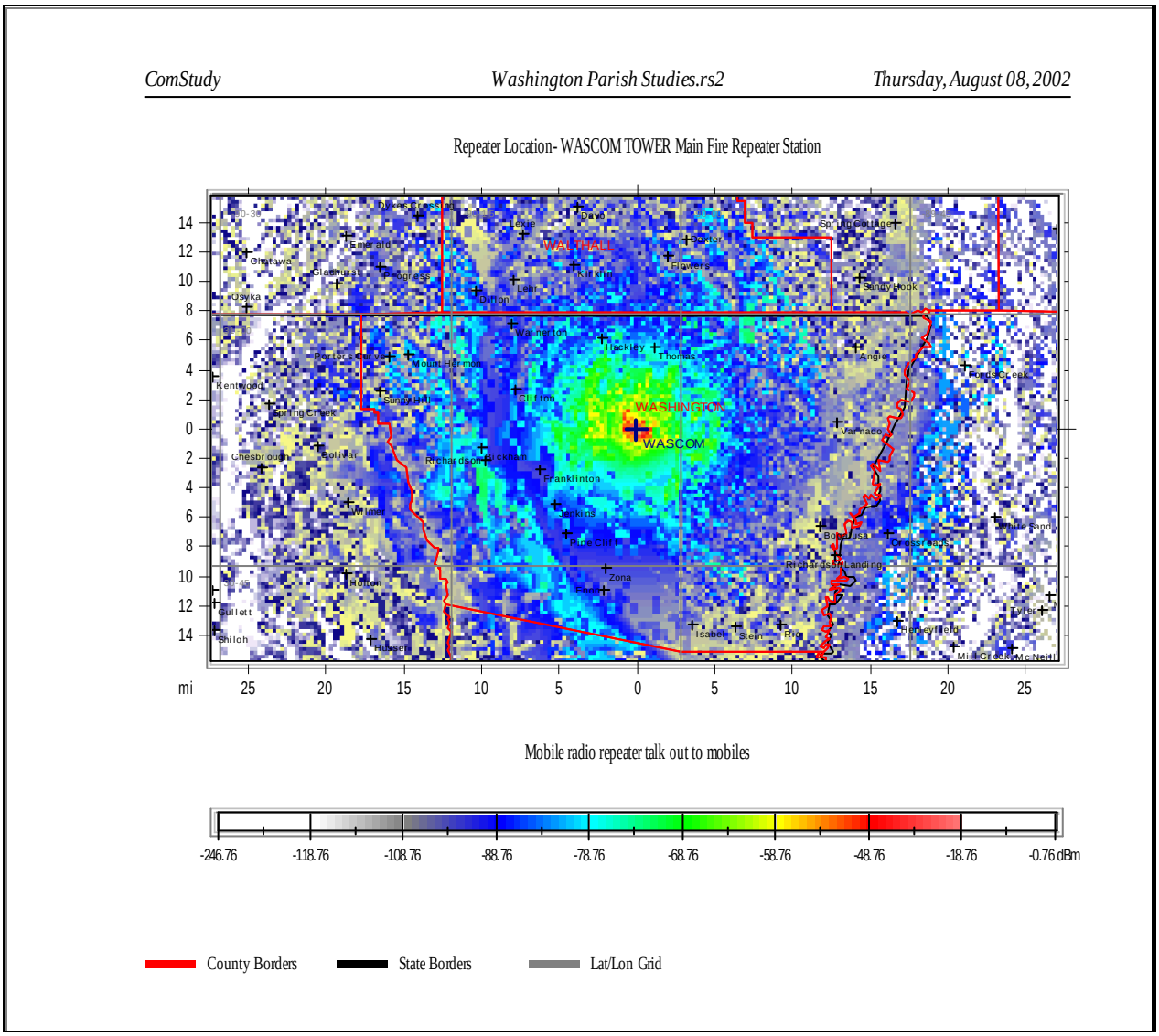
The radio system infrastructure equipment (base and repeater stations, control stations) used for the Parish Fire District dispatch varies greatly in terms of

condition. The main repeater is not what you would expect to have in service for critical communications. Stand-alone factory devised and manufactured radio station equipment should be deployed instead of built up stations from mobiles. The control station equipment that serves to connect the dispatch locations to this repeater and thus the field radios is generally in good condition and suitable for critical fire radio service. A new repeater station for the main fire channel and the back up repeater station is strongly recommended due to the obsolescence of radio station equipment in use on this channel. As with the recommendations above for the Fire radio stations, the Office of Emergency Preparedness should be equipped with suitable base station/repeater stations.

Radio Propagation Study

The following study was created using information off the FCC license for location and antenna height. Transmit power and antenna variables were used that were derived from information gleaned during site visits and discussions held with individuals involved in this system.

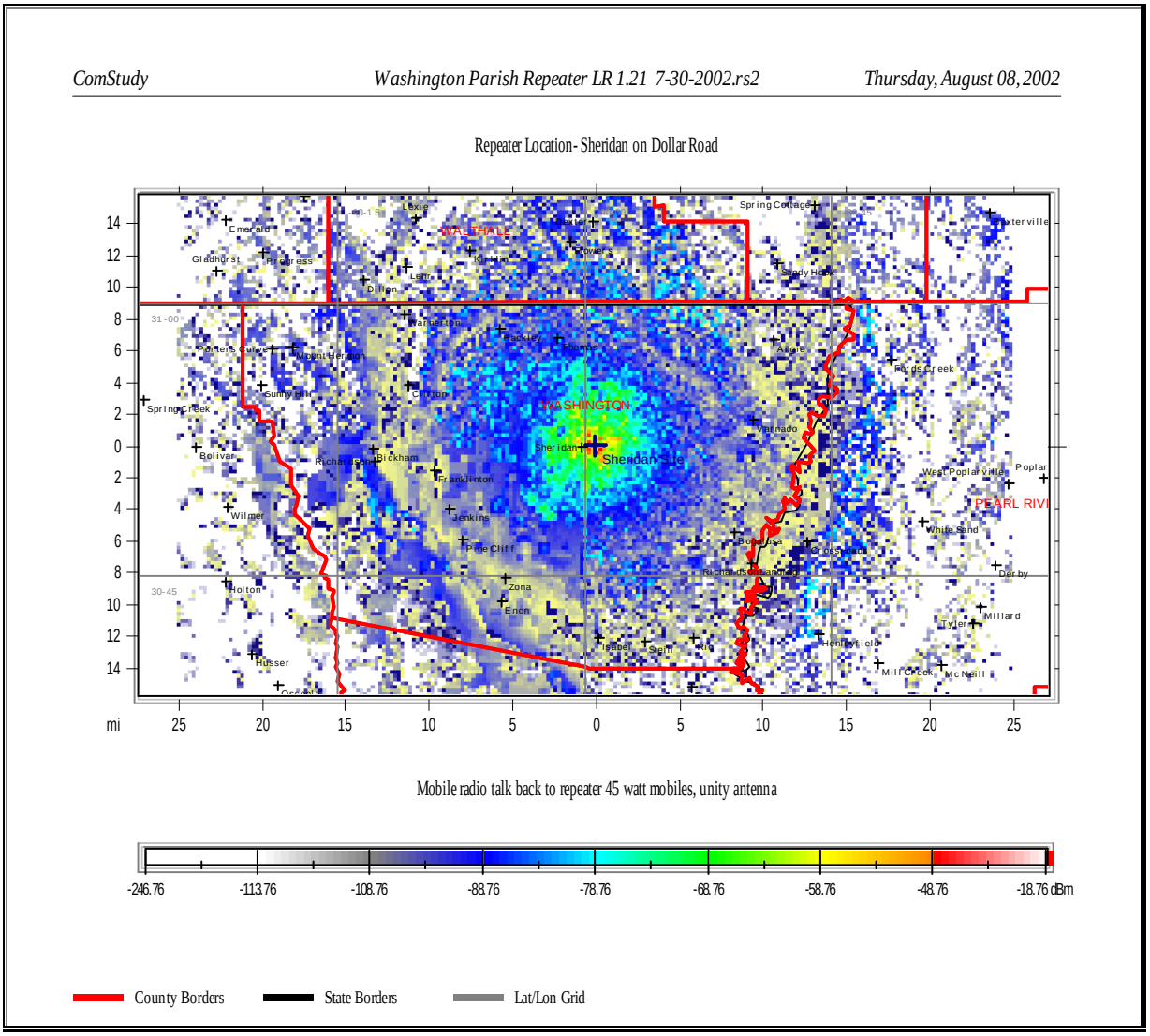
Land formation, land use, and a 95% reliability factor in the Longley-Rice computer model program all worked together to create the following results.



Washington Parish Fire Repeater talk out

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing that where red and orange occur, the radio signal OUT from the transmitter tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.



Washington Parish Fire Repeater mobile talk in TO repeater

RED to GREEN are good, BLUE is less good, GRAY is marginal

In the above "picture" the red lines are the Parish boundaries. The solid colors are showing areas from which a typical mobile radio signal INBOUND to the main receiver tower is very strong. The yellowish and green areas (as one gets further away from the tower) are slightly less good, but still quite readable. The darker blue color is getting a little less reliable, and the gray to white is a radio signal that is only marginal and ought not be deemed reliable.

4.6 Uninterrupted operations: While most of the Parish's PSAPs have limited emergency generator capabilities as well as some "uninterruptible power supply" (UPS) systems for individual "mission critical" PC based applications (like CAD and 911), the overall state of readiness for completely reliable continuous services is lacking. There are several basic issues.

- **Providing** for an alternate to the commercial AC power to the various buildings. This is usually a diesel or LP gas powered emergency generator with an automatic activation feature that senses when commercial power is down that is tested regularly, has an adequate and inspected fuel supply for several days of operations, and is wired to an adequate number of outlets within the facility to power all essential equipment for several days.
- UPS systems work usually in tandem with an emergency generator but they are not the same thing. A UPS system is a series of DC batteries (like large car batteries) which is continuously charged by the AC power feeding a building. The output of these DC batteries is sent to an inverter which takes the XX volts DC and turns it into 120 or 240 V AC to power the equipment in the PSAP. This way, if the commercial AC power feeding the building dies, these batteries (which are fully charged) will merely continue to provide power to the inverter, which will power the equipment. In turn, the batteries will be charged up when the generator comes on. Such an arrangement provides the added advantage of "conditioning the power" feeding the sophisticated electronic equipment in a PSAP, meaning that all spikes and valleys in the power are "smoothed out" as it passes through the DC batteries, plus there is no abrupt change or momentary "down time" when the generator kicks in, as nothing sensitive is running directly off the generator or commercial AC power.

  A complete set up such as this is the kind of uninterruptible resource that any PSAP should have, but they can be very expensive and not likely affordable in a smaller or non consolidated PSAP setting.

4.7 Radio Communications General Statement

In general, this topic can be summed up by saying that an effective public safety communications system must have the following attributes:

• There must be an effective radio system available to the dispatcher for contacting any and all of their field responders, at any time, under any conditions with a very high degree of reliability. This generally means a good transmission system with good signal strength providing high quality audio to vehicle mounted radios, hand held radios and belt worn pagers in 97% of the jurisdiction's land mass, with special attention to high risk and/or high traffic volume areas and inside standard construction buildings. *(Virtually no radio systems provide 100% coverage over and/or in 100% of the areas or buildings in any area -- or at least nobody can afford to build such systems!)*

• Similarly, there must be the ability for the dispatcher to receive (hear) transmissions from all field units, all types of field radios, in all or most of the areas of the jurisdiction's land area.

• There should be the ability for the dispatcher to communicate directly with all other PSAP agency's dispatchers from which they might require assistance, support, and coordination or back-up services.

• There should be the ability for the dispatcher to communicate directly with the field units and control points ("dispatchers") for any agency within their jurisdiction that they might need to direct or coordinate. Typically this means public works agencies, ambulances, transit agencies, etc.

• There should be the ability for field units from the jurisdiction to communicate directly with other field units from their jurisdiction (any type of agency within their jurisdiction), as well as any other field units from any other jurisdiction with whom they may have the need to coordinate.

• There should be the provision for adequate communications security so that sensitive information can be exchanged over the two way radio without jeopardizing the effective management of public safety incidents.

• There should be adequate "talk path capacity" (usually means adequate radio channels in conventional technology radio systems) so that no field unit needs to wait more than a few seconds for the ability to access the system for important information*. (If this relates to field units talking to dispatchers, it is also a function of how many dispatchers there are on duty with the time to listen to the field unit. Having 10 radio channels available to a field unit, all of which can <u>theoretically</u> be heard by the dispatcher, but having only one dispatcher on duty at that instant, and that*

one dispatcher being kept busy listening to traffic on another radio channel means that there is not adequate "talk path capacity").

• The communications resources (talk paths) and operations must be arranged and melded to meet the objectives of maximizing the efficient use of these talk paths, in line with operational requirements and preferences. This point relates to the question of how many functional radio "channels" (or trunked radio talk groups) there should be, how many different and discrete radio "channels" a given dispatcher can handle and how these issues relate to how the agencies on these channels work (or don't work) well together.

Specifically, today there are stand-alone, discrete radio channels used to dispatch the Franklinton, Bogalusa, Fire District dispatch and WPSO. Each of these channels has one dispatcher at the PSAP end whose primary job is to pay close attention to THAT police channel and answer when somebody calls. This arrangement means that the street officers from each of the above agencies spend most of their shifts tuned exclusively to and are required to pay attention only to THEIR AGENCY'S POLICE CHANNEL. They are not required to listen intently to their neighbor's radio traffic in the adjoining city, and, in fact, doing so may mean they miss out on critical information on their own radio channel.

> *(Most vehicle two way radios can "scan" the channels not selected for transmit. For example, if a Franklinton officer wants to monitor the Bogalusa or WPSO/PD's, he/she can "scan" their radio channels, while his/her radio is tuned to transmit on the Franklinton PD channel. Since being tuned to Franklinton for transmit makes Franklinton the "priority channel", if there is traffic on the Franklinton channel, the radio will instantly revert to the Franklinton channel to pick it all up. However, if the Franklinton officer really wants to "lock in" on something happening on the WPSO channel (for example), or communicate with somebody in the WPSO and selects the WPSO channel for Transmit, then that Franklinton officer risks missing out on Franklinton radio traffic directed to him or her.)*

In the type of consolidated PSAP being evaluated by this study, a real question must be answered as to whether or not such a PSAP would retain the sort of channel arrangement described above. On the one hand, doing so would be most comfortable for the field officers and dispatchers and change nothing and no habits. Franklinton cops would talk on the Franklinton dispatch channel, Bogalusa cops on the Bogalusa channel, WPSO deputies on the WPSO channel and etc.

This is a possible (*and may be the most practical*) arrangement. From a technical perspective, it would not be too difficult to implement what is called "RF CONTROL" of each law enforcement agency's current repeaters from the new

consolidated PSAP location anywhere within the boundaries of the Parish. That way, the dispatchers could talk to the officers from the police agencies on their comfortable old police channels.

But, such an arrangement could have ramifications on either PSAP operations or staffing, or both.

Simply put, it is our experience that having one dispatcher responsible for two or more discrete police radio channels is not effective. We stress police channels, because police channels are a sort of an *"open mike, stream of consciousness"* sort of a communications pathway, where all officers on their dispatch channel assume that all other officers and all dispatchers on the dispatch channel are paying 100% attention to that channel 100% of the time. This is because when and if an officer has to "bail-out" of the squad on a suspect that was just observed running away from a crime scene, and that officer only has time to shout, ***"Squad 21, I'll be in foot pursuit North on Main from Maple on a robbery suspect"*** into the squad car radio microphone, that officer **expects** that the dispatcher on that channel **will have heard** and will not have been distracted by being busy talking on some other discrete police channel to which that dispatcher is also required to pay "exclusive attention".

This becomes relevant in this study because ***if*** it is assumed that a consolidated PSAP will retain these three discrete police radio channels in their current usage mode, it will likely mean that there should be at least three discrete police radio dispatch positions staffed at all times, which impacts on the staffing required to implement either dedicated call taker positions or dedicated fire staff positions, and thusly the overall staffing requirements of the consolidated PSAP and whether or not all of the potential efficiencies of consolidation could be realized from the outset.

Typically, from an efficiency (and, we would argue, a street police effectiveness) perspective we would normally recommend that if such a consolidated PSAP were to be implemented, that either a single primary “All police dispatch channel/talk group" be implemented over which all dispatch assignments are broadcast for all four police agencies, or (as an alternate) perhaps a "city channel" for Bogalusa and Franklinton and a "Parish Channel" for WPSO.

However, if this suggestion is adopted, none of the current VHF base stations or repeaters used for dispatch broadcasts for the discrete dispatch channels is currently capable of providing an adequate radio signal (particularly "talk-in" coverage) to all parts of the communities being served **from their current tower locations**. Therefore, no single one of the current VHF channel could practically be this area wide "police dispatch channel" mentioned above, without the expense of relocating said base station/repeater to a much higher transmitter tower location at a better location in the area.

On balance, the decision with respect these radio issues boil down to this (if you choose to consolidate):

1. Is it your intent to operate radio talk paths via which you expect to provide coverage both in and out over the entire jurisdiction area? *(This would mean the ability to support 2 city area wide "all police agency dispatch channels" for Franklinton and Bogalusa, and the assumption that the other channels would also need to cover the whole Parish area since their use would also not be geographically limited).*

2. Or, would you be satisfied with talk paths (channels) that exist today where each of the cities and the Parish has a channel(s) which works pretty well in its area but not outside its area too far.

3. If the answer to #1 is YES, then you need to consider VHF tower/base re-location upgrades and relocations.

4. If the answer to #2 is YES, then implementing relatively inexpensive RF control from dispatch consoles to the current repeater sites would work, but the issues related to lots of discrete police channels perhaps requiring additional police dispatchers (over and above what the total workload would dictate) becomes an issue.

Building your own trunked radio system: As it relates to the possibility of implementing or subscribing to a trunked radio system, either of these can be a major expense. In the case of implementing your own system, it can be assumed that the only available frequency in which a trunked system could be installed would be the 800 MHz band. (See the appendix at the conclusion of this report for a complete description of trunked radio.) Further, while the design and cost estimating of such a system is not a part of this report, it should be assumed that building such a system "from the ground up" would cost in excess of $2,000,000, plus the cost (at between $1,0000 and $3,000 each) of all of the portable and mobile radios that would operate on said system.

As it relates to what radio systems the NEW PSAP consoles will be controlling, that question is somewhat open. On the one hand, the existing individual VHF police radio systems operated by the PSAP's are capable of providing communications service to a jurisdiction the size of each entity itself for a significant period of time (if they are upgraded with newer equipment, reliability support systems- generators). Marrying these three independent radio systems into one unified police radio system for the entire Parish would be possible, if enough financial resources are available to purchase new and/or additional repeater stations and satellite receivers as required, and to do some tower work. In fact, with the licenses and equipment resources in place in the agencies today, and the mentioned additional new equipment, the end product would be a

relatively robust system offering several repeated VHF police channels, with possible satellite receivers and multiple repeater locations for maximum coverage. ***This is all subject to some final system design work. This is an analysis document only; further design activities would be part of a separate contract for those services.***

On the other hand, while the existing VHF conventional radio systems are relatively functional and could be improved, they are not totally protected with support systems (generators, etc.) and do not offer the features, benefits, and radio signal coverage (Parish wide) of a "trunked radio system".

While the specific engineering work for designing how and via what pathways communications control console equipment could interface with existing field transmitters and receivers is beyond the scope of this current work. If requested, GeoComm would be happy to provide a follow-on proposal for that level of detailed design engineering should the Parish choose to move towards consolidation along any of these scenarios. GeoComm has complete radio system design and engineering staff on board.

A final consideration relating to radio is this: As time goes forward over the next 5-10 years, probably all the mobile and portable radio equipment in the Parish will be replaced. When it is replaced, a lot of money will be spent buying new versions of a technology that is 60 years old. Eventually, the Parish will want or need to (federal mandate??) upgrade to a new technology platform such as digital APCO P25. Any money spent in the next few years buying more old technology is money that could have been better spent towards implementing a new and far superior technology platform.

Is a new radio system required to be purchased support consolidation? (trunked or otherwise)

You have several basic choices here:

1. You could consider an 800 MHz trunked radio system. This could be either one you build, own and operate from the ground up, and (if this is your choice) it should be configured to serve all governmental users in the Parish. Or, you could consider "subscription access" (with or without some up front money being required to modify the planned coverage areas and strengths) to some entity (commercial service provider, or joint government system). All law enforcement and fire communications would be on this system. This would also entail purchasing all new mobile and portable radios that are very expensive.

2. The existing individual VHF police radio system(s) could be repositioned and somewhat modified and upgraded to create the required number of area wide talk-in and talk-out channels to permit

operations in the more efficient (and we argue, more effective) "main police dispatch channel" configuration covering all or half of the entire Parish area. The Fire radio channels would remain separate from the law enforcement channel(s). The fire channel(s) would also benefit from repositioning and modification for better wide area coverage.

3. The existing Washington Parish Sheriff radio system channel could be retained and beefed up with some additional radio sites and updated equipment. Dispatcher control could be via RF control station from the consoles to the existing repeater location and additional sites if added. This radio system would be considered the “911” channel for all Law enforcement communications. The Fire radio channels would remain separate from the law enforcement channel(s). The fire channel(s) would also benefit from repositioning and modification for better wide area coverage.

A. Ability of a base radio at the Sheriff's tower to get its output radio signal to a mobile (car or truck) radio or a hand-held portable radio, perhaps inside a building, located just about anywhere in the Parish. This is called ***"Talk out".***

B. The ability of a weaker (not more than 110 watts, compared to 200-400 watts of power at the base station) mobile or portable radio served by a far less efficient antenna mounted between 3 feet and 6 feet above the ground to get its radio signal back to the tower behind the Sheriff's office. This is called ***"Talk-in".***

For TALK OUT to be adequate, the base transmitter must be powerful enough, it must be feeding its signal to an efficient antenna on a tower that is tall enough, and the tower on which that antenna is mounted must be located at a place in the Parish which has a high enough elevation to give the antenna on the tower the chance to have the radio signal get to all parts of the Parish. And all that only works towards getting the signal FROM the dispatcher or the repeater TO the field radios.

For TALK IN to be adequate, it is not generally possible to reply on having field radios that are POWERFUL enough to do it all by themselves. Nor is it reasonable to expect them to have antennas that are HIGH ENOUGH to do it all by themselves. Therefore, a common approach to improving "TALK IN" is to install "remote listening posts" at various places throughout the Parish to pick up the relatively weaker in-bound radio signals from mobiles and portables and then send them on to the main receiver(s) back at the tower. These remote listening posts are called (in radio parlance) SATELLITE RECEIVERS. In a Parish like Washington, one might install such satellite receivers on the Sheriff and fire channels in several places. Then, with the main tower at the new PSAP having these extra “ears” in the more remote areas of the Parish a much wider of coverage is created.

Then, whenever anyone talks on a field radio using, for example, the FIRE channel, their radio signal is received in varying degrees of strength and clarity at, several receiver sites. Each of these receiving sites sends what it hears back to the PSAP over microwave, leased phone lines or a low power directional radio channel where it is analyzed by a device called a "signal comparator". This comparator then selects which site has the best-received audio signal and sends that on to the dispatcher's loudspeaker as well as to the repeater (if it is a repeated radio channel) for re-broadcasting out.

Consoles:

Consoles would really be needed for a new PSAP to function properly. The control station technique works well for small operations, back up dispatch locations, and emergency field command posts.

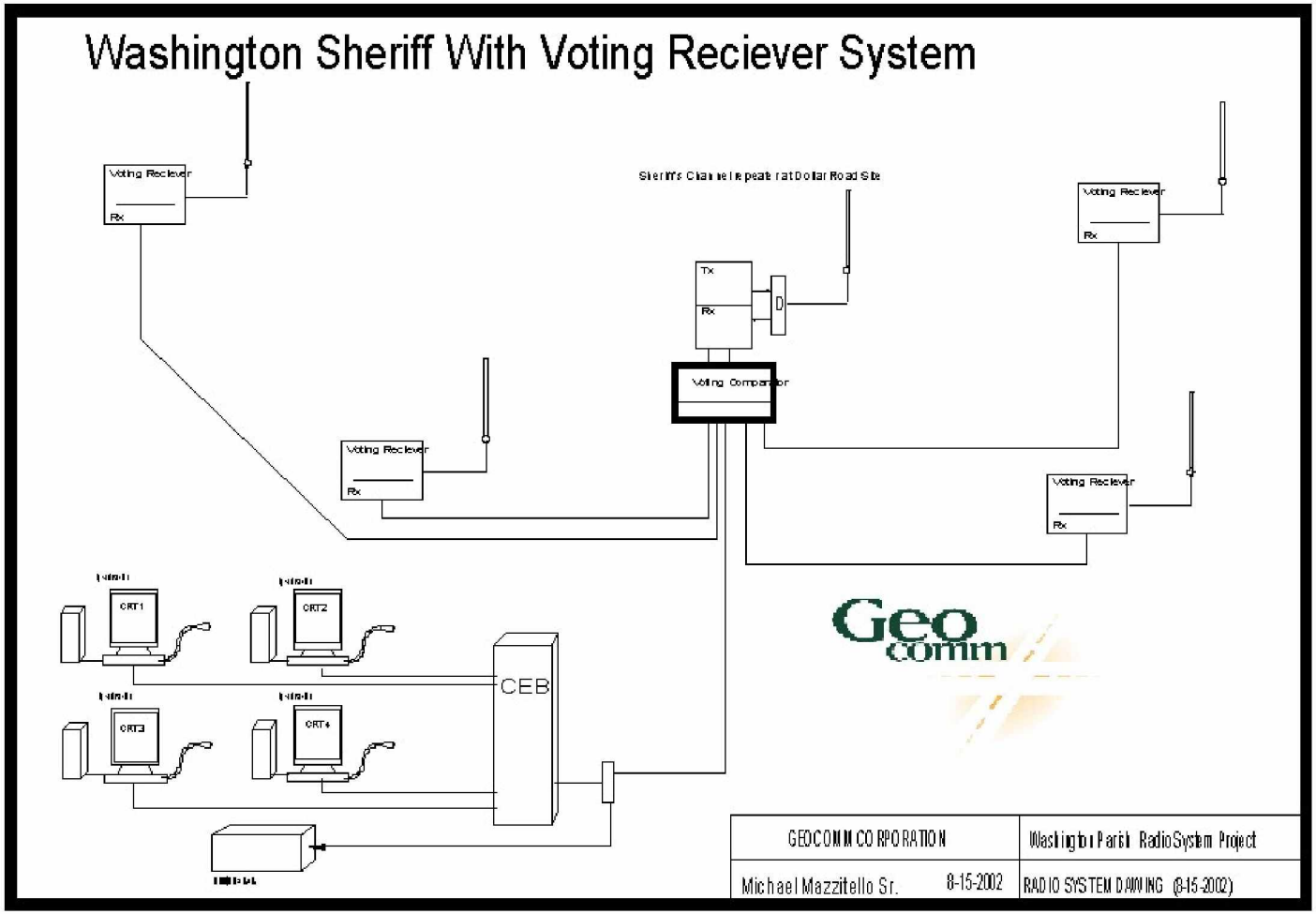
In the main dispatch the dispatchers will require solid control of the radio stations. Only a true radio dispatch console can provide the ergonomic friendly easy selection and operation of the various radio channels on which they will perform their work.

Each dispatch position should be a duplicate of the others. This will allow access of the various radio channels by all members of the dispatch staff to support each other during busy radio traffic situations.

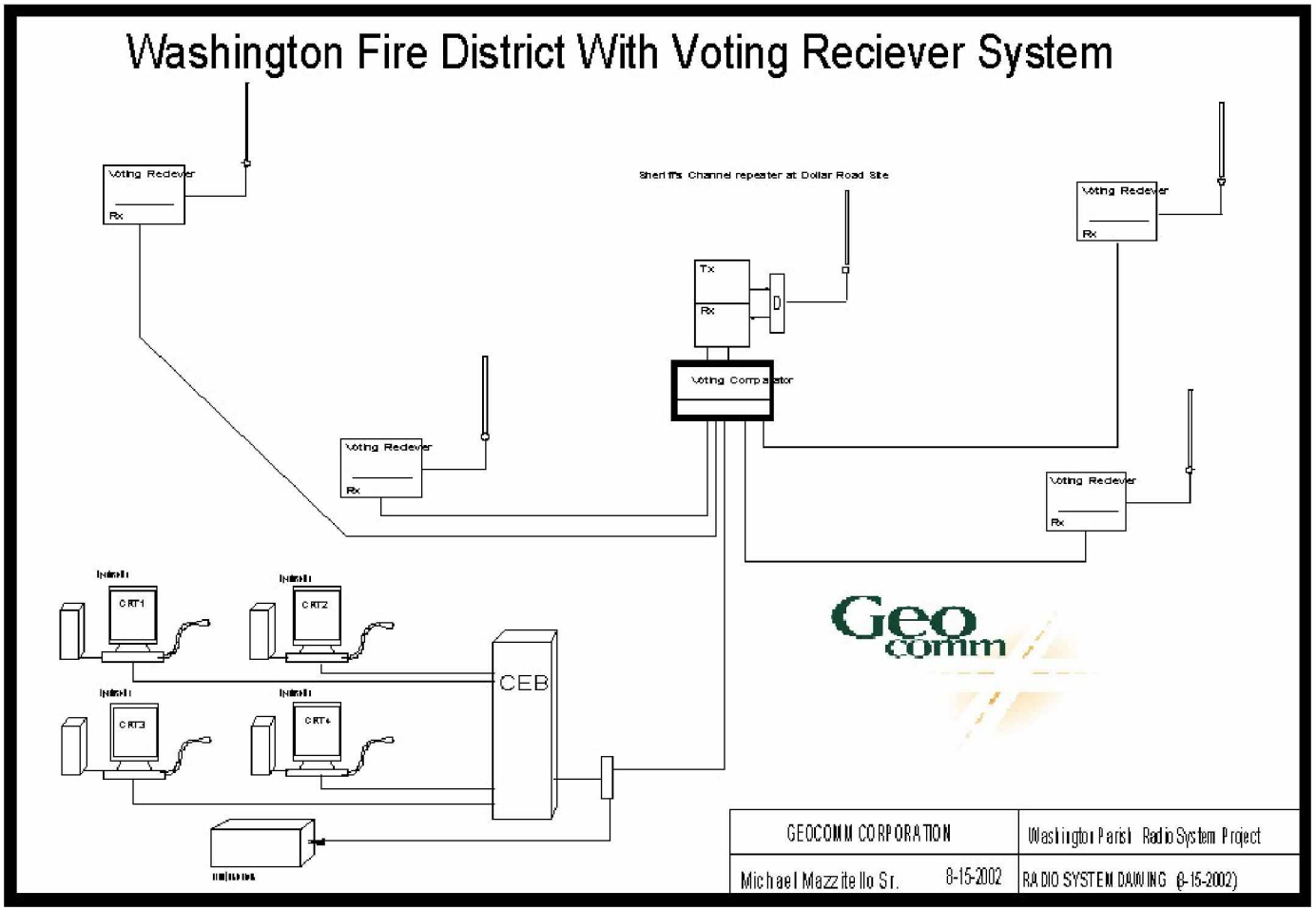
Multiple operator position electronics supports redundancy for hardware. In the event that a radio workstation does fail, the operator can move to another work station and continue working the system.

To minimize the size of the console workstation the current dispatch hardware of choice has turned out to be the “CRT” or computer type of console. It offers minimized space requirements on the desktop, is easy to reconfigure, as changes to the system are required. It is now real competitive in cost with the more familiar “button and light” console that has been the traditional hardware configuration. The days of the button-based console are limited as the manufacturers of radio equipment move into the PC console mode.

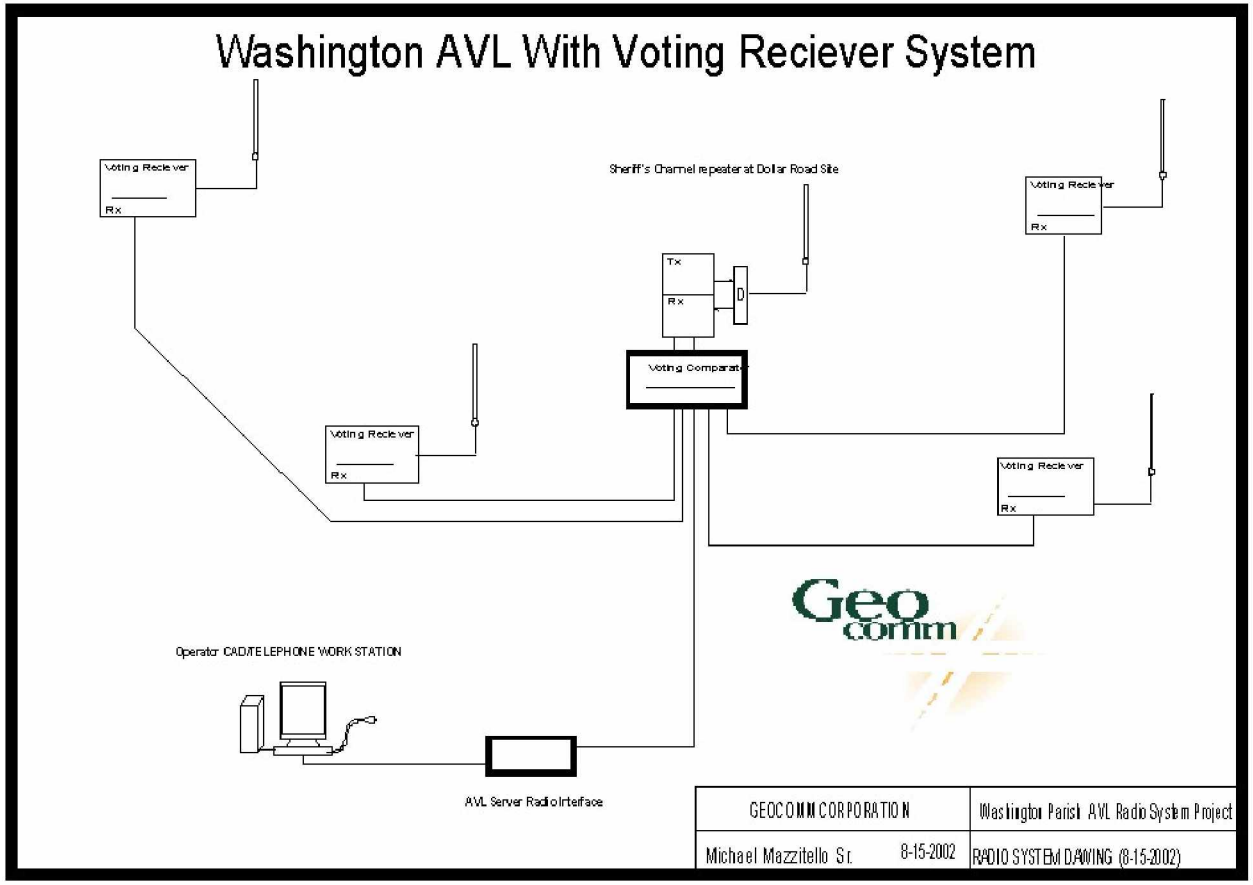
The following diagrams are provided to demonstrate in a visual manner the concepts of locating wide area “voting receivers” in the Parish to pick up radio signals from the mobiles and especially portables and feed them back into the respective radio systems. Several radio systems are depicted to show the similarity of the technique across the radio resources for the Parish. These are examples of solutions and are not necessarily the final configuration of a system design.



The above diagram shows a general layout of the possible existing Sheriff's radio system using a centrally located repeater station, with remotely located "voting receivers" strategically located in corners of the Parish. The communications circuits connecting the remote sites to the centrally located repeater station probably located at a new tower at the Dollar road tower and connect to terminations at a dispatch console.

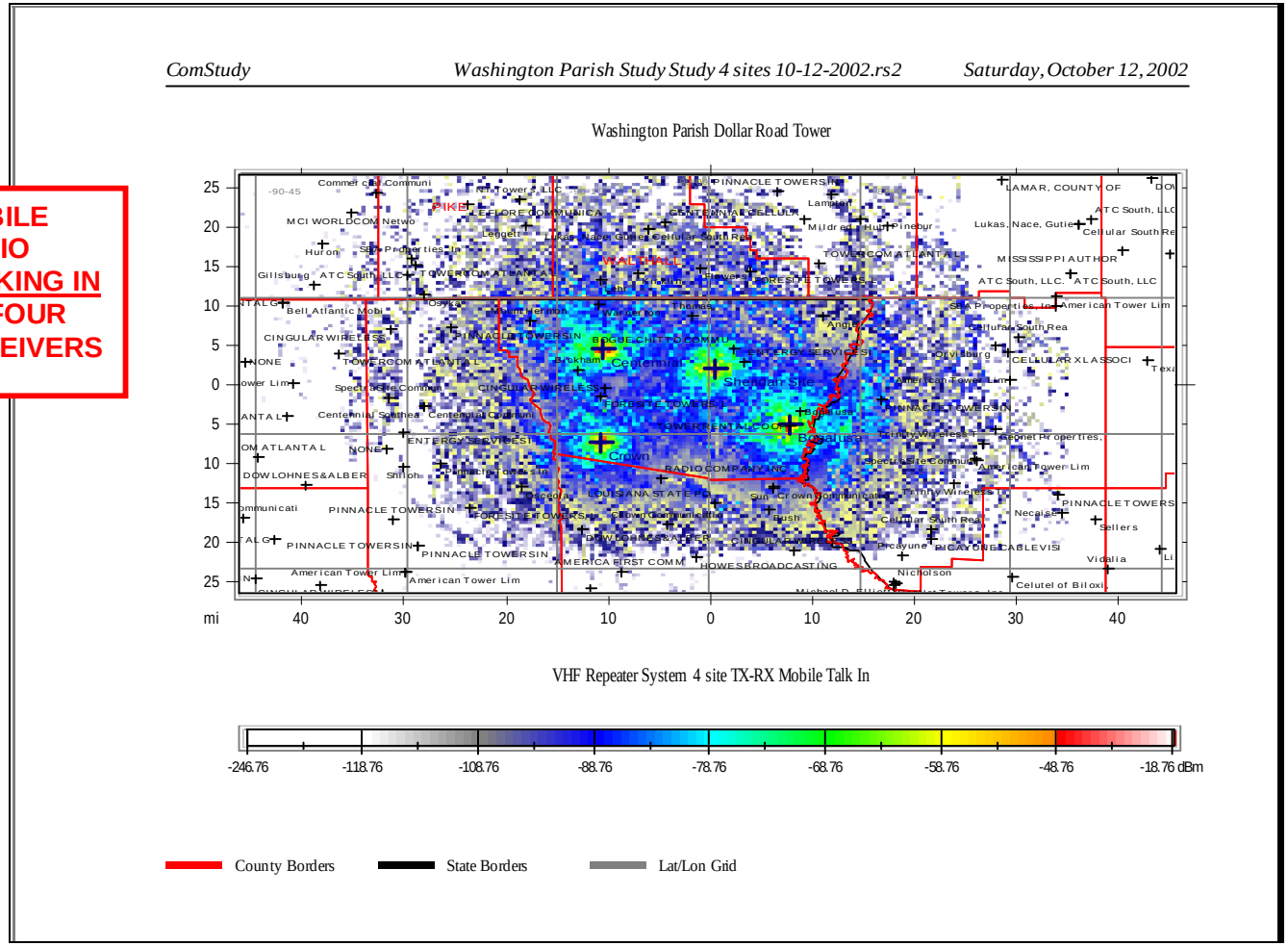


The above diagram shows a general layout of the possible existing Parish Fire radio system using a centrally located repeater station, with remotely located “voting receivers” strategically located in corners of the Parish.
The communications circuits connecting the remote sites to the centrally located repeater station probably located at a new tower at the Dollar road tower and connect to terminations at a dispatch console.



The above diagram shows a general layout of the ***potential*** Parish AVL (Automatic Vehicle Locating) radio system using a centrally located repeater station, with remotely located "voting receivers" strategically located in corners of the Parish. The communications circuits connecting the remote sites to the centrally located repeater station probably located at a new tower at the Dollar road tower and connect to terminations at a AVL Tracking work station console.

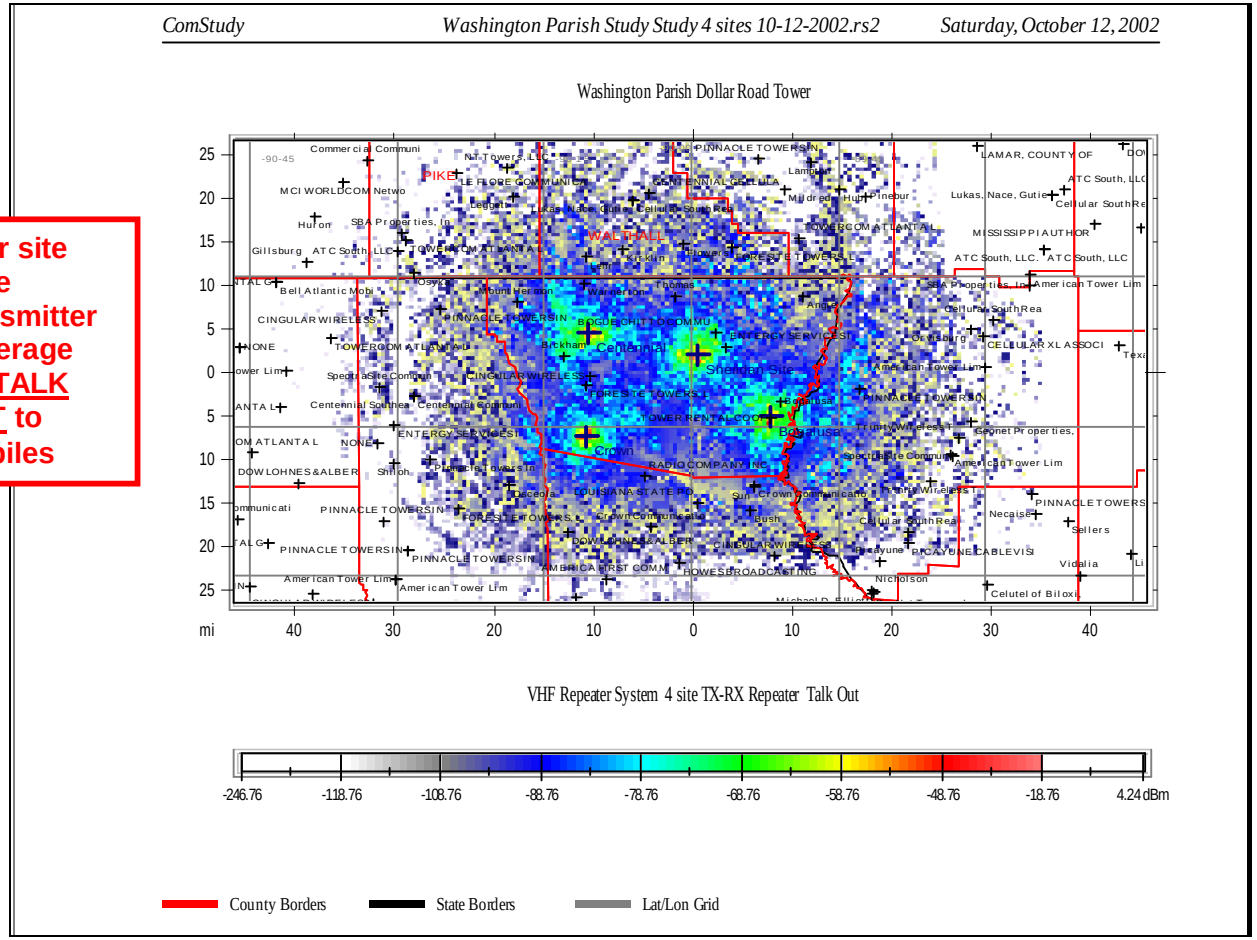
MOBILE RADIO TALKING IN TO FOUR RECEIVERS



RED to GREEN are good, BLUE is less good, GRAY is marginal

The above is a propagation study done with the assumptions of receivers in repeater stations each on a different tower, the antenna at or near the top of the tower. This picture depicts what can be expected to be the area of 95% radio coverage reliability for reception by the repeater receiver itself. This concept is applicable to the concept of having full fledged repeaters at each site, each equipped with a receiver and companion transmitter.

Four site base transmitter coverage for <u>TALK OUT</u> to mobiles



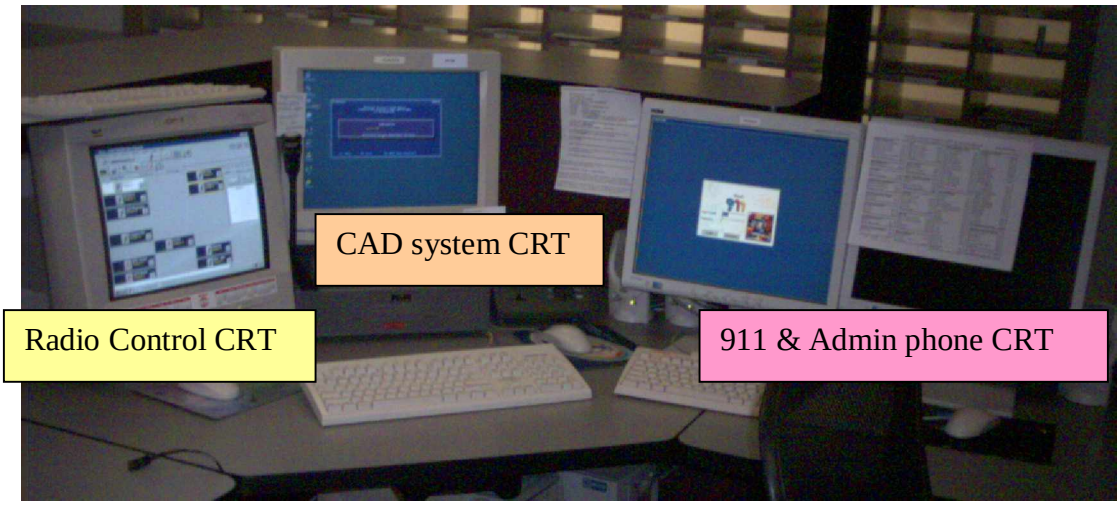
RED to GREEN are good, BLUE is less good, GRAY is marginal

This is a study done with the assumptions of 100 watt base transmitters, <u>each on a different tower</u>. Each site is equipped with a repeater and an antenna at or near the top of the tower. This picture depicts what can be expected to be the area of 95% radio coverage reliability for reception by the mobile radio, listening to the base transmitter. This concept is applicable to the concept of having full fledged repeaters at each site, each equipped with a receiver and companion transmitter. What is provided here is the presentation of all of the sites in the computer study tentatively selected for their use in a proposed system solution. It can be looked at as the combination of the "blanket coverage" for individual sites combining their contributions to cover the service area. ***Each site could be an individual location in a "manual site selected system" or as the overall coverage of these sites working in a simulcast system.***

4.9 Budgetary Estimate for radio equipment and vendor services:

Radio Console Positions:

As was established earlier, none of the PSAPs in the parish today have true "radio console" positions. Instead, they are using desk-top RF control stations. Today's fairly common "CRT based" radio/CAD and 911 workstation looks like this:



We are recommending that your radio consoles be the CRT type of radio dispatch console depicted above. These units come networked with main control electronics in the "back room" in a configuration known as a "CEB" (Central Electronics Bank). If one wants one such radio control workstation, one buys the back room CEB and then one PC workstation (as above). If one wants more than one such workstation, one still buys the back room CEB cabinet, but then buys how ever many CRT/PC workstations one needs. The CRT console costs are approximately $75,000 for the 1st workstation (which also purchases the back room CEB, and then about $25-40,000 for each position beyond the 1st. Each position must be a stand alone PC, not part of any current or future computer LAN. The critical software on board these work stations is not suitable for sharing PC work stations. We recommend a 19 inch CRT as well.

Earlier we discussed the potential of staffing the WPCC (on day one) with a normal complement of 5 persons, at each of 5 workstations. Assuming 5 console positions, therefore, we see a cost of about $175,000 - $235,000 for radio control workstations, installed

The new dispatch console at Washington Parish would have a channel card and corresponding icon on the dispatch console screen for each radio channel. This would be duplicated on each of the consoles in the Washington Parish Dispatch

office. This offers some redundancy and dispatch flexibility to handle elevated levels of radio traffic.

Another, less expensive type of console is what is called the “Button and Light” console. An example of one of these devices is below: (This sits at the console position instead of a CRT for the radio system, but it is still connected to a CEB in the “back room”)

Furniture for console positions:

Furniture estimate based on previous budgetary numbers provided by Watson furniture. This is the specialized furniture pictured above on and in which the equipment is stored.

Work positions set up for 3 CRT’s, with CPU storage space, movable work surface. Price is for installed product.

$16,000 per operator position. Assume about $65,000 for five, given large order discounts.

Dollar Road radio tower:

A new radio tower is recommended.

The existing tower has no history with anyone in the Parish. Thus, there is a great unknown as to its integrity to support the present system much less any other new equipment and installation labor activity. It is IMPERATIVE that if this

tower is to be seriously considered for continued use that a comprehensive structure analysis be performed on the structure.

Professional services of a structural engineer:	$5000
Soil test survey	$2500

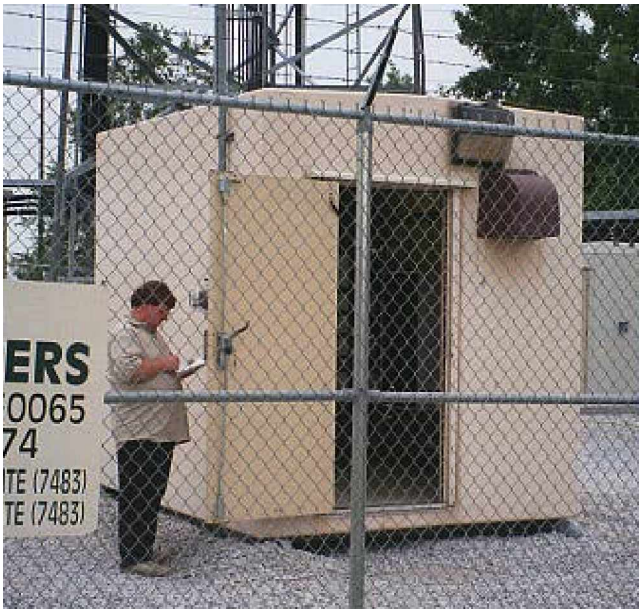
If the existing tower cannot support the needed quantity of antennas and meet the current code for radio tower structures then the decision will have to be made on whether to upgrade the existing tower (if possible/economically justifiable) or replace it with a new modern structure.

Estimate for a new tower to replace the existing tower would be as follows:

New guyed 330 foot tower	$ 100,000
Installation of new tower	$ 30,000

<u>Dollar Road radio equipment building:</u>

To properly support any critical radio equipment at the Dollar road tower site will require a new building. A radio building should be of solid construction sufficient to survive strong weather events as well as the degrading effects that normal weather environments common to the area.



Typical Pre-fab radio equipment shelter

A proper building should be able to house the radio equipment as well as the critical support systems for the site. This would include the tower light controls, back up generator, cooling and heating equipment.

Expect to spend in the area of $25,000 for a prefabricated building equipped with heat and air conditioning equipment. Add to this $9000 for a generator and transfer switch with enough capacity for the Parish radio equipment. This size of generator would have enough capacity for support of at least some air conditioning/heating capacity and tower lights. Careful planning of the back up resource could result in the added benefit of supporting "tenant" radio equipment at the site, making for some attractive rental income.

Building:	$ 25,000
Installation:	$ 9,000
Generator:	$ 12,000
Total	**$ 46,000**

Radio Base Stations:

Purchase new Radio base stations for the following channels:

- Washington Parish Sheriff main Repeater Station(s)
- Washington Parish Fire main Repeater Station(s)
- Washington Parish OEP Repeater Station(s)

(These channels could be simulcast, please see added spread sheet with this pricing estimate, Appendix C)

The following stations are not "system" radio stations; rather they are for PSAP use on specialized channels. These stations would be located at the new PSAP, and operated on the existing tower, or new tower. There may be additional channels desired to have in the PSAP that have not been discussed previous to this budgetary estimate. If additional channels are desired (such as control stations to talk into trunked systems in the New Orleans area for example) they would be additional cost items.

• State Fire Net F1/ Law Mutual Aid F2	$ 18,000
• Washington Parish Ambulance F1/Point to Point F2	$ 18,000
• Control Station for Bogalusa PD system	$ 13,000
• Control Station for Franklinton PD system	$ 13.000
• NOAA receive only	$ 1,200
Subtotal	$ 63,200

These estimated costs generally include the cost of the repeater/base station, quality coaxial cable, gain base station antenna, installation of the station, antenna, line, and other parts necessary for the completion of the install. The recommendations made here are for the typical type of equipment suitable for PSAP critical communications and are based on the Motorola MTR 2 frequency base station/repeater. These prices have been determined to be typical, and are a pretty good figure for a 100 watt, 2 frequency base station/repeater. These

stations are superior to using simple “mobile radios in a rack”, as they are more rugged, and their receivers are more robust. Good strong selective receivers are required when operating them in conjunction with other stations at the same site, as we are recommending for the new PSAP site.

NOTE: The above list of channels is not a final and definitive list of needed radio channels. It is based on the need to suitably equip the NEW PSAP for Washington Parish.

The type of base stations recommended here are to replace existing type of equipment, on the currently licensed channels. The stations are analog conventional band width. Stations produced currently would be ABLE to go to the narrow band channels the FCC has created. NOT included here are any wide area coverage technology solutions such as satellite receivers and comparators. While they are not included in this pricing estimate they would offer a higher level of radio coverage for the field units.

Calculations have been done to analyze the potential costs for a two site simulcast radio communications system for the Law enforcement, Parish Fire, and Emergency Government. It should be understood that vendors will propose what THEY believe to be the system configuration that THEY will guarantee. Thus the number of sites for a simulcast system will be determined by a vendors engineering group. Any suggestions here for the number of sites for a simulcast system are based on a number of assumptions and calculations done out side of any vendors that may propose a solution. For example, a vendor may recommend or only participate if they can deploy the technology as a three site system, four site system, etc. In the previous sections of this report four sites are indicated to cover the Parish. Previous experience with vendors and their solutions for wide area coverage has shown that simulcast operations could end up with less sites than a “manual multi site non simulcast” solution.

Estimated total system costs summary:

Console Positions	5 positions:	$200,000
Work Station Furniture	5 positions:	$ 65,000
Dollar Road Tower analysis, soil boring		$ 7,500
Dollar Road Tower and building		$130,000
New repeaters/base stations/control stations		$ 63,200
Subtotal for above equipment		***$465,700***

4.10 Radio System Technical Review (trends in Public Safety Radio Systems)

Several major changes in public safety radio system technology have evolved over the past several years, as the industry has worked to find solutions to the ever-increasing needs of the public safety community. This increased need has caused, among other things, a shortage of radio frequencies upon which a system can be built and operated. The FCC has worked along with the industry to develop new technical standards which, when combined with the new equipment being manufactured, will provide enhanced reliability and expanded operational capabilities.

The most important of these trends are the following:

- ***Digital modulation (APCO 25)***
- ***Trunked radio systems***

For the record, Washington Parish currently has implemented neither of these capabilities.

So what are these trends, what are the issues behind them, and how do they affect Washington Parish?

4.10.1 Digital modulation: As noted earlier in this report, Washington Parish (and almost all other public safety agencies within the State of Louisiana) currently operates analog radio systems and equipment. The term analog describes a basic method of modulating a radio signal so that intelligence (usually voice) can be carried over it and heard on a receiving radio. These are the systems that have been used for the past 50 years, essentially from the beginning of two-way radio networks.

While these systems have proved to provide good service over the years, the industry came to realize that using analog technology could not continue without limiting future capabilities. Analog systems have inherent limitations, such as the amount of background noise that a radio users hears when moving farther away from the main tower or transmitter site(s). Analog systems also do not provide much in terms of signaling capability, such as unit identification.

Perhaps the best analogy to help understand the need and desire for moving to digital modulation systems can be found in the cellular telephone world. Most cellular phone users today can identify with the difference between analog and digital. All cellular telephones in use up until a couple of years ago were analog, and phone users became quite used to the static that was often heard when trying to talk with someone over the phone.

Digital modulation (cont): In response to this problem, the cellular industry developed new technical standards for digital telephones, and all cellular telephones sold today now are designed for digital operation (along with some analog capability). The result of this change has been dramatic; we suspect all cellular phone users have experienced the difference between these two types of phones, and the difference in clarity is tremendous.

Another issue that is addressed in digital modulation technology is the need for increased radio channel capacity. Cellular providers have access to a limited number of radio channels, and since their ability to carry telephone traffic is a determining factor in their ability to generate revenue, they needed a method to handle more telephone calls on the radio frequencies. This resulted in a technique called "multiplexing", which is now very common. A single radio channel (in the cellular world) can now carry up to 4 telephone calls at the same time.

A similar situation exists for public safety, in that the industry has recognized the need for a movement away from analog, and into the digital modulation techniques. However, since the needs of public safety are somewhat different than cellular telephone users, a different set of industry standards were needed. From this activity, a new set of digital modulation standards for public safety radios were developed.

This standard is known as **APCO 25** (or **Astro 25,** in Motorola trade name terms). APCO 25 technology has become the industry standard for digital modulation in public safety radio systems. The primary purpose of this new technology is to bring the same clarity of voice communications – and reduction of interference – to public safety radio systems. In a digital system, the clarity of the voice communications is consistent throughout the radio system's coverage area, as opposed to analog systems, where the signals became noisier and harder to understand when moving further away from the main tower (transmitter) sites.

It is important to understand, however, that changing from an analog system to a digital system does not necessarily increase the overall range of the system, as this is still determined by the basic radio system technical components as described earlier in this report (location of towers, radio frequency being used, and transmitter power, etc). However, the important point is that the effective coverage of the radio system is increased out to the limits of the coverage area.

Another important issue that is addressed by the new digital modulation standards is a replacement for the now-obsolete Motorola DVP scrambling feature as described in section C of this report. The original DVP system was developed over 20 years ago, and provided users of the system a very secure method of communications. *A major drawback to this system was that radio range was reduced almost in half when it was being used!* This was due to the analog modulation techniques that were available years ago.

The new APCO 25 standard, as it is digital, is inherently "scrambled", and cannot be heard on lower priced consumer level scanner receivers. However, a few scanner manufacturers have indicated that they intend to begin building scanners capable of receiving the APCO 25 digital transmissions. This is understandable, as the APCO 25 digital standard is meant to be an "Open Architecture" whereby multiple manufacturers will build radio equipment that can be used on a radio system.

The benefit to this new technology is that true "scrambling" capability can be added to an APCO 25 radio system through the addition of a software program in the future as desired or needed. *However, one of the key advantages to this new technology is that the radio system range is not reduced when in the scrambled mode of operation.*

The other primary issue that must be considered when switching from an analog system to a digital system is that all existing radio system equipment must be replaced…analog radios will not work on a digital system. This, of course, can be an expensive proposition.

4.10.2: Trunked and 800 MHz Radio Systems: As stated, Washington Parish's public safety radio system operates on VHF (150 MHz) radio frequency channels, which is very common throughout the United States. Prior to discussing changes and improvements to Washington Parish's radio communications network, one issue that should be discussed is whether to remain operating on the existing VHF (150 Mhz) radio frequencies, or to consider "moving" radio operations to a different radio spectrum such as 800 Mhz.

Trunked radio systems (most of which operate at 800 MHZ, but a few are now being introduced at 155 MHz) have become a "hot" topic in many areas of the country, and Louisiana is no exception. As the use of and demands placed upon public safety radio systems have continued to expand, finding new radio channels to operate these systems has become a real problem, as the radio spectrum is a limited resource.

This is especially true in the more populated areas where there is greater need. In response to this problem, many of the large metropolitan areas have abandoned the VHF radio channels and moved to a newer type of radio system referred to as "800 KHz Trunking". These systems utilize much higher (spectrum) of radio frequencies, and usually connect a number of radio channels together (via computer-type controller) to be shared by a large number of radio system users.

The Minneapolis – St. Paul, MN metro area is a good example of this type of system, and their current project to implement such a system for the 9-county metro area has made a substantial amount of press over the past several years. In the metro area, there are numerous state, county and local agencies that have been using a wide variety of VHF, UHF, and 800 MHz radio systems for their public

safety communications operations for many years. These systems have very limited “interoperability”, which prevented many of the agencies from communicating with each other when Mutual Aid or other events required this capability.

The 800 MHz Trunked system provides a common radio network infrastructure that all agencies (who choose to “subscribe”) can use, in conjunction with total interoperations capability. This system, as is currently being installed, will provide radio coverage throughout the 9- County metro area.

It is also possible for a city or Parish to “build” their own 800 MHz Trunked radio system. This has been done in many areas (Kansas City, Missouri and Douglas County /Omaha, Nebraska are a couple in the Midwest), and many others throughout the country. This is usually a very expensive activity, however. Douglas County/Omaha, for example, is spending approximately $21 million dollars to implement a digital 800 MHz Trunked system (which includes the purchase of all new radios for the agencies that will use the new system) including about 2,300 end user radios.

Should Washington Parish consider abandoning their existing VHF radio system and moving to a new 800 MHz Trunked radio system?

From a strictly technical engineering position, 800 MHz radio signals do not have the same inherent range as VHF or other lower-frequency signals. While VHF signals are considered to be line-of-sight, they do provide some additional coverage over hills and other areas of irregular terrain. 800 MHz is completely line-of-sight, and does not “carry” as far, even over flat terrain, as VHF. Because of this, for a predetermined geographical area requiring a certain level of radio coverage, to achieve the same level of coverage at 800 MHz as at VHF, a greater number of repeaters and tower sites are required. This, of course, translates into greater cost for the radio system.

Adding to this concern is a condition that particularly affects 800 MHz radio systems, more so than VHF or UHF systems, often referred to as “path loss”. This term refers to a condition whereby radio signals are diminished as they travel over and through heavily wooded areas…such as Washington Parish. While this affects all types of radio signals, it is especially prevalent at 800 MHz. If an 800 MHz system were to be implemented in Washington Parish, additional funding would have to be spent on extra towers (and repeaters) to counteract this problem.

A final issue is that 800 MHz Trunked radio systems do not support “tone and voice” type of emergency paging that is usually used for fire paging. This function would most likely remain on VHF, and this is in fact what is being in many places where an 800 MHz trunked system is being implemented.

The “bottom line” in all of this is that it is our understanding that Washington Parish generally desires to maintain operating public safety communications on their existing VHF radio channels, while improving the overall system reliability and coverage through strategic equipment replacement and system design changes.

We endorse that position, with the belief that wholesale improvements to the Parish's VHF radio system equipment will provide the level of reliable radio communications coverage required by Washington Parish and the agencies served through its system.

Section 4.11 : Other Radio System Technology Issues

In addition to the digital modulation and 800 Trunked system topics, there are other radio system technology issues that are applicable to Washington Parish and should be reviewed and considered for implementation. These issues are common technology solutions that have been used by many public safety agencies to resolve system coverage problems and improve overall wide area system coverage and reliability. Please refer to the color coverage map plots depicting the overall wide area coverage offered by these scenarios. These system technologies are:

- **Remote "Voting" receivers**
- **Multiple Transmitter Sites and Simulcast transmission**
- **Tower Site interconnection**
- **In House Alpha Numeric Paging for Fire Dispatch Back Up**
- **AVL (Automatic Vehicle Location)**
- **ARES / RACES**

A brief review of each is provided below.

1. **Remote (Satellite) "Voting" receivers**: In a public safety radio system, it is often difficult for handheld portable radios to transmit a signal that is strong enough to reach back to the main repeater site and be heard by dispatch and other units. This is due to the relatively low transmitter power generated by portable radios, which are usually rated at 5 watts or less. This is in comparison to mobile (vehicle-mounted) radios, which are typically rated at 50 or 100 watts of power, and are equal to the amount of signal transmitted OUT TO the portable radio by the base station or repeater.

   An example of this problem would be a patrol officer making a traffic stop at a location some distance away from the main Parish tower site, perhaps 20 miles away. The officer would typically call in to the dispatcher advising about the stop by using his/her car radio (with no problem), and the dispatcher would acknowledge the call. Once the officer is out of the car, if any sort of problem were to develop, the officer would try to use his/her portable radio to summon additional help. Unfortunately, the 20 miles of distance between officer's location and the tower site is too far for the portable radio's signal to reach, and the officer's call for help would go unheard. The common solution to this problem is to install remote "voting" receivers for the primary radio channels throughout the Parish. These receivers would be placed at strategic locations so that an officer using a portable radio would never be more than 10 to 15 miles away from a tower site. Of course, with a Parish

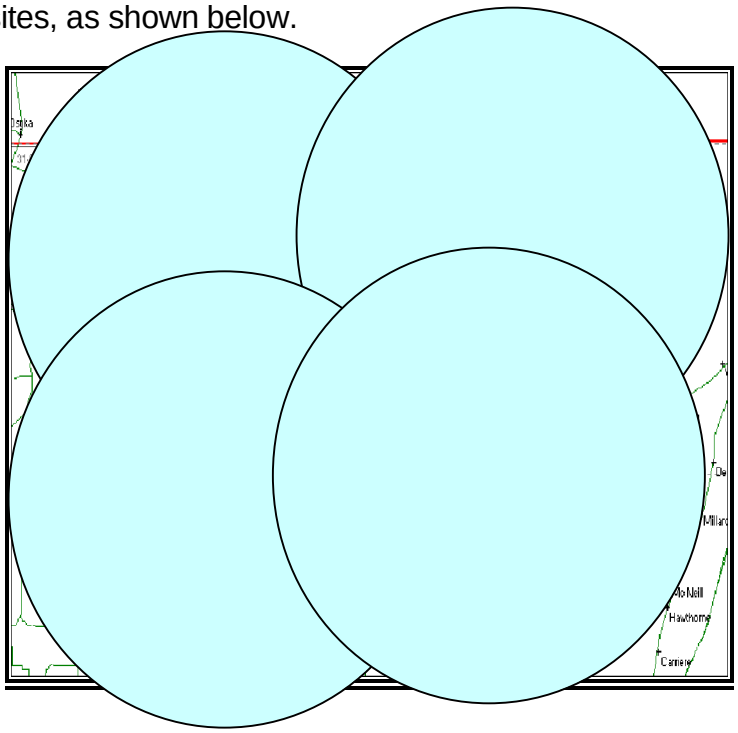
as large as Washington, this could potentially be an expensive solution. Nonetheless, it is one of the ONLY solutions for this particular problem.

These remote receivers would all be interconnected (linked) by special radio equipment back to the main repeater site(s), and provide a tremendous increase in the coverage of the radio system. Please note that separate groups of receivers would be required for each Parish radio channel that needed this enhancement. One possible consideration would be to add remote receivers for the following radio channels:

- Sheriff's Channel
- Emergency Government Channel
- Parish Wide Fire Channel

This is often recommended as a solution to overcome system coverage problems for the talk in radio path. This type of solution does require a reliable communications circuit for the remote receiver to PSAP connection. The audio collected by the remote receiver must be returned to the central location where the "comparator" or signal measuring device for processing and distribution to the dispatch console and returned out to the repeaters for re-broadcast to the field radio users.

Creating this communications link is some times as simple as a leased communications circuit from the local telephone company, or a dedicated microwave radio channel purchased, installed, and maintained solely for the use of this purpose. A total of 4 receiver sites are shown in the diagram on this page. While some may be argued that this number of tower sites is more than what is needed, remember that the system is required to cover a large area. This is based on engineering evaluations, and a simple estimate created by drawing circles around each of the proposed tower sites, as shown below.



The above basic coverage diagram is an example of the portable and mobile coverage that might be obtained with 4 receiver sites strategically located around the Parish. The circles represent the estimated area of coverage from each tower site.

A couple of issues should be explained regarding the diagram.

- First is that not all of the circles are the same size, which is due to differences in the height of the towers and/or antennas, and type of antenna being used.

- Second is that there appear to be small areas with no coverage. This is inevitable, as no radio system can truly be designed to provide 100% coverage. A typical level of coverage that is "guaranteed" when designing a radio network is in the 95% to 97% range.

However, the radio coverage patterns actually experienced in the field from tower sites are rarely true circles (as shown), and vary with terrain, buildings, etc., such that the actual level of coverage would vary somewhat from that shown.

Another important component to this type of system is the amount of overlap between the tower site coverage patterns. This provides some amount of redundancy, and the transmissions from a portable radio will very often reach more than one site. As the receiver system is a "voting" system, it will actually measure the signal quality being heard from each site automatically select the best one being heard.

The final issue with a system such as this is the interconnection between the receiver sites…. all of the receivers must be linked back to one of the "main" sites for connection to the voting system. This issue is discussed in a later section of this report.

Remote receivers, however, will solve only "half" of the problem – *that being the ability of mobile and portable units to "talk in" to the radio system*. The ability of portable and paging units to *hear transmissions from dispatch or other units* is not improved by the installation of remote receivers because the are only receivers – not transmitters. This problem, and the technology solution(s) for it, is presented in the next section of the report.

2. **Multiple Transmitter Sites and Simulcast transmission:** As with the problem discussed in the previous section (trying to receive signals from portable radios), problems are also encountered trying to send signals "out" to portable radios and pagers, especially when used outdoors in the heavily forested areas of Washington Parish, or inside of residential and commercial buildings. Field testing of the current Washington Parish system has revealed some areas throughout the Parish where this problem exists.

The physics of radio system design that affect “receiver coverage” also apply to “transmitter coverage”, but tends to be much more complicated. This is due to the problem of interference between tower sites when more than one transmitter is “on the air” (on the same radio frequency) at the same time.

There are essentially three types of technology solutions to this problem:

- Manual (operator-assisted) transmitter site selection
- Automatic transmitter “steering”
- Simulcast transmission

Each of these solutions provides a different level of improvement to resolve the problem, with an associated level of cost and complexity. As with the need for additional receiver sites within Washington Parish, more transmitter sites are also needed to obtain a reliable level of radio coverage for public safety operations. Thus, we might as well say that each site should have transmit capability and receive ability. The issue is how many, what type of system configuration (as noted above), and where they should be located.

Our engineering work has resulted in the conclusion that a minimum of 2 sites is needed to provide adequate coverage in Washington Parish, and 3 possibly for coverage if using simulcast.

- **Manual (operator-assisted) transmitter site selection**. This method of operation is *the most complex for the radio user* (officer, firefighter, EMS personnel, etc.) as they must manually select the “tower” through which they need to communicate. Dispatch must also make this selection when initiating a transmission with a field unit. This type of operation has been used for many years by large public safety agencies and utility companies who cover a large area and need to use many sites for coverage.

  Those customers who used this type of system have generally abandoned it for the Simulcast technology when they can afford simulcast. The benefit of the “voting” receiver system is realized in such a system, however with out the automatic site voting functionality.

  This solution tends to be the least complex and least expensive from a technology point of view.

- **Automatic transmitter “steering”:** This type of system configuration automatically provides the best transmitter based on a measurement of the mobile or portable radio signal being received by the radio system. It remains complex for the dispatch center, however, in that they must manually select which tower is to be used for sending out emergency calls

or paging operations which are not done in “answer” to a recently received in-bound transmission to “steer the transmitter selection”.

This solution is more technically complex than the “manual” method listed above, as several transmitter steering controller devices must be installed to assist with management of the system. It is also more expensive than the “manual” solution. The benefit of the “voting” receiver system is realized in such a system, however with some user operation enhancement with the automatic site steering functionality.

Ø **Simulcast transmission:** This is the newest and most advanced method of transmitting coverage system design. With a Simulcast (**simul**taneous broad**cast)** system, all transmitters for a given radio channel are turned on at the same time, and essentially “blanket” the entire Parish area with coverage. This method of operation provides the best solution for a couple of reasons:

- No manual intervention is required by either dispatch or the mobile radio user; as all transmitters for a particular radio channel are activated simultaneously, a “blanket” of coverage is provided throughout the service area.
- Increased radio signal strength in overlap areas due to “additive” characteristics of radio signals. On the simulcast coverage map on an earlier page, there are many areas where the transmitted signals from the various tower sites overlap; in these areas the two signals combine in-phase and create a much stronger signal than would be received from a single tower site.
- Reception from mobiles (or talk back) is enhanced with the use of the voting technology implementation as described in the technology sections of this report.
- The use of Simulcast technology is truly the simplest method of operation for the users of the radio system. However, it is also the most complex from a technology perspective. This is due primarily to the need for all of the transmitters in the system to be exactly in-phase, and therefore requires special synchronization equipment at each transmitter site. In earlier Simulcast systems, elaborate synchronization and timing schemes were employed to keep all transmitters “aligned”, and these systems required a higher than normal amount of maintenance to ensure optimum performance. In recent years, the introduction of GPS timing systems has greatly improved the performance of Simulcast systems, and they are now generally no more maintenance-intensive than standard radio systems.
- Simulcast systems also may require more tower sites than other system options, as there is a critical engineering factor that affects the line-of-sight distance between the sites. Simulcast transmitter sites may

be no more than 18-to-20 miles between tower sites due to potential problems with the overlap zones.

- A Simulcast system is more expensive than a standard radio system due to the need for a higher-quality level of equipment and greater complexity, however many commercial utility and public safety organizations either have or are in the process of implementing Simulcast technology. Some examples of this are the new 800 Mhz public safety in Omaha, NE, and Xcel Energy (formerly Northern States Power) within the State of Minnesota.

3. **Tower Site Interconnection:** With any multi-site radio network such as that being discussed for Washington Parish, an important element of the system maybe the need for the radio equipment at all of the tower sites to be connected or "linked" together. This is needed so that all of the equipment in a multi-site system "works together", and is especially true with the Simulcast system operation. In the simplest system approach that is described in the final recommendations, special site interconnection technology is not needed. Only in the two more complex and sophisticated scenarios will require site interconnection technology considerations.

A common method used for the interconnection of tower sites is to lease dedicated telephone circuits from the local telephone company. Doing this avoids the need to invest funding in large amounts of radio "linking" equipment, and instead allows the costs to be covered in monthly billings.

This would be the most likely option for Washington Parish. Dedicated circuits from local telephone companies are generally available to the tower sites that would be considered for use for Washington Parish's expanded radio system.

If telephone circuits would prove to not be available, the Washington Parish radio system could use a radio "linking" system to connect the multiple tower sites together. This can be accomplished through a few different methods, again with varying cost implications:

- Microwave system
- 960 Mhz RF links
- 450 Mhz RF links

Of these systems, the microwave system is certainly the most expensive and complex. These systems are most often used by telephone and cellular companies due to the great bandwidth available in these frequency ranges. This type of system would probably be considered "overkill" for Washington Parish's needs and would not be recommended for this project due to cost considerations.

The second options, 960 MHz links, are the recommended solution for Washington Parish's radio system interconnection needs. These devices are often referred to as "mini-microwave" systems, as they operate in a frequency range that approaches the microwave systems, yet have much less capacity and much less cost than a true microwave system.

The third solution listed, 450 MHz links, are a limited-capability solution. The only type of radio channels available for a 450 MHz link system are narrowband, and could not be used for any type of digital system. These could only be used with an analog type of system. This solution would not be recommended for Washington Parish unless it was decided to move forward with a lower-tech radio system implementation.

4. In-house alpha numeric paging for fire dispatch back up: A relatively new technology that is gaining some considerable favor in public safety circles is "Alpha/Numeric Paging" (A/N Page) for fire responders. Typically, paging volunteer fire department responders has involved sending "paging tones" out on a radio channel to which belt-worn "tone and voice pagers" are tuned. Generally, these pagers are left in the "standby mode", meaning they do not report audio out their loudspeaker unless and until they have been "alerted" by the dispatcher sending out the proper tones (sounds like two musical notes), at which point they BEEEEEEP loudly and then the dispatcher's voice can be heard with the paging announcement. Obviously, for this to be effective, the firefighter needs to be within range of the transmitter and be in an environment where the dispatcher's voice can be heard.

With A/N Page, the dispatcher is either provided with a small keyboard dedicated to composing short text messages or the main CAD keyboard is interfaced to the A/N Page system, and a short message is sent to the display pagers reporting the nature of the information.

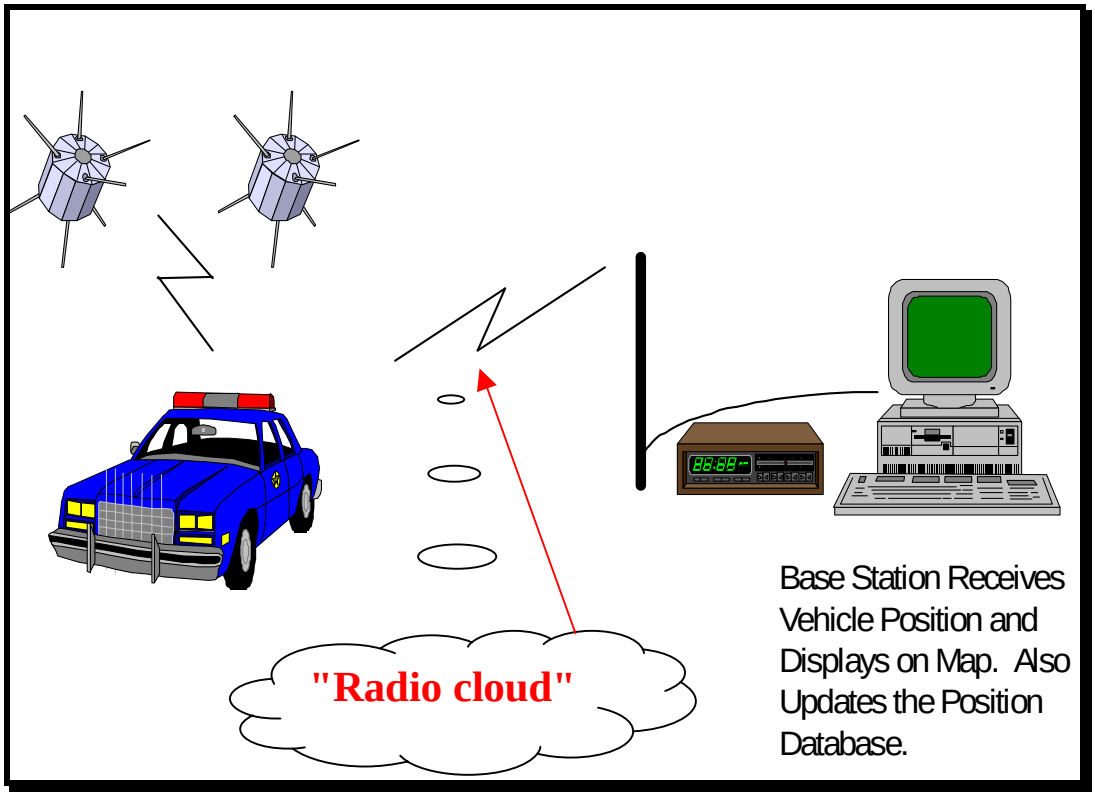
These systems can operate on either a PSAP owned and operated radio channel or they are available from commercial service providers who allow agencies to subscribe to their service. As usual, if one subscribes to a commercial service, one has to contend for access to the system with other users, whereas if one uses their own radio system, there is no similar competition.

5: Automatic Vehicle Location (AVL) is a combination of three complementary technologies:

- Global Positioning System (GPS)
- Geographic Information Systems (GIS)
- Land mobile radio systems.

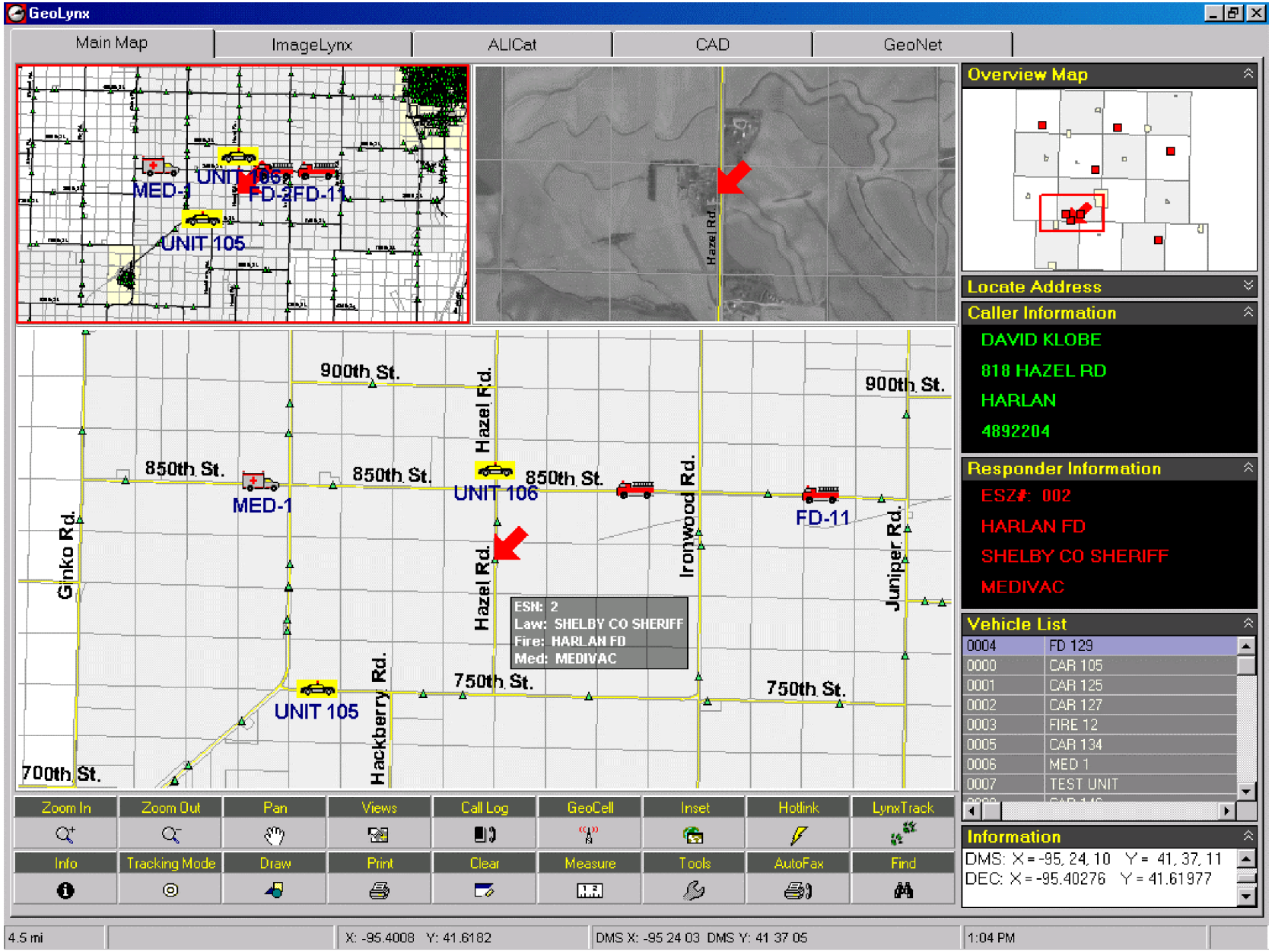
AVL has been around in several different forms for a couple of decades now. The most recent iteration uses the U.S. Department of Defense's Global Positioning System (GPS). The GPS consists of a "constellation" of satellites (more than 24) in constant orbit around the earth which constantly transmit highly accurate timing and positioning information to the earth, where GPS receivers take that data and use it to triangulate their own position and elevation on the face of the earth.

Below is a very elementary depiction of how this type of AVL system works:



The single most variable and difficult aspect of any AVL system is the "radio cloud" between the tracked vehicle and the GIS workstation at which the dispatcher will view that vehicle tracking. This is indicated by the "radio cloud" indicated in the preceding picture.

Assuming the GPS device in the vehicle collects appropriate data, and assuming said data is reported “up” to the dispatch center at the appropriate interval, then the dispatcher can effectively plot and track that vehicle’s position on a high quality GIS map at their work station, along with the location of 911 calls to which that vehicle is responding. On the following page is a depiction of a 911 operator’s GIS map showing the location of a 911 call (red arrow) and AVL tracked response units.


GeoLynx
Main Map
ImageLynx
ALICat
CAD
GeoNet
MED-1
UNIT 106
FD-2
FD-11
UNIT 105
Hazel Rd.
900th St.
850th St.
750th St.
700th St.
Ginko Rd.
Hackberry Rd.
Ironwood Rd.
Juniper Rd.
ESN: 2
Law: SHELBY CO SHERIFF
Fire: HARLAN FD
Med: MEDIVAC
Overview Map
Locate Address
Caller Information
DAVID KLOBE
818 HAZEL RD
HARLAN
4892204
Responder Information
ESZ#: 002
HARLAN FD
SHELBY CO SHERIFF
MEDIVAC
Vehicle List
0004 FD 129
0000 CAR 105
0001 CAR 125
0002 CAR 127
0003 FIRE 12
0005 CAR 134
0006 MED 1
0007 TEST UNIT
Information
DMS: X = -95, 24, 10 Y = 41, 37, 11
DEC: X = -95.40276 Y = 41.61977
Zoom In
Zoom Out
Pan
Views
Call Log
GeoCell
Inset
Hotlink
LynxTrack
Info
Tracking Mode
Draw
Print
Clear
Measure
Tools
AutoFax
Find
4.5 mi
X: -95.4008 Y: 41.6182
DMS X: -95 24 03 DMS Y: 41 37 05
1:04 PM

6. ARES / RACES

The Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Services (RACES) are components of our nation's Emergency Management and Response organizations and plans. They are staffed by highly dedicated, competent and equipped volunteer radio operators who have the ability and equipment to augment civil authorities in times of disaster. They have particularly effective long range (up to inter-continental) communications and telephone inter-connection capabilities. Often times in cases of wide spread power and telephone system outages (such as those occurring in a major hurricane or tornado) ARES/RACES units provide a critical link to the outside world.

RACES, administered by local, county and state emergency management agencies, and supported by the Federal Emergency Management Agency (FEMA) of the United States government, is a part of the Amateur Radio Service that provides radio communications for civil-preparedness purposes *only*, during periods of local, regional or national civil emergencies. These emergencies are not limited to war-related activities, but can include natural disasters such as fires, floods and earthquakes.

ARES, administered by the American Radio Relay League (ARRL), and under the direction of the ARRL appointed Emergency Coordinator (EC) for the Parish, provides emergency communication during events not severe enough to warrant a parish wide declaration by the parish's Director, Office of Emergency Preparedness.

Using the same amateur radio operators, an ARES group also enrolled as RACES can "switch hats" from ARES to RACES and RACES to ARES to meet the requirements of the situation as it develops. For example, during a "nondeclared emergency," ARES can operate under ARES, but when an emergency or disaster is officially declared by a state or federal authority, the operation can become RACES with no change in personnel.

It would be highly recommended to provide facilities and support in any new PASP facility for an ARES/RACES unit and their equipment.

4.12 Communications Summary, Options and Conclusions

The preceding pages have presented much information about current technology in the public safety radio system industry, and the benefits and disadvantages of these technologies. How much of this affects and is important to Washington Parish, and which of these solutions should be implemented by the Parish?

We believe that a combination of these elements should be incorporated into a new radio system for the Parish.

- **Implement new "Full Capability" dispatch consoles in the new PSAP**

  The latest technology will keep the PSAP work stations up to date. Button and Led consoles are becoming increasingly the minority in new dispatch facilities. CRT consoles take up less space in comparison to the button consoles. Changes and upgrades to the CRT consoles are easier and less costly. Reliance on control stations in front of dispatch personnel is no longer practical for modern dispatch centers with high call rates and larger jurisdictional areas of responsibility.

- **Implement ergonomic PSAP furniture**

  This recommendation goes hand in hand with the upgrade to the providing state of the art CRT/PC consoles The modular furniture available now clearly creates much improved ergonomic sensitive work environments for the human element of the PSAP. The configuration of the work stations can be tailored to the size and shape of the dispatch office.

- **Retain VHF frequency operations (rather than move to 800 Mhz or 450 MHz radio bands)**

  Moving to a higher frequency will not enhance radio coverage; in fact it would cause more problems than are experienced now.

- **Implement "Analog Simulcast" transmitter operations for the Sheriff's channel.**

  This system provides the most effective communications coverage improvements with the added benefit of very good officer to officer radio connection.

- **Implement "Analog Simulcast" transmitter operations for "Emergency Government Channel"**

  This system provides for much needed communications capacity during times of incidents that otherwise would choke the Sheriff's Parish wide channel, and the Parish Fire channel. Given the current state of preparedness concerns in the United States, Parish, State,, and local governments much achieve, additional resources such as this channel are recommended.

- **Retain the County Fire channel as a repeater system and change to a voting receiver operation-multiple site repeater operation**

  In order to gain coverage on the Parish Fire channel, additional repeaters are needed

- **Move the Bogalusa Fire Department to the Parish Fire Channel. Re-deploy the existing LOW BAND channel that the Bogalusa FD is on for AVL radio traffic.**

  Use of the low band channel would allow coverage of the Parish with one station. Moving of the Bogalusa FD to the Parish frequency would for good interoperation capability with the other Parish Fire Departments.

- **Erect a new tower on the site of the current radio tower at Dollar Road**

  The new radio tower would have sufficient capacity to support the immediate needs of Washington Parish as well as position the site to support additional growth to accommodate emerging wireless technologies. A structure that is built and erected to current tower technology and meeting current structure codes will provide a foundation for very reliable radio communications to the citizens of Washington Parish. It is recommended that the structure be specified to support not only the current antenna systems, but also be built to support additional appurtenances that will be required for future wireless systems (i.e. mobile data, automatic vehicle location, microwave links, and etc.) It may be possible to lease some space out to commercial enterprises, gaining some revenue to offset system maintenance costs. Included in this part of the project would be a suitable radio equipment building and adequate emergency back up power supply generation for the tower site.

Section 5 : Computerization of the PSAPs

Section 5.1 :PSAP Data Systems in general (CAD & RMS specifically):

One of the difficulties in preparing a study report such as this is to be able to capture for an audience of "non dispatchers" the subtleties and intricacies of the call taking and dispatching process, especially in a larger, multi position PSAP. As a consultant, one is often tempted to say, *"Trust us, we know of what we speak, and things ought to be such and such a way"*, but that would do the Washington Parish 911 agencies and other readers a disservice.

Unfortunately, one of the developments (over the past few years) in the "public safety data processing industry" has been the fact that the term CAD has become all too generic. CAD began life in the late 1970's as a system known as **C**omputer **A**ided **D**ispatch. It was needed (and used) back then by almost exclusively very large urban 911 dispatch centers which had hundreds of street response units to manage, thousands of events per day to assign them to and limited radio and dispatcher resources over which to do all this. The original role of CAD was to AID the dispatcher in:

i. Knowing which district or jurisdiction an event was located.
ii. Knowing which specific police, fire or EMS response unit was responsible for that specific location, and if that response unit was or was not available to be assigned to this event, and if not available, which alternate unit would be a logical choices based on that units area of responsibility.
iii. Knowing what level of response was appropriate to the specific type of incident being reported (a robbery in progress merits a greater and quicker response than a two day old report of a bike theft).
iv. Knowing what, if any, information had been entered into the CAD system's "hazard file" reporting hazardous conditions at the "respond to" address.
v. Knowing whether or not a given address was or was not valid in that jurisdiction.
vi. Determining which "Event Serial Number" would apply to this response incident, and if a report was to be generated, what CASE NUMBER should be assigned to that report for filing purposes.

To do all this, CAD systems of the 1970's and 80's required huge back room "main frame" computers and cost millions of dollars. They were also tremendously maintenance intensive, in that they did not work properly until and unless all the "tables of data" what were used to make all of the above determinations were up to date, accurate and synchronized.

Concurrent with the development of CAD was the development of “RMS” systems (Records Management Systems) which may have off shoots like Jail Management, Civil On the other hand, a Records Management System (RMS) is intended to be a computerized repository for all the information that law enforcement agencies used to file in large filing cabinets (usually under case numbers), in 3” x 5” index card files (often called “Master Name Indexes” or MNI), etc. In the old days, if one had a police “Case File Number”, they would go to the “case file cabinet” and find a file folder labeled “78012345” which would stand for the 12,345th reported incident of 1978. In that folder would be all reports, photos, etc. relevant to that case or investigation. If there were other items, (like physical evidence) stored elsewhere, they would also be filed in that “elsewhere” (property room, impound lot, etc.) under that same case file number. Any names that existed in the reports under case #78012345 would also have been culled and typed on to their own 3 x 5 MNI cards (or added to already existing MNI cards for people), now referring back to 78012345 and their relationship to that incident (victim, suspect, witness, etc.) and the nature of that incident (Robbery, 12/25/78, Victim).

An RMS system attempts to computerize and automate all this information. Via RMS, either the officer or a person typing the information into a computer terminal, generates essentially the same information as in the manual environment, but it is all filed electronically, and can be searched for or cross matched in many different ways. Ideally, a CAD system and an RMS system should be **linked** but they are NOT the same thing.

A CAD system exists to capture and use information **as perceived by the reporting party when they report it**, so as to facilitate the proper response to an incident, based on how that incident was perceived when it was reported. Consequently, a 911 caller might report a “car fire with a ton of smoke”, and the dispatcher must send a fire truck to put out that reported car fire. However, upon arrival, it was determined by the fire department that the car’s radiator hose had broken and all that “ton of smoke” was really steam escaping from under the hood of the car. So, there was no fire, and no REPORT OF A FIRE was generated by the fire department and sent to the State Fire Marshal, But there was a response to “a fire” (as perceived by the caller). There had to be a fire department there, equipped and ready to respond, and the fact that it turned out not to be a fire should not mean that it was not counted in the fire department’s “calls for service” report for the day or year. This is where that “linkage of CAD to RMS” can be valuable.

In the early days of both CAD and RMS, they were not linked. A CAD event was created and entered and the responder went to handle the event. When the responder was done handling the event, they would ask (either via radio, phone or stopping by dispatch) “for their numbers”. This meant they were asking for:

- The nature of the incident (murder, burglary, accident, fire, etc.)
- The incident’s case file number
- The incident’s call received time
- The ‘incident assigned to my unit time’

- The ‘I arrived at the incident time”
- The ‘I cleared from the incident time”

They would write all this down, and then advise the dispatcher whether or not a report would be written. (In very many cases --- especially police ---- no report is required). They would then go to their RMS terminal (or write on paper which would later be entered into the RMS system – usually by others) and put the above information into pre-formatted fields of the RMS report and then add all the details of the incident, which are not relevant to CAD.

Along came PCs and PC networks. It was now possible to have CAD and RMS become “modules” of the same vendor’s general software package, and these modules can be designed so there is a certain amount of interaction between them.

So, a dispatcher would enter and handle a CAD event, capturing certain data of interest to the dispatch and response process. Once the event’s response is complete, the CAD event is CLOSED, and the “header information” (the same info that was included above when the responder was “asking for their numbers”) can be immediately “copied” from the CAD module and sent to the RMS module where it “opens up a record” and inserts that “header info” into a record, which will then either never have anything added to it (assuming it was an incident requiring no report) or will have one to a thousand pages of added data entered over days, months or years to come.

IMPORTANT: While CAD and RMS can and often should be linked, they do not have to be of the same design or vendor. Quite simply, all that is usually required for effective linkage of CAD and RMS are:

- That CAD be configured to require the collection and entry of at least the same data elements that are required by the RMS “header data”.

- That there be an electronic communications pathway between the computer on which CAD is running (a simple RS232 will often suffice) and the computer on which RMS is running.

- That CAD know that when a record is CLOSED, it is supposed to send its “header information” out a “port” (COM 1, for example) into which there is a wired plugged that leads to RMS.

- That RMS be programmed to know that coming in to the wire plugged into its “COM 2” port will be RMS event header info, and that when received, it should take that data and populate a new RMS record as if somebody were sitting at its keyboard typing that info in.

Now, in the days of the internet, high speed modems, and high speed broad band connections (DSL or cable), the concept of linking three separate RMS computer systems in three separate agencies with a CAD system at a remote PSAP (such as is being planned for the Dollar Road site) is definitely do-able. Not only could this linkage facilitate the downloading of this CAD “header data” to a remote RMS system at a place like the Franklinton or Bogalusa PD (or the WPSO), it could also mean that live sessions on each of the three distant RMS systems could be going on at one or more of the PC workstations at the remote dispatch center.

So, what is generally being said here is the following:

1. The new consolidated PSAP should acquire its own, “tailored for multiple agency/multiple jurisdiction police-fire and EMS dispatching” CAD system.

2. Arrangements should be made to either:

    a. Interface this new CAD with the RMS systems in place in each of the three law enforcement agencies for downloads.

    b. And/or cause for sessions on the three RMS to be operating at the new PSAP using the internet as a medium and having communications between the systems follow Internet Protocols and use “IP Addresses”.

We believe it is important for a new WPCC facility to collect and manage its own activity data, and not have to rely on or have to extract from an RMS system located in one of the three agencies a data set that may not be tailored to the WPCC’s unique mission. It is only through the design and implementation of solid data collection mechanisms at the WPCC that the management of the WPCC will have the solid metric data to use to make hard decisions going forward relating to appropriate staffing and scheduling of staff. Simply put, there is inadequate hard data available today about the level of dispatcher activity or workload to justify any firm decisions about how many people ought to be on duty at a new WPCC at any time. Further, it is being proposed that the new WPCC perform functions that are not performed at any or all of the current 3 law enforcement PSAPs (EMD and actual fire dispatching, for example), and it cannot be known today how many of these activities will be done, nor how long they will take to do, nor the number of staff required to do them, all due to inadequate data.

Therefore, we are recommending that the WPCC be staffed on “day 1” with all of the same people who are currently serving as dispatchers at the three “donor PSAPs”, all doing pretty much what they do today, with the addition of two additional workers per shift; one serving as a 911 operator/provider of EMS service, and the other serving as Primary Fire Dispatcher – back up 911 operator – back up EMD provider and Shift Supervisor.

As used today in the PSAPs today, CAD (if it is even called that) is largely a record keeping device, or an "automated log" which also checks some relevant files as data is

entered. This is fine and is not a criticism. However, when implemented in a larger, multi-operator PSAP where dispatchers may be performing different roles or providing dispatching services to different agencies, CAD takes on far greater importance than is currently the case.

In smaller PSAPs, it is our view that CAD is not purchased, nor is it a requirement, for the same reasons that it is needed and purchased in larger and busier PSAPs. In small agencies, CAD is not a necessity, per se, to assist the one or two dispatchers on duty in managing their workload or tracking their available field units. It is very valuable, however as a vehicle for expediting the collection and recording of important data associated with the event, such as times, etc. This is as opposed to relying on an already harried dispatcher to remember to either time stamp a card or write a time on it, or remember to ask an important question, for which a CAD system could provide a prompt.

Another major component to the "controlled chaos" we are describing here is related to the three other important issues of:

a.) One stage dispatch vs. two stage dispatch
b.) Service specific dispatch vs. cross-service dispatch.
c.) Geographic consolidation (or not) of police radio districts.

These are all issues which can be facilitated, organized and expedited by the use of a properly configured and managed CAD system.

As it relates to "service specific" vs. "cross-service" dispatching and how it is affected by CAD, A properly designed CAD system will be able to route the event that was entered by the call taker to the ***"radio dispatcher which is handling the agency/ies who should respond to that event".*** *(Note: In a properly constructed Wide Area Network -WAN – environment, that radio dispatcher could be miles away. For example, a 911 call taker could be at the WPCC and enter an event into CAD which would then "pop up" on the CAD screen at a dispatcher position in the Franklinton PD*) In what would be called a "cross-service" dispatch environment, this CAD decision is based 100% on geography. In other words, CAD knows which dispatcher position is handling a given town or jurisdiction for police and fire and EMS, and routes the event for dispatch to that dispatch position. In a "service specific dispatch" environment, on the other hand, there is/are separate dispatch position(s) which is/are dedicated to fire and/or EMS dispatch for a given geographical area, separate from a dispatch position which is handling law enforcement dispatch for the same geographic area. In this environment, CAD knows this, and sends the fire event (for example) to the fire dispatch position handling that area. CAD can even "clone events" and send a copy of the same event for dispatch action to numerous different service specific workstations. Assume, for example, a serious personal injury car accident ("Signal 20-I" in dispatcher parlance) requiring the response of police, fire (for heavy rescue) and paramedic ambulance(s). Assume further that there are "service specific dispatch positions" for each of these three services (PD, FD and EMS). The call taker enters one event, but by classifying it as a "Signal 20-I", CAD knows that it is a

PRIORITY 1 EVENT which requires dispatch of each of the three services, and it automatically sends a copy of that same event to each of the three dispatch positions for their independent dispatch action. Further, any one of the service specific dispatchers can view that event in the other service's "version" via a few keystrokes. For example, a police officer asks her dispatcher "Where's fire?" The dispatcher merely keys in the event # plus the letter "F" for Fire and instantly sees the fire event in CAD, complete with who was assigned, when and from where.

Finally, relating to CAD, we would be remiss by not also mentioning MDTs/MDCs. Not only does having these devices in field units (particularly police units) mean that field officers can generally run their own data checks (thereby off-loading a significant amount of work from the 911 operators), but these devices can be fully integrated with CAD such that much of the radio traffic between dispatchers and field units and from field unit to field unit can be eliminated. They can also be equipped with GIS mapping software similar to that which the PSAP would have to plot wired and wireless 911 caller locations, and they can use it in this mode to navigate their way to incident locations, and when employed with AVL, they can even see their own progress or that of other responders on this GIS map in their vehicle.

5.2 GIS Mapping Systems in and in support of dispatch:

Earlier we discussed AVL and the plotting of wired and wireless 911 call locations. Geographic Information Systems (GIS) are the foundations of these capabilities. In general, GIS is:

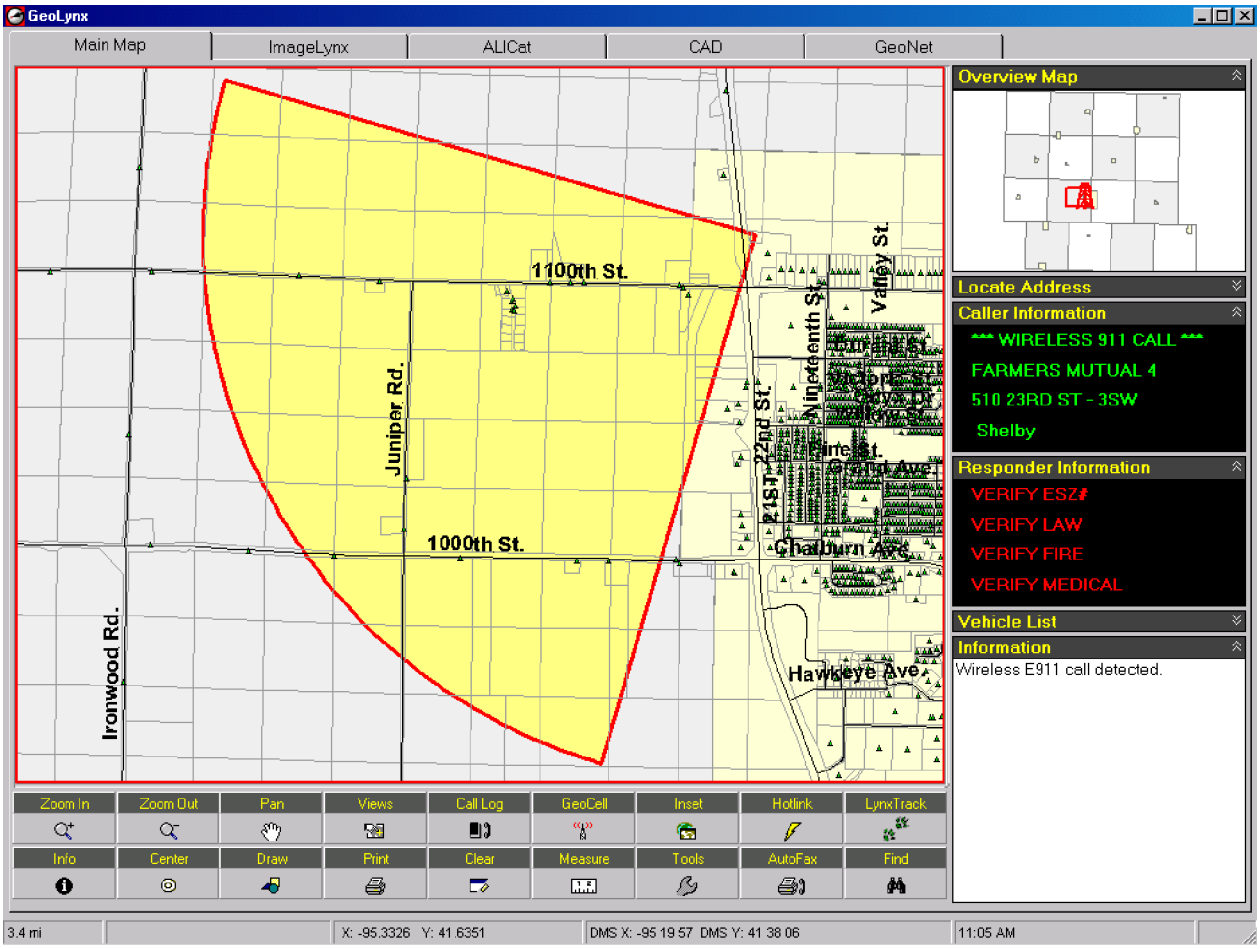
- Specialized software that runs on a standard Personnel Computer (PC)
- A set of geographic data sets that contain information about geographic items of interest to the user.
- The specific set of GIS data tables will vary from user to user, depending on that user's area of interest
- A Graphic User Interface (GUI) software package that is tailored to the specific use environment and simplifies the user's access to and manipulation of the GIS data that is available to them.
- For example, a land use planner might use GIS to:
    - Understand zoning
    - Understand population characteristics
    - Understand water table locations
    - Understand sub-surface things like sewers, utilities, etc.
- But a 911 dispatcher might use GIS to:
    - Know and see the address ranges on a given roadway
    - Know and see the response boundaries of the law enforcement, fire and EMS agencies for whom they dispatch.
    - Know and depict the coverage areas of wireless/cellular towers.

We believe anyone designing and equipping a new 911 PSAP today should be figuring in GIS. This would serve several purposes:

- As an aid in maintenance of the jurisdictions rural addressing (911 addresses) program.
    - Some 911 GIS vendors sell specialized address system maintenance software to aid in this task.
- As a tool for the working dispatcher to plot the location of all incoming wired 911 calls (as shown by the red arrow in the earlier AVL discussion).
- As a tool for the working dispatcher to plot the location of all incoming wireless 911 caller locations. (See depictions that follow)
- As a tool for showing AVL locations.
- As a tool for just plain finding stuff/places in the jurisdiction.
- As a tool for making specialized maps and printing them out on demand.
    - Detective wants a map of Billy Jones' block
- As a tool for tracking historical activity in the jurisdictions.
    - Where did we get 911 calls from yesterday?
- As a tactical tool for emergency planners that would facilitate running HazMat "plume analysis" for example.

Before any of this can be done, there needs to be a high quality, accurate GIS base map. One simply can't purchase GIS map data "off the shelf" and expect it to have things like fire department response boundaries, fire hydrant locations, 911 address ranges, etc. on it. Such a base map usually needs to be built by either competent and properly equipped local government GIS professionals (with explicit understanding of the end user's GIS data needs) or by specialized contractors experienced in this field.

It is our belief that anyone designing a new PSAP today should be planning on implementing GIS mapping. One of the over-riding reasons for this is the need to use GIS to plot the locations of wireless 911 callers. Shown on the following page is how one such GIS system plots the location of what is called a "Phase 1" wireless E911 call on a map. (Phase 1 is the version of wireless E911 in which the wireless carriers can only send information relating to the caller's 10 digit number and the cell tower and/or sector through which that call was initialized).



5. 3 Computer-Telephony Integration (CTI)

As PCs have become more powerful and faster, they have begun to replace many of the older appliances in any office, and a 911 dispatch center is no different. The days of the old reel to reel logging audio recorder are largely gone, replaced by digital audio processing PCs, which do it all on the hard drive or a PC instead of reel after reel of audio tape. Similarly, desk top telephones (911 and other) are being replaced by what are called “CTI Sets”. All of the major E911 PSAP Customer Premise Equipment (CPE) vendors now sell versions of these systems. Your current PSAP CPE provider (Positron) sells several versions of CTI, as does CML and others.

One of the favorite advantages of CTI CPE is to integrate all the 911 call taking, recording, activity logging and call management tasks with routine 7 digit call taking tasks. Every 7 digit line and 911 line can appear on the CTI screen, along with as many of the extensions or external number to which a call may be transferred.

As it relates to this specific discussion, it would not be difficult to configure CTI CPE for a new WPCC PSAP to have “administrative 7 digit lines” coming into it which were provisioned with a “call transfer” option whereby a WPCC dispatcher could answer a 7 digit call, and then transfer that call to someplace else in the Parish (like a local police

station). Of course, if it would have been a tool call from the WPCC to that “transfer to” place, this would involve a toll in this case also. It is also possible to have call forwarding in place which takes a call dialed to one number and has it ring over to a different number, either immediately, or after a set number of rings or a busy signal.

In other words, with the exception of the need to employ any “foreign exchange” circuits (which cost extra money every month) or any “dedicated circuits” between the WPCC and any other facilities in the Parish, it is reasonable to assume that just about anything that you would want to have done in terms of remote call answering or remote call forwarding could be accomplished with any new CTI CPE you would purchase for a new WPCC and/or with your local service provider in properly ordering services.

5.4 Ancillary but related Computing issues (Incident Command Systems):

One of the roles often played by a consolidated PSAP, and a role included in the current design of the new WPCC is the role of an Emergency Operations Center (EOC). An EOC is a specialized term that does not mean the same thing as an Emergency Dispatch Center or a PSAP. Rather, an EOC is a concept that dates back to military Tactical Operations Centers (TOCs) and flowed into civilian life through the development of the military led Civil Defense organizations of World War II.

Be definition, an EOC is a place where leaders (commanders) of various functions and elements relevant to the management of an emergency or disaster come together to collect, share and jointly react to and use information to make tactical and strategic decisions for the best and proper handling of the emergent situation.

The role envisioned at the new WPCC is that of serving as an EOC for an individual agency, ie. Bogalusa Police Department, Franklinton Police Department, or the Washington Parish Sheriff’s office. For parish area wide emergencies, the Office of Emergency Preparedness is responsible for EOC operation and currently operates a parish wide EOC on Bill Booty Road as a typical EOC described below. The Director - OEP, based on the complexity of the emergency, could decide on which facility to utilize, either the facility on Bill Booty Road or at the WPCC.

Obviously, for this function to work properly, the quality, relevancy, accuracy and timeliness of the information they receive, on which their decisions are based, must be very high. In a typical EOC, one sees temporary tables or desks labeled HEALTH, HIGHWAYS, FIRE, NBC (Nuclear, biological, chemical), POLICE, MEDIA, HOSPITALS, etc. There are also lots of phones, lots of bulletin boards and a goodly number of maps and white boards on to which relevant timely information is scribbled for all to see. For example, if there are 5 hospitals in a region, and the event is a mass trauma event with lots of parties requiring hospitalization, the availability of beds medical specialties and equipment at the various hospitals can be critical. In a “manual EOC”, the person manning the “hospital desk” must either reach out to or field calls from all of the hospitals to continually update this information so that others may make decisions informed by the best data.

Enter computers and the Internet or Intranet. Imagine if all of the entities that could or might have input into the information collection process of an EOC were able to use the internet/intranet to go to a real time, locally managed, web site that listed current INFO NEEDS, and they could input their CURRENT INFO from their individual locations throughout the parish and that information would then displayed for the emergency management decision makers at the EOC to see .

Then, the managers at the EOC would only need to review the displayed data to find out which hospitals had which beds and which specialties were available. Obviously health care availability is only one of many such data streams to be used. Other examples would include reports and checkpoints in conjunction with graphics, maps, haz mat information, equipment and personnel usage and availability, weather, video, live TV camera, contact lists and other information needed in an emergency situation. Such a concept is now reality. At least one company (ESI out of Augusta, GA) is offering a software and hardware platform called "WEB EOC".

The design of the EOC facility at the WPCC includes the capability to utilize this technology. It would be large enough to hold from 15-20 staff persons operating at small desks. This room could easily double as a Parish-wide public safety meeting and/or training room as well, adding to the sense of "ownership" of the facility by the public safety agencies in the Parish.

And, while this particular functionality is somewhat unrelated to the more narrow and tactical focus of answering 911 calls and dispatching responders in other than full scale emergency incidents, we commend it to the District for their consideration. But we do offer this important caveat: Any product like Web EOC is only a tool. "Right out of the box" it can't and doesn't do much on its own. Its power is what the user does with it, which is a function of the degree to which significant pre-planning has been done, significant data collection (and maintenance) is done and significant training is done. Systems or devices like Web EOC simply always fail if they are "left in the closet until the big one hits" and then rolled out in a hurry.

Further information is available at:

http://www.esi911.com/esi/products/webeoc.shtml

Section 6: Wireless E911

6.1 Wireless E911 technology and migration issues:

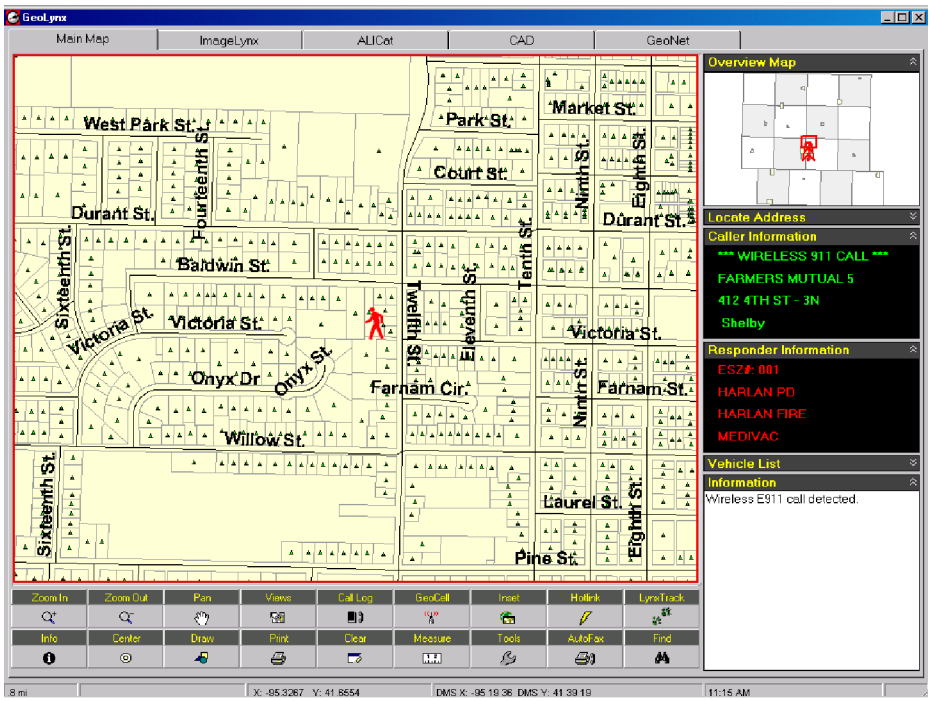
This leads us to a discussion of the technological aspects of wireless E911. We have thoroughly discussed the operational impacts earlier. Simply put, it is this writer's view that the introduction of ***wireless Enhanced 9-1-1 represents the single most complex and confusing technology in one fell swoop that has ever befallen the 911 industry and community.***

Since 1994, scientists, technologists, PSAP managers, phone company engineers, radio engineers, bureaucrats, regulators, geographers, equipment manufacturers, wireless carriers and politicians have been wrangling with this issue, and it is still not yet firmly coalesced into a nationwide standard. However, a number of facts can be stated:

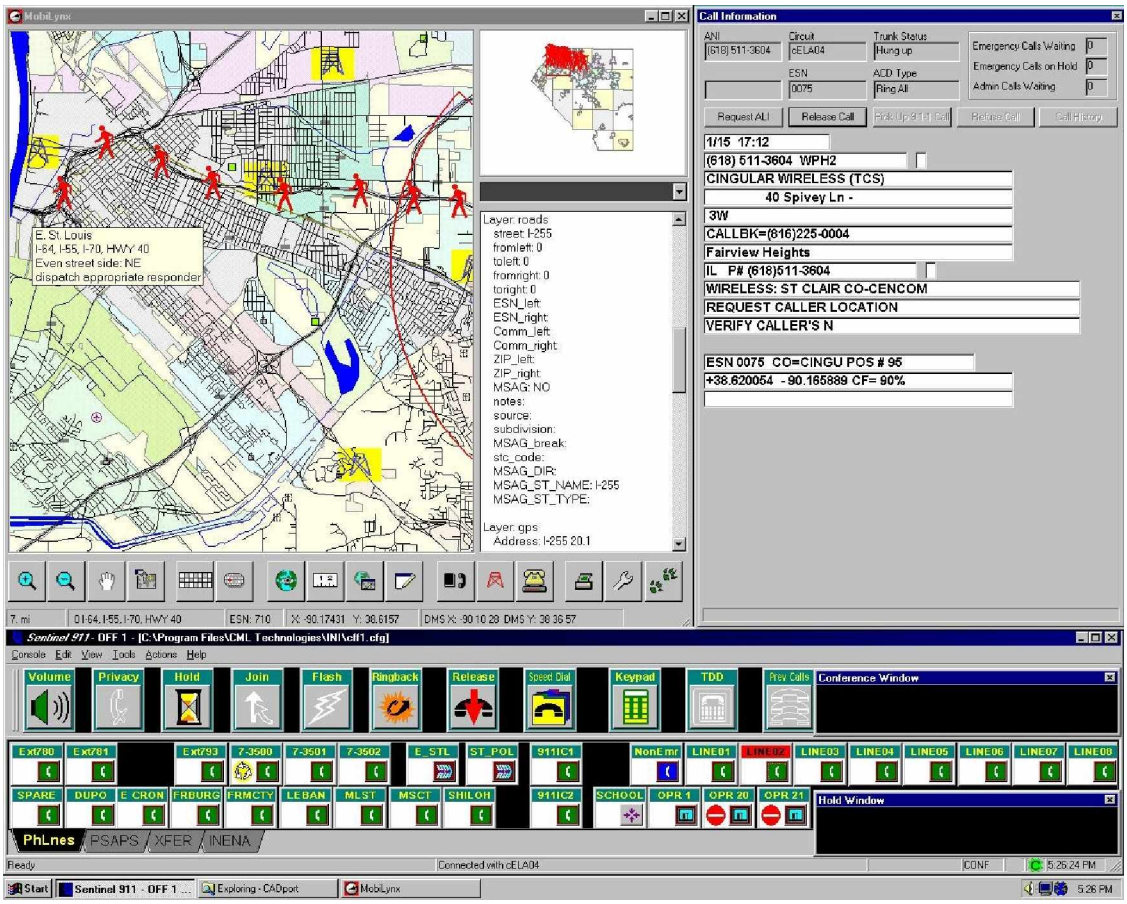
1. That the FCC (the only agency with any real control over the wireless carriers – no state utilities commission or legislature has any real control over them) has required that wireless carriers ("Cell Phone Companies") must implement better 9-1-1 capabilities, and they must do it in two phases:

A. PHASE 1: As described above, is a minimum

B. PHASE 2: Calls should be sent to the proper PSAP based on the caller's actual location, the caller's 10 digit cell phone call back number should be sent, and the caller's actual location should be derived (to within about 150-300 feet of accuracy) and sent to the answering PSAP. Depicted below is what it can look like when a properly equipped PSAP receives a wireless 911 call in a functioning Phase 2 system. The red "stick man" is the caller's location.



Taking wireless 911 Phase 2 to its logical extreme, some carriers (notably Cingular) are now permitting a PSAP which has answered a Phase 2 call to actually “refresh” that wireless caller’s location as the call progresses. This would be ideal in a hostage taking situation where the victim could place cell calls unknown to the culprit, and the dispatcher could update the victim’s location (in the trunk of a car, for example) while coordinating the responses of the police (perhaps with AVL). Depicted below is a recent call of this type. All of the “red stick men” represent updated positions of the caller as he moved Westbound on Interstate 64, east of Interstate 255 in suburban St. Louis, MO:



The above depiction shows the GIS map (this one is GeoComm's GeoLynx) in a software integrated with the CML SeNTinel 911 telephony software suite on to one workstation screen. All of the above would take the place of the current Positron IAP instruments.

2. The wireless carriers are now literally rushing to get Phase 1 and Phase 2 implemented throughout the nation. In cases where a PSAP authority is prepared for, and a valid request is made to a wireless carrier, they must deliver the requested services within 6 months of request or face hefty fines from the FCC. (AT&T Wireless was recently fined $2,000,000).

3. The major issues are:
   A. Getting the PSAPs ready for Phase 1 and Phase 2

      i. Often this implies upgrades to PSAP equipment to make it "10 digit compatible"

         1. We are told that the equipment at the Washington Parish Sheriff's office and Franklinton PD is 10 digit capable now, but the Bogalusa Police Department is not.

ii. Often this means adding a GIS mapping capability so that when the caller's location (as expressed in latitude and longitude or "x/y") it can be plotted accurately on a computerized map.

iii. Making the decisions as to which PSAP a wireless Phase 1 call should be routed initially, when that cell tower or sector's coverage area crosses several PSAP jurisdiction boundaries, or even some state and/or international boundaries.

iv. Making decisions, but more importantly having the proper technology, to support where a Phase 2 call should be initially routed for answering based on the caller's x/y location.

1. In some cases (BellSouth is one) this will also involve a potential per call charge from the 911 service provider (BellSouth) for "handling" this wireless call as it passes through their 911 routing switch (selective router). Originally BellSouth started out proposing 63¢ per call for this service. They have now backed off somewhat as the matter is being debated in utilities commissions across the South.

2. Some entities have thought about "bypassing" their 911 service providers for this wireless 911 call routing service. It has actually now been done in the metro Kansas City 911 region (two states and 8 counties). This could be achieved by buying and operating a telecommunications switch (A CML ECS-1000 for example, which is what they bought in Kansas City) and having all the wireless carriers send their 911 trunks to your private switch and use it to route calls to all of the PSAPs within a wider region.

3. This means that if Washington Parish were to purchase its own CML ECS-1000 switch at this time, it would be in a position to explore and possibly implement this option going forward.

B. Getting the 911 Service Providers (BellSouth) prepared to receive, properly route and store/transmit Phase 2 ALI data for calls.

C. Getting the wireless carriers Location Determination Technology (LDT) implemented, tested and deployed across a market so as to derive and submit the caller's location to the 911 Service Provider so that it can be used as the call routing determinant and then passed on to the PSAP.

Section 7 : Facilities Design Assessment

7.1: WHERE SHOULD A CONSOLIDATED PSAP BE LOCATED?

Typically, there are three basic choices here:

1. Build/outfit a new PSAP from scratch.
2. Find a "neutral" facility appropriate for becoming a PSAP and make it one.
3. Convert an existing PSAP into a consolidated PSAP.

In the case of Washington Parish, we are aware of the fact that the District has already purchased land for a new PSAP site and plans to build such a PSAP. We are also aware of the request for special funding from the U.S. Congress.

Usually, there are numerous subordinate questions feeding into this larger question. Even though these decisions have already been made in Washington Parish, it might be instructional to know what these issues are and what the answers would be in Washington Parish::

A. Can existing communications console equipment be expanded, and/or moved to another location? Should it be?
   ANSWER: There are no communications consoles in use.
B. Can existing E911 PSAP equipment be expanded and/or moved to another location? Should it be?
   ANSWER: Probably not, from a practical perspective, due to the impending move of the Franklinton PD PSAP before any WPCC could be built and the inability to extend the equipment that far. The issue of continuing to lease this old equipment or buy such old equipment also figures into this decision. .
C. Does any existing PSAP facility have adequate expansion space?
   ANSWER: No.
D. Are there any "perception" issues associated with having a PSAP located within an existing PSAP agency's facility?
   ANSWER: Yes.
E. Can existing CAD system(s) be merged, expanded or modified to support a larger, consolidated PSAP operation? Should they?
   ANSWER: NO. True "dispatch CAD" does not exist today.
F. Are there any significant radio system upgrades that would be required and are they in any way PSAP location dependent?
   ANSWER: YES. They are required and location would matter.

G. Are there any immediate technological improvements required to support a consolidated PSAP?

ANSWER: YES. New 911 CPE, new CAD, radio system upgrades.

Ideally, it is best to have a new, ground up PSAP facility. Not only does this make the task of installing new equipment or moving exiting equipment there prior to its "live date" easier, it could also be a space tailor made for this new and important function. The geographic location of such a facility can be a relatively moot point, since through leased phone lines and/or microwave links, one can pretty much control any radio transmitter or receiver equipment located anywhere in the Parish. Although, those links have either recurring costs (phone lines) or could have a hefty one time cost (microwave). Often “RF control stations” are the answer for controlling repeater systems. For making connections to non-repeater systems leased telephone control circuits are a necessary evil.

7.2 Description of building design and components:

Based on information provided by the WPCD staff, GeoComm has worked with a an architect to develop preliminary design plans for the new WPCC facility out on Dollar Road. These plans are included following this section. Along with an architect’s rendering of what the building will look life from the outside.

- General description: The architect has developed a very attractive, very functional 55’ x 72’ one story building with space for 5 dispatch positions, four staff offices, an Incident Command Center, special equipment room, storage, kitchen, HVAC, reception and rest rooms. It appears configured for optimal space and functionality.
- Security and control is enhanced by the fact that the actual dispatch room, although it receives natural light from elevated skylights above, is located well inside the outside walls and has no outside wall exposure and no main level windows. This security even extends to the kitchen, where staff can go without being exposed to outside walls or windows.
- Administrative offices are provided for 4, with adequate space for each of the Lead Dispatchers to do their admin work while they are off the operations floor.
- The Dispatch Room provides adequate space for 5 workstations configured using state of the art partitions and ergonomic work consoles such as those described earlier.
- Incident Command can be conducted in the corner large open space large enough to handle from 15-20 staff persons operating at small desks. This room could easily double as a Parish-wide public safety meeting and/or training room as well, adding to the sense of “ownership” of the facility by the public safety agencies in the Parish.

- A specialized equipment room (radio, telephone and computer equipment) is provided to provide the proper security and environment for sensitive equipment.
- HVAC (heating, ventilation and air conditioning) is stored in its own special ground floor room as far away from the noise sensitive dispatch room as possible.
- An emergency generator should be located outside the HVAC room behind the facility, and we'd recommend LP gas operations for reliability.
- Kitchen and restrooms are also provided, along with locker rooms. If possible, we might recommend removal of the "unisex toilet" and replacing it with a "break room" with a small sofa. Often times, if dispatch staff can have a place to relax during their breaks, they can maintain peak performance better during overnight shifts or even avoid having to take off sick if the can rest for a few minutes to shake a bad headache.

7.3: Summary of Estimated one time costs for implementing consolidated PSAP:

Based on the preceding discussions and related issues, we see the following potential one time costs and cost categories being incurred in implementing a new consolidated PSAP located at the Communications District site on Dollar Road. We have not been able to precisely determine all costs yet, as some of them are dependent on what other underlying decisions are made. Where we feel we have a good sense of costs, they are reflected.

Line Item	Cost
Building	$ 500,000
Implement Simulcast	$ 458,000
Radio system upgrades	$ 200,700
Dispatch Console Equipment	$ 200,000
New 911 CPE System	$ 160,000
Professional Fees	$ 112,000
Incident Command System	$ 100,000
Dispatch Console Furniture	$ 65,000
CAD System	$ 65,000
AVL System Head End	$ 60,000
Dispatch Mapping	$ 40,000
Recorder	$ 30,000
Total	**$ 1,990,700**

Professional services fees:

In any event, significant technical planning will be required, along with implementation management and related expenditures. Such would include but not be limited to :

1. Facilitation and coordination of move to a new PSAP.

2. System design and specifications for new radio consoles and other modifications

   We are estimating the costs of this work in phases: *budgetary estimates only*

   Phase 1: Preliminary system design with cost estimates for alternative configurations: **$45,000 inclusive of all travel and expenses.**

   Phase 2: FCC licensing, detailed and final system design with bid specifications, bidders conference, review of bids, and bid award recommendation: **$15,000.**

   Phase 3: Vendor negotiations to contract, project oversight, Acceptance Test Plan oversight, etc.: **$12,500.**

   Total technical system professional services: $72,500 inclusive.

3. In addition, Architectural Services at approximately $ 40,000

TOTAL PROFESSIONAL SERVICES: $112,500

7.4 Transitioning to a new PSAP How does it happen? Over what time period? The answers to this question are generally too premature at this time. The specifics will depend on which of the scenarios the Agencies choose to implement. One of the most promising aspects of the proposed WPCC consolidation is the probability that it would be a move into a brand new, from the ground up facility designed to house this unique activity. However, it is a safe assumption that any change from the status quo will need to be a closely planned and managed, and (likely) involve a gradual transition. The 911 world is not like some other worlds. *One can't close up on the Friday preceding a 3 day weekend at a slow time of the year and "make the move" over the weekend, and then start up operations again on Tuesday morning!.* Everything must be in continuous operation throughout the entire move and transition.

In any event, rest assured that whatever migration is to occur will need to be closely planned and will likely require the nearly full time attention of a "transition planning team" with professional assistance. These are the general areas in which detailed planning will be required:

a. E911 system migration issues.
b. Radio system migration issues.
c. CAD issues.
d. New radio system issues. Do you need one? On day one?
e. Hiring/Staffing issues.
f. Training issues.
g. Policy development and procedural issues.
h. Facility issues.

Who are the participating agencies on "day one"? We believe all agencies currently dispatched by the three existing PSAPs should be served by the consolidated PSAP on "day one".

7.5 Recommendations and Conclusions:

A. Should the Three PSAPs conduct any PSAP consolidation?

YES. Our recommendation is to consolidate

B. How should this recommended consolidation take place?

We recommend the following general steps be taken in this order:

1. Political organization: Decide what you want to do, get the political blessing and funding support to do it, form the Governing Board (or reorganize the Communications District, and gather it together to form its working committees and to select and hire the PSAP management staff not less than 6 months prior to Day One of operations.

2. Build new facility for new PSAP.

3. Begin the labor-intensive process of developing new SOPs that will be necessary to set up the relocated CAD system anyway. Oddly, the process of equipping a CAD system to recognize EVENT CODES and the prioritization of them can serve as a definite focal point for discussing and adopting mutually shared operational philosophies and procedures.

4. Conduct PSAP recruitment and training (training would have to be on a part-time basis since most new hires would be currently employed as dispatchers already and would need to continue in that role until their "old PSAP" is shut down) beginning six months before "cut-over".

6. Move existing operations to the new PSAP Space.

APPENDIX A

GeoComm Corporation was retained by the Washington Parish Communications District in June, 2002 to conduct a **Feasibility Study and Options Analysis** on the issue of the consolidation of the Enhanced 9-1-1 **P**ublic **S**afety **A**nswering **P**oints (PSAPs) operated by the cities of Franklinton, Bogalusa, and the Washington Parish Sheriff's department. This work was divided into three general phases, as follows:

Phase 1: Information collection. In this phase, there were six sub-phases.

Phase 1.1: GeoComm visited the Parish on June 11, 2002 to have a Project Kick-Off meeting with several members of the Communications District staff. At this meeting information was exchanged, objectives were set and tasks identified. Geo-Comm staff members were introduced and were able to become acquainted with board members and administrative and support staff of the Washington Parish Communications District. The meeting was somewhat informal with a presentation by the District of their current sense of the status of their communications consolidation program and their expectations of the Operations Analysis currently being conducted by Geo-Comm.

Phase 1.2: Tom Grones, GeoComm's managing consultant, local project coordinator Gerard DuCote, Lisa Durand operations analyst and Joe Karau data systems consultant visited each of the three PSAPs under discussion here. These site visits were conducted over a two-day period (June 11-12, 2002). Research and analysis was accomplished via site meetings at Washington Parish Sheriff's Department, the Bogalusa City Police Department and the Franklinton City Police Department. The group also visited the proposed site of the consolidated center. The facilities were photographed, measurements were obtained, electronic components were reviewed and the administrative, management and operations staff members were interviewed. This site work took place throughout Tuesday afternoon, June 11th, all day Wednesday, June 12th and Thursday morning June 13th.

To facilitate these visits Geo-Comm staff was provided access to the agency administrator (sheriff or police chief), city and county information services managers, communications center managers, dispatch supervisors and a representative sampling of dispatch operators. It was most helpful to have access to management and/or supervisory personnel with detailed knowledge of existing two-way radio systems.

Phase 1.3: On the evening of June 11th local public safety administrators were invited to a presentation wherein they were introduced to the overall

scope of the project. During this 2-hour session, local officials and interested parties were able to meet Parish Communications District Officials and Geo-Comm staff members who were on hand to make a formal presentation and to answer questions.

Phase 1.4: Geo-Comm then returned to the Parish on July 9th, 2002. GeoComm's managing consultant (Tom Grones) local project coordinator Gerard DuCote and Radio Engineer (Mike Mazzitello) then again conducted in-depth visits to each of the three PSAPs. These site visits were conducted over a two-day period (July 9-10, 2002). During this visit and over numerous subsequent phone conversations, Geo-Comm also consulted extensively with Walter Gallinghouse from Comm Center Communications regarding specifics of radio equipment and services in the four agencies. We also participated in discussions with many of the Parish Fire Chiefs at which we outlined the scope of the study and solicited their input as to the needs of the fire services.

Phase 1.5 Geo-Comm developed and distributed data collection surveys to each of the three PSAP agencies under consideration here. The intent of this survey (sample attached as Appendix A to this report) was to collect comprehensive information regarding:

- Activity levels
- Budget and funding issues.
- A wide range of personnel issues.

Phase 1.6 GeoComm's Senior Account and Special Projects Manager (Paul Linnee, ENP) visited the Parish on September 25 and 26 to finalize the collection of data for this section of the report.

Phase 2: Options Development and Analysis:

During this phase, the survey results were tabulated and analyzed. Data collected from the PSAP visits and inventories were analyzed and the general range of options presented in this report was developed. These options and their analysis are included in Section V. of this report.

During this phase, we also researched applicable State of Louisiana laws relating to 911 issues as well as Louisiana State Rules and Regulations pertaining to the operation of 9-1-1 PSAPs and Louisiana State Police and NCIC rules regarding system access and operations.

Phase 3: Presentation of Feasibility Study & Options Analyses:

Contained within this report

APPENDIX B

PUBLIC SAFETY COMMUNICATIONS SURVEY

This survey (was used to gather) information about the current communications systems/structure used in Washington Parish. Your input is very important. Please take the time to fill out as much information as possible, and return.

Name_____ Department_____

Address_____ Telephone _____

E-mail _____

What is your responsibility in your organization?_____

_____

Number of calls/events you receive annually_____

(This should be the number of events your dispatch center receives and assigns for response.

Number of police events:---------- Fire_____EMS_____.

Number of 9-1-1 trunks_____ Number of seven digit lines____

Do you have a seven-digit emergency number?___ What is it?_____

Do you have any direct circuits (ring-down) lines?_____

Number of NCIC inquiries annually_____(State should have)
Number or NCIC entries annually_____

Financial information:

What is the annual budget for your communications center? _____

Portion of this number for personnel_____
Portion for equipment_____
Other? Explain _____

How many dispatchers do you employ full time?_____ Part time?_____

Hourly wage: Bottom_____ Top_____ Are there step increases?_____

Do they receive holiday pay? _____ Shift differential_____

What type of retirement system do your dispatchers have?_____

What type of health insurance plan is offered?_____

How much does your employee pay for health insurance? Single_____

Family?_____

Is your dispatch staff part of a union? _____. If so, attach labor agreement.

How much did you spend last year on overtime for dispatchers?_____

When dispatcher calls in sick, who dispatches?_____

Do you have a procedural manual for communications?_____

What type and how long is your initial training? _____

What type of continuing education do you have for dispatchers?

_____ _____

Please list all duties your dispatch personnel perform, and the percentage of time each task/duty takes. This should include things such as taking reports, answering administrative phone lines, making copies, handling walk-in traffic (and how much is reporting a crime/how much getting copies, etc.)

Duty percent of total work time

_____

_____

_____

_____

_____

_____

_____

_____

Radio Equipment:

How many radio channels do you have?_____ Please list what each is used for, if it is repeated, and what type of coverage is has (City-wide or parish-wide)

_____

_____

Who currently services your radio equipment?_____

Phone number and contact person:_____

What other agencies do you talk to via radio and how often?_____

_____

_____

Other comments are welcome. Please attach additional pages if you need more room.

Return to Lisa C. Durand, 9005 Kill Creek Rd. De Soto, Ks 66018 or ldurand@jocoks.com

APPENDIX C

Simulcast Transmission System – Estimated Costs

New VHF Simulcast Digital Repeater Network for Parish Sheriff Channel /Law Enforcement

Item Description	Estimated Unit Cost	Estimated Total Cost
Qty 3 VHF Repeater Stations (e.g. Quantar) with Astro-TAC receiver/encoder	$ 18,000	$ 54,000
Astro-TAC Voting Comparator (qty=1)	$ 25,000	$ 25,000
Astro DIU3000	$ 7,500	$ 7,500
Centracom Astro Channel Interface	$ 2,200	$ 2,200
VHF Antennas for 3 tower sites (PD220 or equivalent	$ 1,000	$ 3,000
Transmission Line and connectors for 3 sites	$ 1,800	$ 5,400
Subtotal for Law Enforcement Repeater System		**$ 97,100**

New VHF Simulcast Digital Repeater Network for Parish Fire

Item Description	Estimated Unit Cost	Estimated Total Cost
Qty 3 VHF Repeater Stations (e.g. Quantar) with Astro-TAC receiver/encoder	$ 18,000	$ 54,000
Astro-TAC Voting Comparator (qty=1)	$ 25,000	$ 25,000
Astro DIU3000	$ 7,500	$ 7,500
Centracom Astro Channel Interface	$ 2,200	$ 2,200
VHF Antennas for 3 tower sites (PD220 or equivalent	$ 1,000	$ 3,000
Transmission Line and connectors for 3 sites	$ 1,800	$ 5,400
Subtotal for Fire Repeater System		**$ 97,100**

New VHF Simulcast Repeater Network for Parish Emergency Government (OEP)

Item Description	Estimated Unit Cost	Estimated Total Cost
Qty 3 VHF Repeater Stations (e.g. Quantar) with Astro-TAC receiver/encoder	$ 18,000	$ 54,000
Astro-TAC Voting Comparator (qty=1)	$ 25,000	$ 25,000
Astro DIU3000	$ 7,500	$ 7,500
Centracom Astro Channel Interface	$ 2,200	$ 2,200
VHF Antennas for 3 tower sites (PD220 or equivalent	$ 1,000	$ 3,000
Transmission Line and connectors for 3 sites	$ 1,800	$ 5,400
Subtotal for Parish Government Repeater System		**$ 97,100**

Total of Land Mobile Radio Network RF Infrastructure

Item Description	**Estimated Unit Cost**	**Estimated Total Cost**
Subtotal for Law Enforcement Repeater System		**$ 97,100**
Subtotal for Fire Repeater System		**$ 97,100**
Subtotal for Parish Government Repeater System		**$ 97,100**
GPS Time Standard for 3 SItes	$ 40,230	$ 120,700
New Equipment Shelter for Dollar Road SIte	$ 25,000	$ 25,000
Generator	$ 12,000	$ 12,000
Instalation	$ 9,000	$ 9,000
Total of Land Mobile Radio Network		**$ 458,000**

The preceeding assumes that leased circuits are used for site links

APPENDIX D

A New PSAP Facility for the WPCC

Architect's rendering