



AGENDA

NORTH CAROLINA 911 BOARD MEETING

December 3, 2015

Stedman Education Bldg.

North Carolina Zoo

4401 Zoo Parkway

Asheboro, NC

10:00 AM – 12:00 PM

<u>Tab</u>	<u>Topic</u>	<u>Presenter</u>	<u>Time (min)</u>
	Welcome To Randolph County	Hal Johnson County Manager	5
1.	Roll Call	Richard Taylor	5
2.	Vice Chairman's Opening Remarks ~ Swearing In of Greg Hauser, Charlotte Fire Department, Representing North Carolina State Firemen's Association, appointed by the Speaker of the House	Jason Barbour	10
3.	Ethics Awareness/Conflict of Interest Statement	Jason Barbour	5
<p><i>In accordance with G.S. 138A-15, It is the duty of every Board member to avoid both conflicts of interest and potential conflicts of interest. Does any Board member have any known conflict of interest or potential conflict of interest with respect to any matters coming before the Board today? If so, please identify the actual or potential conflict and refrain from any undue participation in the particular matter involved.</i></p>			
3.	Consent Agenda (<i>vote required</i>) (Complete Reports Located in Agenda Book On Web Site)	Jason Barbour	10
	a) Minutes of October 23, 2015 Board Meeting		
	b) PSAP Liaison Report		
	c) Network Specialist Report - Bone		
	d) Network Specialist Report - Corn		
	e) Update On 2014/2015 Revenue Expenditure Reporting		
	f) Grant Project Updates		
	g) CMRS Fund Balance \$ 735,378		
	1) CMRS Disbursements \$ (21,408)		
	h) PSAP Fund Balance \$ 5,920,128		

- 1) PrePaid CMRS Revenue \$ 862,014
- i) Grant Fund Balance \$ 1,338,969
- 1) Grant Fund Encumbered \$ (35,942,118)

4. Public Comment

Jason Barbour

The NC 911 Board welcomes comments from state and local government officials, first responders, finance directors, 911 directors, citizens and interested parties about any 911 issue(s) or concern(s). Your opinions are valued in terms of providing input to the NC 911 Board members. When addressing the Board, please state your name and organization for the record and speak clearly into the microphone.

Speakers:

- | | | | |
|-----|---|---------------------------------|----|
| 5. | Executive Director Report
a) PSAP Manager's Group Update
b) Greg Hauser Statement of Economic Interest
c) Update on Rocky Mount PD Grant Appeal | Richard Taylor | 15 |
| 6. | Approval of Estimated FY17 PSAP Distributions
<i>(vote required)</i> | Marsha Tapler | 15 |
| 7. | Approval of 2016 Meeting Dates
<i>(vote required)</i> | Jason Barbour | 5 |
| 8. | Update On NextGen 911 Committee
a) Approval of NG911 Concept of Operations
<i>(vote required)</i>
b) Approval of NG911 Cost Analysis
<i>(vote required)</i> | Jeff Shipp | 15 |
| 9. | Update On Rules Review Commission | Richard Bradford | 20 |
| 10. | Approval of 2016 Goals
a) Committee Appointments
<i>(vote required)</i> | Richard Taylor
Jason Barbour | 10 |
| 11. | Draft Letter Regarding Back Up PSAP
<i>(vote required)</i> | Richard Taylor | 5 |

Other Items

Adjourn

Next 911 Board Meeting

**January 29, 2016
911 State Office
3514A Bush Street
Raleigh, NC**

NG911-GIS Subcommittee

Tuesday, December 15, 2015

2:30 pm

Banner Elk Room

3514A Bush Street

Raleigh, NC

Standards Committee

Thursday, December 17, 2015

10:00 am

Banner Elk Room

3514A Bush Street

Raleigh, NC



NORTH CAROLINA 911 BOARD MEETING

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10:00 AM – 12:00 PM

Welcome To Randolph County

Hal Johnson
County Manager

Roll Call

Richard Taylor

Vice Chairman's Opening Remarks

Jason Barbour

Swearing In of Greg Hauser, Charlotte Fire
Department, Representing North Carolina State
Firemen's Association, appointed by the
Speaker of the House

I, Gregory F. Hauser, do solemnly swear that I will support the Constitution of the United States.

I, Gregory F. Hauser, do solemnly swear that I will be faithful and bear true allegiance to the State of North Carolina, and to the constitutional powers and authorities which are or may be established for the government thereof; and that I will endeavor to support, maintain and defend the Constitution of said state, not inconsistent with the Constitution of the United States.

I, Gregory F. Hauser, do solemnly swear that I will well and truly execute the duties of my office as a member of the North Carolina 911 Board according to the best of my skill and ability, according to law, so help me God.

Ethics Awareness/Conflict of Interest Statement

Jason Barbour

In accordance with G.S. 138A-15, It is the duty of every Board member to avoid both conflicts of interest and potential conflicts of interest.

Does any Board member have any known conflict of interest or potential conflict of interest with respect to any matters coming before the Board today?

If so, please identify the actual or potential conflict and refrain from any undue participation in the particular matter involved.

Consent Agenda *(vote required)* Jason Barbour

(Complete Reports Located in Agenda Book On Web Site)

North Carolina 911 Board
MINUTES
3514A Bush St, Raleigh
October 23, 2015

<u>Members Present</u>	<u>Staff Present</u>	<u>Guest</u>
Jason Barbour (NCNENA) Johnston Co 911 (phone)	Richard Bradford (DOJ)	Ron Adams-Southern Software
Dave Bone (NCACC) Martin Co	David Dodd (DIT)	Rachel Bello-Wake County
Ninnet Bowman (pending VoIP representative from TWC)	Karen Mason (DIT)	Nikki Carswell-Burke 911
Eric Cramer (LEC) Wilkes Communications	Marsha Tapler (DIT)	Nicole Childress-Guilford Metro 911
Rick Edwards (CMRS) Sprint (WebEx and phone)	Richard Taylor (DIT)	Nelson Clark-Synergem
Chris Estes (NC State CIO)(911 Board Chair)		Jennifer Daniel-Guilford Metro 911
Andrew Grant (NCLM) Town of Cornelius (WebEx and phone)		William Daniel-Guilford Metro 911
Len Hagaman (Sheriff) Watauga Co		Ricky Draper-Guilford Metro 911
Greg Hauser (pending NCSFA representative) Charlotte Fire Dept (WebEx and phone)		Denise Drumwright-Person Co 911
Rick Isherwood (CMRS) Verizon		Michael Gentry-Person Co 911
Robert Smith (LEC) AT&T		Dana Hall-Guilford Metro 911
Jeff Shipp (LEC) Star Telephone		R.N. Huey-NC SHP
Jimmy Stewart (NCAREMS) Hoke Co 911		Greg Light-Eden Police
Slayton Stewart (CMRS) Carolina West Wireless (WebEx and phone)		Dannette McNeal-Guilford Metro 911
Laura Sykora (LEC) CenturyLink		Melanie Neal-Guilford Metro 911
		Sam Page-Rockingham Co Sheriff
		Philip Penny-MCP
		Wesley Reid-City of Greensboro
		Raven Shelton-Person Co 911
<u>Members Absent</u>	<u>Staff Absent</u>	Micky Silvers-Rockingham Co 911 Governance
Darryl Bottoms (NCACP) Pilot Mountain PD	Tina Bone (DIT)	Candy Strezinski-Burke 911
Dinah Jeffries (NCAPCO) Orange Co Emergency Services	Dave Corn (DIT)	Rick Thomas-Apex PD
		Vic Williams-Beaufort Co 911
		Jason Wood-Rockingham Co 911
		Brett Wrenn-Person Co 911

		<u>WebEx Guest Attendees</u>
		Fred Baggett-NCACP
		Marie Carroll-Sampson Co
		Sarah Collins-NCLM
		Meghan Cook-DIT
		Del Hall-Stokes Co
		Kenyon Harris-Burlington PD
		Erin Lesh-NCDOT
		Todd Sims-Mecklenburg EMS Agency
		Lisha Stanley-Henderson Co Sheriff
		Corinne Walser-Mecklenburg EMS Agency
		Brenda Womble-Wilson Co

Chairman's Opening Remarks

At 10:00 AM Chairman Estes convened the meeting, recognizing telecommunicators at both Person County 911 and Guilford Metro 911 for outstanding performance in responding to some especially challenging recent 911 calls. He asked Executive Director Richard Taylor to provide some details.

Mr. Taylor began by relating how a mother called Person County 911 after her four year old daughter's foot was nearly amputated when she fell near a riding lawnmower and her foot went under the deck. The call presented additional challenges because the home was recently constructed and the address did not appear in the ALI feed for the call, so telecommunicator Brittany Shelton not only had to perform EMD on the call, she also had to determine where to send responders, yet she still dispatched responders within 47 seconds. Mr. Taylor added that when Life Flight was requested for a helicopter evacuation, and coordinates were not available in the ALI information to provide for an LZ, one of the responders had the presence of mind to place a call to the 911 center from his mobile phone so that the Phase II coordinates for his location could be used for the LZ. Mr. Taylor then played an edited recording of the 911 call so listeners could hear how well Ms. Shelton guided the mother and controlled the call. He applauded her ability "to maintain" the whole time, when he speculated he would have been a basket case had it been him.

With that, Mr. Taylor and Chairman Estes presented a plaque to the entire Person County team which worked with Ms. Shelton on the call inscribed "To Brittany Shelton, along with your team members Joy Brown, Michael Gentry, and Supervisor Denise Drumwright of the Person County Communications Center, for your outstanding teamwork, professionalism, and commitment to public safety, thank you for all that you do in making the 911 system in North Carolina an excellent system."

Mr. Taylor next introduced Guilford Metro 911's Squad A, relaying that virtually every member of that squad was involved in locating and providing police help to a girl who had been kidnapped but didn't know where she was. Identifying Nannette McNeal as the telecommunicator who handled the call, he said she demonstrated perfect protocol when, believing the girl's location to be within the jurisdiction of Piedmont Triad International airport police, she attempted to transfer the call, saw that the transfer was not successful, then re-established contact with the girl herself. She was a 15 year old girl who had been kidnapped from South Carolina and was scared to death. She was in a car at a Citgo gas station, but she didn't know its location, and Ms. McNeal talked her into getting out of the car and locking herself in the

gas station rest room until police arrived. Thanks to the persistence and professionalism of the entire squad, they determined the girl's location based upon her description of buildings around the gas station, and police not only rescued her but also apprehended the kidnapper.

As squad members were assembling at the podium for the award presentation, Mr. Taylor remarked that he had heard the squad had also handled another exemplary call recently. Guilford Metro 911 Director Melanie Neal confirmed that, saying that Greensboro PD had credited Squad A telecommunicator Dana Hall with recognizing that 4 or 5 different assaults, two armed robberies, and two home invasions appeared to be the work of one person, and by establishing a perimeter for the police officers to work within, contributed to the offender's apprehension. The squad leader added that thanks to the work of Deputy City Manager Wesley Reid in consolidating the Guilford Metro 911 Center during his years as its director, the presence of telecommunicators representing all the different agencies involved in these incidents in one room, working side by side with one another, was key to solving the problems these calls presented as a team.

Mr. Taylor then read the inscription on the plaque: "Nicole Childress, Bill Daniel, Ricky Draper, Dana Hall, and Dannette McNeal of Guilford Metro Squad A, for your outstanding teamwork, professionalism, and commitment to public safety, the 911 Board wants to thank you for striving to make North Carolina's 911 system excellent."

Ms. Neal then stepped to the podium to thank the 911 Board for funding the Denise Amber Lee training that was afforded to all these employees because that training prepared them for what can go wrong with helping kidnapping victims, and they did everything right. Chairman Estes added that it is times like this that we really appreciate the work 911 folks do and understand how much what they do matters.

Ethics Awareness/Conflict of Interest Statement

Chairman Estes read the ethics awareness/conflict of interest statement printed on the agenda and asked Board members to indicate if they felt they had any conflict or potential conflict of interest with any of the matters scheduled to come before the Board today. Board Member Rob Smith cited item 5e, saying he would recuse himself from that vote. Chairman Estes asked if there were any others, and hearing none reminded members that they are always able to recuse themselves at any time during the proceedings if they discover something that they hadn't initially realized might be a conflict. He then asked Mr. Taylor to introduce the consent agenda.

Consent Agenda

Mr. Taylor first called roll of Board members participating via telephone and WebEx. Andrew Grant, Rick Edwards, Greg Hauser, Slayton Stewart, and Jason Barbour all responded to the roll call. Darryl Bottoms and Dinah Jeffries had both let Mr. Taylor know they would be absent today. Mr. Taylor then noted a misspelled name in the draft minutes, Jason Stewart's last name had been misspelled "Stewart", and asked if there were any other corrections. Hearing none, he moved to the financial report, stating the CMRS fund paid out \$219,778, with revenues of \$690,604, bringing the fund balance to \$2,891,472. He reported total revenues for the PSAP fund of \$5.8M, of which \$923,432 was Pre-Paid revenue. He added \$18,618,000 was transferred to the Grant Fund, and after paying out this month's PSAP disbursements, the PSAP fund balance is \$4,361,120. Regarding the Grant Fund, Mr. Taylor reported \$20,530,988 is encumbered, but that staff has not yet calculated the three grants recently awarded as all the contracts have only this week been received. He added that he hopes to finish signing all those contracts this afternoon. With the encumbrance accounted for, the unencumbered grant fund balance now stands at \$17,286,360. He then opened the floor to questions about anything having to do with the consent agenda, and hearing none, Chairman Estes called for a motion to accept the report. Jeff Shipp so moved, Laura Sykora seconded, and the motion carried unanimously among active Board members, with Ninnet Bowman and Greg Hauser not voting due to their pending status.

Public Comment

Chairman Estes next opened the floor to public comment from members of the audience, noting that the Board always welcomes comment from "The public, our local government officials, first responders, finance directors, 911 directors, and citizens." No one came forward in the room, and Mr. Taylor

confirmed no one had registered in advance to speak today, so Chairman Estes asked him to proceed with the Executive Director Report.

Executive Director Report

Mr. Taylor began by reminding everyone that the PSAP Managers Group Meeting will take place the same week that the National 911 Program's Peer Assessment Team will be in town preparing its assessment of the state of 911 in North Carolina, with that team presenting its initial determinations before the PSAP Managers Group on Thursday afternoon, November 19, before heading home Friday. He encouraged Board members to attend a reception with the Peer Assessment Team on Monday evening, as well as briefings being presented to that team by representatives of different groups and organizations from government and industry who play a role in 911 on Tuesday, acknowledging that several Board members will be among the people making presentations that day. He reiterated that the PSAP Managers Group meeting will be on Thursday and Friday only.

Mr. Taylor said there has been a good response from PSAP managers, with only 26 PSAPs not having registered to attend, and 111 people from the remaining PSAPs planning to attend. He observed that of course he would like to see 100% attendance, but admitted that is seldom the case. Ms. Sykora asked if staff is continuing to reach out to the PSAPs which haven't registered anyone, and Mr. Taylor said yes, adding that several of the PSAP contacts, however, have already cited conflicts which prevent their attending.

Moving to legislative updates, Mr. Taylor reviewed H512 and H730, both of which affect 911 and both of which had passed and been signed into law. He reminded everyone that H512 gave the Board the ability to extend the deadline for a PSAP to submit a backup plan for up to one year, provided the PSAP demonstrates it has made and is making significant progress in the development of the plan, as well as a directive to the 911 Board "to investigate alternatives to facilitate uniform procurement and pricing of 911 eligible expenses through bulk purchasing and other means. No later than May 1, 2016, the Board shall report its findings, including any requests for legislative action, to the Joint Legislative Oversight Committee on Information Technology." Noting that uniform procurement is something the Board and the Funding Committee have been talking about for a long time, he added that staff member Dave Corn has been working on just such a plan for providing language translation services to PSAPs, which is expected to "hit the street soon."

Turning to H730, he once again hit the high notes he had touched upon at the September 25th 911 Board meeting, recorded on pages 4 and 5 of the minutes of that meeting (https://www.nc911.nc.gov/Board/agenda/Book/20151023_Tab03a_DRAFT%2009252015%20Minutes.pdf), including the impact implementing the 10% Next Generation 911 Fund will have on future grant funding, and the likelihood that a rate hike may be necessary. Chairman Estes observed that utilization of uniform procurement pricing will play a critical role, providing the possibility to make up for the 10% through better contracting rather than a change in the fee structure. Mr. Taylor agreed, saying that is one of the things the Funding Committee has been working on, "getting a better handle on what PSAPs are paying." Next Generation 911 Committee chair Jeff Ship also agreed, saying "we've got to show those efficiencies are in place before we look at other funding."

The next item in Mr. Taylor's report was an update on the City of Rocky Mount Police Department Grant Appeal. He reported that two weeks ago he and staff member Tina Bone met with their entire team, characterizing it as a really good meeting which he underscored by sharing a quote from an email from their support services manager where she stated, "It is clear we were operating under the wrong premise." Mr. Taylor explained that they thought they had to build a building, complete with brand new furniture and everything else for their backup center, duplicating their primary center. He said that after he and Tina went through a couple of other possible solutions the team felt it had a much better understanding and would submit an updated plan in the near future. Mr. Taylor added staff will continue to work with them until their new plan is approved. Chairman Estes noted this is a good example of how a lot of confusion can be eliminated and problems resolved when people meet face to face to work out a solution.

Mr. Taylor next relayed Anson County's request for a grant extension to the Board, explaining they had been working with the Dept. of Public Safety regarding use of Highway Patrol Viper System radio towers,

but learned in June that the cost of modifications to the towers was going to be prohibitive, so they stopped everything to investigate alternative solutions. The balance of their grant funding is \$151,566, and Mr. Taylor noted they are not asking for any more money; they would simply like to spend it on placing their radio equipment on county owned water towers, but need an extension to January 31, 2016 in which to do that. Mr. Taylor said the staff recommendation is to approve the request. Chairman Estes asked for a motion in that regard, Sheriff Hagaman so moved, and Eric Cramer seconded. Offering the opportunity for further discussion and hearing none, Chairman Estes called the vote, and the motion carried unanimously among active Board members, with Ninnet Bowman and Greg Hauser not voting due to their pending status.

Rockingham County had also requested a grant extension, having been granted one already, and Mr. Taylor explained that was due to their pursuing the best price they could get for their county wide radio system. To accomplish that, they had to do an RFP, which took some additional time, so it is stretching out a little longer than they had originally anticipated. Mr. Taylor added that representatives from Rockingham County were present today to answer any questions, if necessary. Among the outstanding issues they need to resolve are paging issues for their fire departments, a couple of building tasks that still need to be taken care of, and a couple of IT tasks that still need to be taken care of, so they are asking for an extension until June of 2016. He reported their current grant fund balance is \$694,614, and that they, too, are not asking for any additional funding—just additional time—and the staff recommendation is to approve the request. Chairman Estes asked for a motion in that regard, Sheriff Hagaman so moved, and Rick Isherwood seconded. When the floor was opened to discussion, Mr. Taylor was asked if there has been a precedent for approving a second extension, and he replied yes, it had been done once before. Chairman Estes mentioned that since the RFP process seemed to be in some part responsible for the need for an extension, and asked if implementation of a uniform procurement plan would possibly provide relief from that, to which Mr. Taylor replied that since this was for a radio system rather than normal eligible 911 expenses, it would not. Board Counsel Richard Bradford interjected that there are existing state contracts that deal with some aspects of radio communications, but not all. He added that his recollection of this grant application and the information in the agenda book is that what Rockingham County is seeking is not covered by current state contracts. Hearing no further discussion, Chairman Estes called the vote, which passed unanimously among active Board members, with Ninnet Bowman and Greg Hauser not voting due to their pending status and with Rob Smith abstaining.

Micky Silvers, current chair of the Rockingham County 911 Governance Board, stepped to the podium to thank the Board for honoring their request, saying he was “extremely thankful” for that consideration. Chairman Estes then turned the floor over to Jeff Shipp for the Next Generation 911 Committee Report.

NextGen 911 Committee Report

Saying he did not have a formal report from the committee today, Mr. Shipp said he did have some guests whom he would like to have offer a presentation instead. Noting that as Mr. Taylor had said, with passage of H730 and funding for NG911, now comes responsibility for that funding. He said he wants to assure everyone that the Board has a vision for NextGen and 911 services into the future, and he commends the NextGen Committee, the Board, and staff for being proactive as it relates to NextGen. He observed we’re all in this together, including the PSAP community, and we need buy-in from everyone. He next introduced Jim Lockard and Cliff Brown from Federal Engineering (FE), both of whom have worked extensively with staff on the NextGen project. He said he has asked Mr. Lockard to share a presentation he gave to the NextGen Committee last month, and would like for it to provide a broad overview without getting too much into the “technical weeds,” setting the stage for the Board’s work session and Board meeting in December.

Mr. Lockard thanked the Board for providing him the opportunity to discuss where FE is in regards to this project, observing work began near the end of July, kicking off the project to understand where North Carolina was in relation to NG911 and also gather information to help define a path forward. He noted that this isn’t going to change what happens at the PSAP level and is not necessarily going to introduce any new challenges at the PSAP level, but is instead just a continuation of where we are as a state and how we can better plan for the future through NextGen 911.

Referring to an “Information Snapshot” slide in his slide presentation,
(https://www.nc911.nc.gov/Board/agenda/Book/20151023_Tab06_NextGen%20911%20In%20North%20

[Carolina.pdf](#)) he pointed out that from a statistical perspective there are about 9.9M residents in North Carolina who generate between 7M and 7.5M 911 calls per year, or about 0.7 calls per person, which is pretty close to the national average of between 0.8 and 0.85 per person. He said ~76% of those calls are coming from wireless phones, ~17% still come from wireline, and ~7% are VoIP, which he added is also close to the national average.

Mr. Lockard noted that the current 911 environment in NC is built upon a legacy 911 practice: the E911 standards which have worked well and continue to work. He added, however, that the problem comes when new technologies are introduced, such as mobile phones and other mobile technology, the potential to add video, the potential to add pictures, or even social media interactions, which could overwhelm this legacy network system. He also observed the ability to use new technology is everywhere, and we need to transition into a way of using that at the best level possible.

He pointed out that one of the problems with the legacy 911 network is disparate 911 technology at different PSAPs; counties that implemented it did so for their own reasons, which were not necessarily the same as their neighbors', and did it to the best of their ability. Unfortunately, when you try to join these PSAPs in a NextGen environment, they are at different levels, and some of those disparate legacy technologies are simply not going to be able to be upgraded in an expedient and cost-effective manner to meet the challenges of these new devices and new technologies.

Mr. Lockard speculated that radio system issues are probably the toughest to overcome in 911. He explained that radio has so many disparate models in use today, usually proprietarily tied to the towers and other infrastructure that you have to get very creative with your solutions. He said that although solutions being sold and implemented today may get us part of the way to NG911, the goal is to accomplish that in a unified manner; to bring the entire state to the same level.

The last point in his "Information Snapshot" slide looked to PSAPs' abilities to back one another up and share information, both operationally and technically, as an important aspect of NG911; we want the PSAPs to be able to back one another up if one needs to go offline. He observed that in a NextGen system, that could be as easy as simply logging off at one PSAP and logging in at another to receive re-routed calls.

Mr. Lockard then displayed a high level graphic representation of a possible NG911 concept of operations, with two, or perhaps more, data centers where all of the NG911 functionality would be housed. PSAPs could connect to those data centers, although the PSAPs' role still would remain focused on the call; the network would just provide access to the additional functionality of NextGen. He said there would also be additional data centers between those data centers and the Internet, serving as a buffer and protecting the NG network from potential harm from the Internet, acting sort of like a DMZ to keep the 911 system isolated. He also pointed out an item on the graphic called an NMAC, or Network Monitoring and Assistance Center, which would have the same functionality as a NOC (Network Operations Center) but would, in addition, handle all of the security policies and security mechanisms. He highlighted the fact that the NCMAC would not replace the security audits or security measures which need to be done at the PSAP or in the county. It would be, instead, primarily for monitoring the overall NextGen system.

The next slide offered a graphic representation of the 911 components which would be housed in a data center. They would include an ECRF (Emergency Call Routing Function) performing routing functions akin to a selective router in today's network; an ESRP (Emergency Service Routing Proxy) which understands the routing capabilities and guides them through the network; possibly hosted call control systems such as hosted CPE, removed from PSAPs and sized appropriately to serve many at once; and some of the ALI functions would also be there. PSAPs would connect in a manner similar to a cloud based system, receiving the functionality without having to repeat it 119 times (number of Primary PSAPs).

Displaying the next slide, Mr. Lockard ticked off a bullet point list of goals they are hoping to achieve regarding the ESInet. The first was to ensure it is an affordable solution, one that is not only technically and operationally viable, but also not so costly that you can't afford to operate it, i.e. not one that may be cheap to purchase but too expensive to operate. The next goal was to ensure PSAPs retain control of their systems. He stressed the goal of NG911 is not to replace or change what goes on at the PSAP, but to add to that, adding capabilities in basically a cloud based system to allow them to do things better; to

offer more capability to enable them to do more. Another goal is to have the network be scalable, another to offer diversity and another to offer redundancy as much as possible. He posited the key thing to watch for there is that diversity and redundancy can become very expensive very quickly—you can correct any single point of failure if you have enough money—so provisioning them must be carefully monitored to ensure that doesn't happen.

Mr. Lockard's sixth goal bullet point was to integrate with the legacy environment, since it will still be needed for some time during the transition from legacy 911 to NG911. Another goal is to maximize cost efficiencies; rather than implementing 119 individual NextGen solutions at 119 PSAPs which would have to be integrated later, which is essentially what we have today, a solution which reduces duplications of effort and provide a much needed commonality is needed. Hand in hand with that will be collaborative procurement and purchasing decisions, as well as reducing the number of vendors and/or individual service level agreements to realize cost efficiencies. And finally, the last goal on the slide points to housing data centers in state; vendors would be welcome to connect to out-of-state data centers, but the principal ESInet data centers would remain within state boundaries.

The next slide addressed the functionality the project is hoping to provide. The first bullet point spoke to convergence of technology. Noting that today's PSAPs work well, Mr. Lockard noted that while designed for resiliency, redundancy, and diversity, it is on an individual basis, and as soon as you try to tie them together you run into boundaries: boundaries of counties and boundaries of operational limitations which prevent PSAPs from sharing information. He said that the NextGen solution will hopefully break down such barriers.

He spoke next about media anchoring, generally done through an IP network, which anchors the media to the device that it came from. What it essentially means is that no call is dropped and no call is blocked. Media anchoring ensures that a call will find some path through the network no matter what happens.

Message session relay protocol (MSRP) for text messaging appeared next on the slide. Mr. Lockard observed that while North Carolina has been implementing text messaging over TDD/TTY or other work-arounds, MSRP will be the NextGen solution of choice. It is similar to media anchoring in that it makes sure the text message gets through.

Mr. Lockard said that initially the plan is to size the network with a 10 Gbps backbone, which he speculated might be a little high, but he wants to spec it that high and see where the quotes come back in regard to cost. He explained that the 10 gigs would be more than enough to handle all of the 119 Primary PSAPs if they all joined initially, but, as he had mentioned earlier, from a network perspective we would want to keep it scalable so that it can grow if necessary.

As far as routing protocols go, Mr. Lockard voiced a preference for Open Shortest Path First (OSPF), the primary interior path standard from NENA, which looks through the network for the shortest path before sending data. Similarly, he endorsed Border Gateway Protocol (BGP), also a standard from NENA, for the exterior path standard. He pointed out they become important when you consider the alternative, which would be 119 individual NextGen systems which might NOT use those path standards.

Mr. Lockard once again spoke to the potential cost of providing network and hardware diversity, mentioning that even NENA has addressed this from an "as much as is financially practical" point of view. He reiterated that those costs can get out of hand very easily if you're not careful, and that in some instances a more affordable solution which may result in a minor degradation of service, but would still be sufficient, may be more desirable than the very best solution costing far more in order to maintain service at the exact same level.

Integration with the legacy PSTN will be a necessity until selective routing is completely gone, he added, or at least until we fully transition to the ECRF. He noted that will not be immediately upon moving into NG911 because making the transition will take time, with some PSAPs taking longer than others. He stressed that integration with the legacy PSTN will continue to be necessary until ALL the PSAPs have made the transition.

Mr. Lockard stated that the team is striving for an “Evergreen Solution”, or one that can be upgraded or changed or altered or modified or adjusted to meet whatever the demand is going forward, observing we surely don’t want a solution that would be good for 4 or 5 years and then become obsolete.

Asking how we are going to manage the network going forward and how we are going to ensure that the service levels across the board are going to be met and maintained, Mr. Lockard explained the service management approach the team has embraced, minimizing the number of service level agreements required, etc.. He characterized that as a key piece, not only for the PSAPs, but also for the state.

Moving next to a proposed hosted call handling scenario, he showed how calls could be routed to a Legacy Network Gateway (LNG) through the Emergency Services Routing Proxy (ESRP) to the PSAPs. He noted how this could allow for the minimization or elimination of dedicated CPE at the PSAP, which could lower costs. He explained that hosted call handling is basically a system that is put inside the NG911 network cloud, has all of the NextGen functional elements, is IP capable, and engages the PSAPs at a different level.

Mr. Lockard indicated Session Initiated Protocol (SIP), an Internet Engineering Task Force (IETF) standard rather than a NENA standard, is really a VoIP standard, so all of the systems that will be installed will be based upon SIP. He added it may also allow for the ability to host recording solutions, so whereas every PSAP today has a recorder, or maybe multiple recorders, shared recorders could perhaps be located within the data centers so PSAPs that didn’t want a dedicated recorder could have access to that.

Mr. Lockard reported that the team has broken GIS down to 3 core functions: call routing, dispatch, and workflow. He said call routing in NextGen will be through a geo-based routing system which will determine where the call is coming from and route it to the proper PSAP utilizing the ECRF rather than the selective routers in use today. Dispatch could include dynamic boundary creation in a response scenario, and workflow would address how to keep the GIS file accurately updated. He pointed out these are all done today at the PSAP level, but as we bring GIS up into the NG911 solution, they will have to be performed at a broader level. Once again, he added, these are not replacing what goes on at the PSAP now, but adding to the importance of it because with NextGen we’ll be routing calls based upon GIS data.

Mr. Shipp interjected that the NextGen committee is so aware of the importance of GIS that it has formed a sub-committee under the leadership of CGIA’s Joe Sewash and including Rachel Bello, in attendance today, strictly regarding these issues going forward. Mr. Lockard acknowledged that what he is presenting today is a very over-simplified version of what Mr. Sewash and Ms. Bello deal with daily, but stressed how critically important their work will be and GIS will become in an NG911 solution.

Mr. Lockard then introduced the Network Monitoring and Assistance Center (NMAC), which will replace what has formerly been referred to as a NOC (Network Operations Center), although most providers of 911 and NextGen will still have their own NOC to be responsible for their service from point A to point Z. He pointed out, however, that when looking at it from a statewide perspective, multiple providers will need to be combined together to create the entire service, which will then have to be managed through a service management function. The NMAC will provide that service management function for all the PSAPs as a single point of contact to resolve whatever problems arise in the network, whether they be routing issues, trouble ticketing issues, etc., i.e. all the functions you would normally expect to find at a help desk. He added it will also handle security measures through the network, the point for security control.

Moving to CAD interoperability, Mr. Lockard indicated it will actually be a bit more than just that—it’s really operational capabilities for PSAPs to share. He said it’s actually a specification to allow disparate CAD systems to communicate, noting that CAD systems are usually highly customized to fit a PSAP’s individual needs and are therefore not easily integrated into one system. He stipulated that having a system which could share that information in a more effective manner is another component that the team is after. He said it would allow the ability to support a wider area or greater region, maybe multi-jurisdictional, to allow PSAPs greater ability to support one another in a large scale event. He added that although it’s not exactly a CAD interoperability issue, they do also want to increase technical support for PSAPs, observing that sometimes the technology kind of outruns what the PSAP is capable of. He noted

that sometimes the PSAP has a good technical staff, sometimes it doesn't; sometimes it's supported by IT, sometimes it isn't; so having a technical ability is key as we move into NG911.

Mr. Lockard explained radio interoperability would include mobile to mobile in the field for first responder communication as well as PSAP to mobile in the field for dispatch, noting that the dispatch capability is key for 911. He pointed out that mobile to mobile is being focused upon by the State Interoperability Executive Committee (SIEC), whereas we're focused on the dispatch: how does the PSAP talk to multiple radios, whether they are within the PSAP's service boundaries or outside of them. He said the team's efforts have focused on this dispatch area, or PSAP to radio in the field. He added that while NextGen can help support that, there are a lot of other things that also have to be considered, so this may be a longer run: once we have the network, the ability to do NG911, shared hosted call centers/call handling systems, and the NMAC in place, the key components will be in place to address the radio interoperability challenge very well.

Mr. Lockard relayed that the team is also looking at a cost analysis from a budgetary perspective. We want to know what the capital costs will be, what the operating costs will be, because we want to make sure that it's affordable over time. He displayed a slide listing current plans, current costs, future costs and considerations, all of which will be fluid enough to adapt as needs warrant. Among the future considerations is the distinction of whether a system is IP capable or NG911 capable, the difference being whether or not the system can do SIP.

Looking at cost analysis from a timeline perspective, Mr. Lockard said they are looking at having the cost analysis and concept of operations finalized within the next two weeks or so and hoping for Board approval at its next meeting. Once those are approved, he said that's when the team will "really take a deeper dive into the conceptual designs": where the technical architecture will be put together. Noting that they've already looked at it from a high level to say "where should we go?" based upon where North Carolina is, he said now they will be looking at what's the best path to follow. Referring to his timeline slide, he observed that based upon the passage of H730 NG911 funds will begin to accrue in January 2016, and the hope is to have the first RFP, most likely for the ESInet, out in the March time frame, with the second and third RFPs following later. He said the team also hopes to have the build-out begin probably by the end of next year, with the first PSAPs coming online with fully functional NG911 by August of 2017. He added that this is all in a state of flux, however, depending upon how quickly we do the RFPs, the order in which we do the RFPs, as well as other things that may shift the timeline. He observed, however, that the one thing this slide does show is that we will begin accruing funds before we have to begin paying for the network. He then opened the floor to questions.

Chairman Estes commended Laura Sykora for having her hand in the air so quickly and asked her to go ahead. She asked if the ESInet data centers were in the cloud, to which Mr. Lockard replied they are physical locations where the servers and routers, or functional elements of the NG911 system, would be housed. He said that at least until we can cost out and understand the provisioning of the data centers the team would like to have them placed in state, although participating vendors would be welcome to connect to their out-of-state centers as well. Ms. Sykora asked for the reasoning behind that, and Mr. Lockard explained that sometimes the connectivity that goes beyond the state can have issues. He related that some vendors have had some troubles occur, including security issues that can arise from upstream, where those interconnections occur, so the team just feels more comfortable keeping it internal and allowing connections to wherever the core of a vendor's network may be.

Chairman Estes added that the General Assembly had extended the "data center tax credit" to data centers located in North Carolina, and Ms. Sykora responded that she supported keeping them in state, but just wanted to be sure there wasn't some technical reason that was necessary. Mr. Lockard replied that one of the "technical" reasons is just to keep the information here; to know that if the network is down we have a potentially smaller area in which to identify the trouble and work to correct it, rather than trying to understand if it was in Boston or Texas or California where the circuit broke down. Ms. Sykora observed it would result in fewer links to track down, and Mr. Lockard concurred. He further explained, however, that this could technically be done on a larger scale, but again, the team feels keeping the data centers in state offers some additional benefits, provided costs are acceptable.

Chairman Estes next recognized Jeff Shipp, who asked Mr. Lockard to touch on what makes this design unique or similar to others he has worked on in other states. Mr. Lockard replied the data center piece is

a little unique. He said other states he has worked in have data centers that are attached to those longer runs, but having them in state is also unique because of the service management approach being endorsed here. He said he comes back to that because what he's seen is providers managing from A-Z who are only concerned with what goes on in their own NOC; anything outside of that, they are not managing or concerned with. He observed that with NG911 things that happen either upstream or downstream, are extremely important, and this service management approach the team is looking at becomes very relevant and very key from an operational standpoint. He noted that other states and other areas are trying to implement something similar, but we're taking a little bit different approach by creating one here, or creating a specification for that—that is to say we're going to have a service management capacity here, and someone is going to do that, but it may not be the same vendor that is providing the service. He added that it may be a third party or it may be somebody else, but that role is going to be filled by somebody. Mr. Shipp interjected that it will be one point of contact, one responsible entity, and Mr. Lockard concurred.

Dave Bone was recognized next, opening his comment by saying he appreciated the description of the three core functions which are going to be performed by GIS, adding he understands the importance of the call routing function. He said he was still struggling to understand the dispatch piece, however, and asked how we will integrate the statewide GIS with the local files, updating both, etc.. Mr. Lockard replied that is exactly what Joe Sewash and his subcommittee is working on right now. He said they are working out a process right now, investigating a couple of different methods, but adding he really can't speak for Mr. Sewash right now. He did accede, however, that it is difficult working on a statewide schedule or statewide process like this, because not all counties have the same GIS vendor or have equivalent personnel performing GIS functions—some are really good, some are really bad; some are farther ahead, some are not. So the only way to really integrate all that is to do a sample size, do a pilot study, start pulling in the information and see what's there and what's not. Mr. Bone asked if there would be duplications; would the local governments maintain their files and those be worked into the statewide system? Mr. Lockard said yes, the local operations do not change—what they do from a GIS level and what they do from a GIS maintenance perspective, quality assurance, quality control, will stay with them. He said they would replicate that data up to a server, observing there are vendors that do this as well, but the standards for what that data needs to be is what Mr. Sewash and the subcommittee are working on. Mr. Bone then observed we would be beholden to those local units to provide the updates to the state, and said he's sure there are different schedules regarding how frequently those updates occur. Mr. Lockard said yes, and again, that is exactly what the Mr. Sewash and the subcommittee are working on.

Mr. Bone then posed his second question, regarding the timetable projecting August 2017 as the expected date for the first PSAPs going live. He asked what type of rollout is anticipated, and Mr. Lockard replied he didn't think they had really gotten that far yet. He said what they would need to do is, through the conceptual design, which is coming up after this, determine which PSAPs appear to be more ready and make a better judgement. Mr. Bone asked if they anticipate several going live at one time, and Mr. Lockard replied he just doesn't know at this point. He speculated it could be a region, it could be some of the larger PSAPs, but typically would be determined by what would have the most minimal impact on PSAP operations going forward. He added there would be several criteria which still need to be investigated.

Sheriff Hagaman spoke up next, asking where North Carolina is in comparison with other state which are moving in this direction: ahead, behind, about right? Mr. Lockard replied he felt we are about right, if not a little ahead, based upon his experiences working in six other states pursuing this same path, i.e. we are still "on the early side."

Chairman Estes then offered a couple of comments, the first observing that members of the FirstNet team are working with the NG911 Committee, and how he wants to encourage keeping them connected in this discussion going forward. He also said that given the information the network will carry and the importance of it, he would like to make sure the committee considers information security, adding that in the world we live in today, it is something he thinks about every day. He said he just wants to make sure a large emphasis is put on that because once we put all this data in one place, any breach in security could have a bad impact on the state. His last point revolved around the Governor's initiative to make sure we try out technology before we purchase it, as he observed he didn't see any reference to a pilot in the timeline Mr. Lockard presented, and he wants to be sure we do take those steps before a final recommendation is made to purchase. Mr. Lockard replied that in most of these there is a test and

acceptance period as well as something called a system soak, with a soak period lasting from 30 to 60 days, where the products are being used, but not for live traffic. Chairman Estes replied he's suggesting that before we sign a contract with a vendor we will pilot their technology to make sure it works, noting that is being done across the state right now from a technology perspective. He added it is usually incorporated in the RFP process, and Mr. Lockard concurred.

Mr. Bone then added he would like to encourage consideration be given to a variety of PSAP sizes when the rollouts do occur rather than just target the larger, more metropolitan PSAPs, because the smaller PSAPs have different issues and he thinks looking at a broader spectrum of PSAPs is a better approach.

Linnet Bowman then asked what training and education is required to move into NextGen. Mr. Lockard asked if she meant from the PSAP side, and she said yes. He replied it is highly dependent upon the PSAP itself, depending upon what they roll out and the functions they are using. He speculated, however, that little should change about taking a call, it will just now be provided through a SIP message. He added, however, it may change if they move to a hosted solution scenario; their processing may change if they move something like a recorder to the cloud, but that would be on an individual access basis. He summarized by saying NG911 is still a call.

Ms. Sykora asked if the RFP is going to include offering hosted solutions, has the team made any assumptions about how many PSAPs may move to such a solution or how many calls will be handled that way, or how is that factored in? Mr. Lockard replied they have not defined that yet because at this first stage they are just setting the groundwork for the path forward. He said that over the next two months, before they put out the specifications, before they put out the RFP, that type of question is exactly what they expect to address.

Rick Isherwood observed any time he hears "single point of failure" it is concerning to him, and he's curious when the determination will be made of what's an acceptable level of risk for single points of failure in the design. Mr. Lockard replied they are saying no single point of failure is acceptable, that what they've talked about is redundancy and diversity to eliminate that possibility.

Chairman Estes told Mr. Shipp he appreciates the work of the committee and thanked Mr. Lockard for his presentation today. Mr. Shipp said he thinks the goal of the presentation today was just to assure the Board that the NextGen program is on schedule and on target, a lot of work has been done and continues to be done. He added more will be addressed at the December Board meeting, and asked Mr. Taylor if a portion of the Board work session the day preceding that meeting would be devoted to this. Mr. Taylor replied he will be talking about that topic in just a few minutes, how the Board wants to set up that work session and what Board members want to discuss. He added one of the major goals they are trying to accomplish right now is to get the initial RFP out. He said some great questions were asked today, some getting into some "weedy areas", and reminded everyone that the Concept of Operations and the Cost Analysis will be voted on by this Board in December, so that's why they wanted to offer this presentation today, to understand there are a lot of pieces and parts to this—it's not just a "flipping a switch" type of thing. Citing the GIS as an example, Mr. Taylor said he has already contracted with Joe Sewash—he's not just volunteering, but is actually in a contract with the Board now to handle the GIS piece. He added we have a lot of folks like Rachel Bello who live, eat, and breathe GIS, helping us.

Referring to the agenda's list of upcoming meetings, Chairman Estes noted he did not see another meeting of the NG911 Committee prior to the December Board meeting and asked if that was accurate. Mr. Shipp said they had one scheduled for Friday, October 30th. Chairman Estes asked what time, saying he wanted to encourage Board members to attend, and Mr. Taylor replied it would be at 10:00 AM in the same location as today's meeting. Chairman Estes then thanked the committee for today's presentation, and reiterated he wanted to encourage Board members to attend the committee meetings and/or approach Jeff Shipp and his team if they needed private discussion regarding specific information or questions, adding he is looking for all of the Board's input.

Update on Rules Compliance Process

Chairman Estes invited Laura Sykora to present her update on the rules compliance process, and she began by reporting the Standards Committee had met earlier in the week and studied what it needs to be doing between now and July 1, 2016, to develop a process for compliance reviews. She said they have

drafted several steps to take based upon what they hope will be the final set of approved rules (see https://www.nc911.nc.gov/Board/agenda/Book/20151023_Tab07_Proposed%20Rules%20Compliance%20Process.pdf), including providing an opportunity for respondents to add commentary when completing the compliance review form similar to what CALEA does, pursuant to a suggestion from NCACP. She said they also discussed qualifications for reviewers and training the reviewers, with a couple of PSAPs (Carteret and Buke Counties) having volunteered to be reviewed first. Once more reviewers are on board, Ms. Sykora said they will review their own PSAPs as part of the preparation or practice for performing actual reviews on other PSAPs. She observed the committee wants to do this just to see if the process is working as hoped, gathering the right information, etc.. She speculated that the actual compliance reviews will not start until probably July of 2017. She added if a PSAP wishes to request a review just as a test or self-assessment to see how they comply with the standards, they are welcome to do that, adding that it would also allow them to prepare for their budget cycle as well.

Ms. Sykora relayed that the Standards Committee has put together a panel to present to PSAP managers at the upcoming PSAP Managers meeting to share this process and address other questions that may arise during that meeting. She said the panel members, all “PSAP people”, are Rodney Cates, Donna (Chip) Wright, Candy Strezinski, and Jimmy Stewart, and the committee appreciates them stepping up to do that. She then asked Board Counsel Richard Bradford where things presently stand with the rule-making process. He reported the revision of the rules has been completed as of yesterday by the rules coordinator, and filed yesterday afternoon. He said the upshot of that is that he will be attending the Rules Review Commission meeting on November 19th, which is the earliest possible date they may take this up. He added that his expectation is, because of the submission yesterday afternoon, if there’s any discussion it won’t be very substantive and will probably defer to the December 17th meeting, when we will be firmly on the agenda. He said he expects to receive some questions, comments, etc. from rules review counsel in the interim, and will address them in due course. He expressed the hope that there won’t be any substantive questions, but if there are, offered he may have to argue a little bit with them.

Chairman Estes observed that with Mr. Bradford’s comments, both agenda items 7 and 9 have been addressed, adding he did, however, have a question. He noted that the legislative changes which affect the Board were made after the Board’s approval of the last iteration of the standards or rules, and asked if any of those legislative changes would have any impact upon the rules or the rules review process. Mr. Bradford replied there’s a possibility, yes, but in substance, no. He said that what he foresees instead is the likelihood that the Board may wish to draft and propose some additional rules based on the legislative changes, but most of those will probably be more process and policy type questions and will probably be first addressed by the Funding Committee before making their way to the Standards Committee for consideration.

Proposed Meeting Dates for 2016

Mr. Taylor projected a list of proposed meeting dates onscreen, stressing that they are only proposed and won’t become final until voted on at the December meeting. He asked everyone to check their 2016 calendars and pencil in the dates, however, noting that several meetings will be out of town: March in Kinston, July in Williamston, October in Greensboro (although David Dodd said he thought that had changed back to Raleigh), and the December work session and meeting in Surry County, in Dobson. Chairman Estes suggested that maybe one Raleigh meeting could be moved to Charlotte, noting that “all of us who live in Charlotte would appreciate a Charlotte based meeting”, sparking laughter around the room. He reminded Mr. Taylor that many meeting attendees come from the Charlotte area, parenthetically adding that it *is* also the most populous area of the state, and has not hosted a meeting during his tenure as Board Chair. Mr. Taylor reviewed the last time the Board met there about two years ago, which was, indeed, prior to Chairman Estes’ tenure, characterizing that visit as having been one where everyone was very well treated and squired around town by the hosts. No concrete plans were made, but a sense did emerge that by the December Board meeting the proposed dates may well include a meeting in Charlotte!

Discussion of December 3, 2015 Work Session

Mr. Taylor asked Board members what topics they would like to address during the December 3rd work session at the NC Zoo. Observing that NextGen is huge, he also observed that he thinks they should dedicate time to looking at funding issues as well. Mr. Shipp said he would really like to spend at least two

hours digging into the weeds of NextGen so everyone's comfortable with their vote on Friday. Others commented that NextGen and funding are both important, as well as interrelated. Chairman Estes suggested looking at funding specific to contracting, e.g. some of the legislative changes and their relationships to funding. Saying he was not trying to change anyone's mind, Mr. Bradford offered that if there was a need to discuss some of the details that would be associated with a prospective RFP, then only Board members and staff may attend: no one else. Mr. Taylor asked if they would have to clear the room of all others, and Mr. Bradford said yes. Mr. Taylor said he could handle that, and Mr. Bradford added that in the past, although the work session is not technically an open meeting, interested members of the PSAP community, etc., have been invited to attend, and some have. He said he doesn't want to discourage that, but he does want everyone to be aware that if there's a need to really get into some of those issues and the "whys" and the "wherefores", certain things may be requested or certain paradigms may be suggested in an RFP—cost models and such things as that—then it cannot be public in any way, shape, or form. Ms. Sykora added that she would like to see the Board spend at least a half an hour just discussing what it would like to accomplish in the upcoming year.

Other Items

Chairman Estes asked if there were any other items to come before the Board, and hearing none, entertained a motion to adjourn.

Adjourn

Jeff Shipp made a motion to adjourn the meeting, Sheriff Hagaman seconded, and the meeting adjourned at 12:01.

CMRS Fund Balance

1) CMRS Disbursements

PSAP Fund Balance

1) PrePaid CMRS Revenue

**PSAP FUND REVENUE/DISTRIBUTION
(20% /80% PLAN)**

	July-15	August-15	September-15	October-15	November-15	December-15	January-16	February-16	March-16
CMRS Revenue	755,329.89	825,442.67	690,604.43	735,377.74	-	-	-	-	-
Interest	587.16	864.28	1,271.87	1,516.12	-	-	-	-	-
CMRS Disbursement	(263,884.10)	(225,238.68)	(219,778.40)	(21,408.02)	-	-	-	-	-
GRANT Allocation									
CMRS Prev Balance	1,326,272.78	1,818,305.73	2,419,374.00	2,891,471.90	3,606,957.74	3,606,957.74	3,606,957.74	3,606,957.74	3,606,957.74
CMRS Fund Balance	\$1,818,305.73	\$2,419,374.00	\$2,891,471.90	3,606,957.74	\$3,606,957.74	\$3,606,957.74	\$3,606,957.74	\$3,606,957.74	\$3,606,957.74

	Revenue						GRANT Allocation	Monthly Expenditure	Fund Balance
	PSAP 80%	Wireline	VOIP	Prepaid Wireless	Interest	Total			\$ 16,312,532.95
Jul-15	\$ 3,021,319.56	\$ 1,135,511.24	\$ 1,003,072.05	\$ 1,349,460.80	\$ 7,221.78	\$ 6,516,585.43		(4,299,386.18)	18,529,732.20
Aug-15	3,301,770.69	1,193,516.67	1,484,185.43	829,155.61	8,807.60	6,817,436.00		(4,130,307.15)	21,216,861.05
Sep-15	2,762,417.73	1,232,962.11	938,447.56	923,432.19	11,153.79	5,868,413.38	(18,618,895.26)	(4,105,258.87)	4,361,120.30
Oct-15	2,941,510.96	954,578.04	938,549.82	862,014.38	2,286.71	5,698,939.91		(4,139,932.30)	5,920,127.91
Nov-15	-	-	-	-	-	-		-	5,920,127.91
Dec-15	-	-	-	-	-	-		-	5,920,127.91
Jan-16	-	-	-	-	-	-		-	5,920,127.91
Feb-16	-	-	-	-	-	-		-	5,920,127.91
Mar-16	-	-	-	-	-	-		-	5,920,127.91
Apr-16	-	-	-	-	-	-		-	5,920,127.91
May-16	-	-	-	-	-	-		-	5,920,127.91
Jun-16	-	-	-	-	-	-		-	5,920,127.91

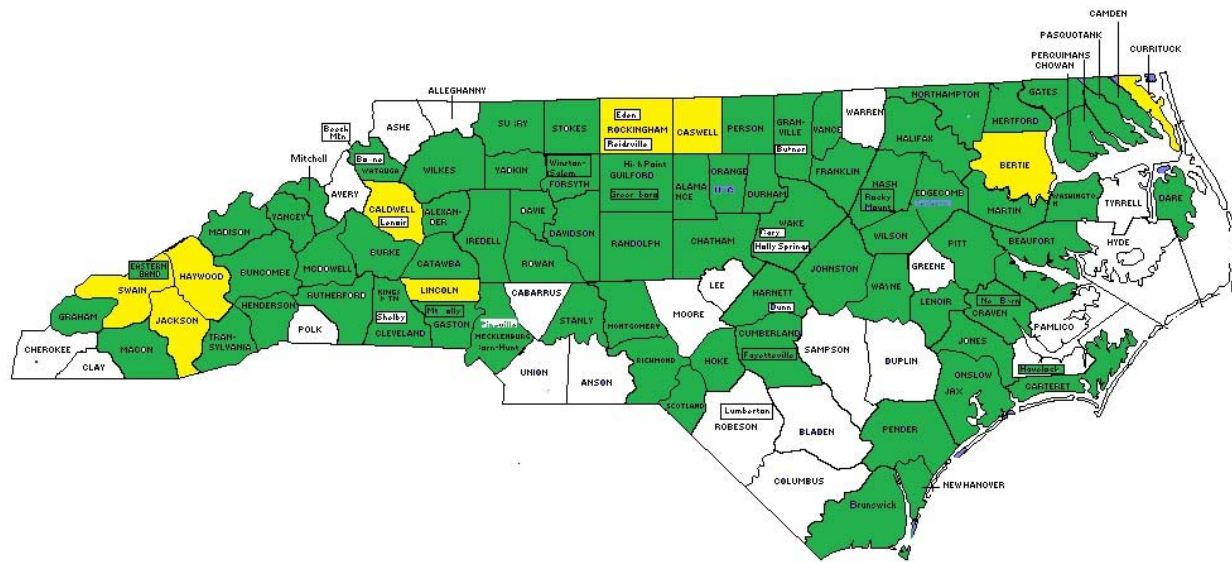
CASH BASIS REPORTING

The NC 911 Board welcomes comments from state and local government officials, first responders, finance directors, 911 directors, citizens and interested parties about any 911 issue(s) or concern(s).

Your opinions are valued in terms of providing input to the NC 911 Board members. When addressing the Board, please state your name and organization for the record and speak clearly into the microphone.

Speakers:

a) PSAP Manager's Group Update



PSAP Managers Roundtable Discussion 11/20/2015

Tina Bone: Text-to-911

- i. I asked each group to discuss where they were with text to 911...if they had deployed it, how they were receiving it, if there were any problems, and if not why haven't they deployed it.
- ii. There were several PSAP Managers who stated they were having problems receiving text to 911 via TTY but only from certain wireless carriers. The TTY would come in partially garbled. After discussion amongst the Managers they found out different "fixes" to try.
- iii. The PSAPs that had not deployed Text to 911 were either waiting on equipment upgrades or authorization from their management.
- iv. The group discussion seemed to really get the Managers communicating with one another.

Dave Corn: Equipment Inventory / NG Ready

I asked if they thought their CPE was ready to be connected to an IP network and defined ready as being SIP enabled. As part of the discussion I added if they are considering replacing any of their equipment they should not sign longer than a 5 year agreement and 3 years was better. The responses I received were:

- How will I know if my CPE is SIP enabled and what is SIP?
- Several people asked when the hosted solution would be available? They asked if the Board was going to force them to adopt the hosted solution? We discussed that the hosted solution would be available in roughly 2+ years when the ESInet was deployed. We discussed that going to a hosted environment was better for smaller PSAPs with access to local network diversity and that adopting hosting was not mandatory. The general consensus was that hosting was a good idea.
- There was a lot of discussion around the state bulk purchasing agreements. They wanted to know when they would be available to buy off state contract.
- Some participants discussed that they were being strongly encouraged by their vendor to sign 10 year contracts. We talked when acquiring any technology ten years is not a reasonable idea because of changes. This led to questions about when a recommended replacement schedule would be available from the Board that they could present to their management.
- Managers expressed concern that their staffs were not ready to receive pictures and videos and that field responders were not ready to accept them either.

David Dodd: Back Up PSAP Status

- i. Many PSAP managers stated the biggest problem they were encountering was a suitable location for their backup center.
- ii. Some managers stated they are receiving little support, financially or otherwise, from their -City/County Managers and elected officials regarding a backup solution for their PSAPs.
- iii. Many PSAPs seem to be focused on the idea of building stand-alone backup centers for their use.
- iv. To the above points I reminded them the idea of 119 primary PSAPs each having their own backup was not financially sustainable, especially since new legislation requires 10% of all revenue collected to be placed in a special fund to pay for NG 911. I encouraged them to seek out partnerships with neighboring PSAPs, or look at regional ideas like the Swain-Jackson County project, which Graham and the Eastern Band of Cherokees are wanting to become a part of.
- v. There seemed to be a misunderstanding about the requirement of “mirror image functionality” in their backup plan. Many PSAPs seem to think if their PSAP had 4 seats, their backup solution required the same number of seats, even if staffing levels were less than the total number of seats.
- vi. A good example was two smaller PSAPs in the northeastern part of the State each have 4 seats, but normal staffing is only 2 people per shift. They were under the impression they would have to have a total of 8 seats in a combined backup solution, but they came to understand they had enough seats to create a plan where they could use each other’s existing primary as their backup option.
- vii. Another example cited two fairly large centers in the same county. One center has a total of 10 seats, and the other center has 15 seats, for a total of 25 available seats. They are wanting to work on a shared backup facility, but were having problems finding a space and funding for 25 seats. However, the combined staffing for both centers is only 17 per shift. They were encouraged to look at 18-20 workstations in a combined setting, which should give them adequate coverage, plus a small cushion, should a workstation become inoperable.

Richard Taylor: #1 Problem Facing PSAP Managers Today

- i. Staffing (number) & Retention
- ii. More classes on retention

Executive Director Report

Richard Taylor

b) Greg Hauser Statement of Economic Interest



STATE ETHICS COMMISSION

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GEORGE L. WAINWRIGHT, JR.
CHAIRMAN

PERRY Y. NEWSON
EXECUTIVE DIRECTOR

November 12, 2015

The Honorable Tim Moore
Speaker of the House of Representatives
16 W. Jones St., Rm. 2304
Raleigh, NC 27601-1096

Via email

**Re: Evaluation of Statement of Economic Interest Filed By Mr. Gregory F. Hauser
House Appointee – 911 Board**

Dear Speaker Moore:

Our office is in receipt of **Mr. Gregory F. Hauser's** 2015 Statement of Economic Interest as an appointee to the **911 Board**. We have reviewed it for actual and potential conflicts of interest pursuant to Chapter 138A of the North Carolina General Statutes ("N.C.G.S."), also known as the State Government Ethics Act.

We did not find an actual conflict of interest, but found the potential for a conflict of interest. The potential conflict identified does not prohibit service on this entity.

The 911 Board was established to develop and update the 911 State Plan, which includes enhanced 911 services for the use of customers of all voice communications providers. The Board has the authority to levy a monthly service charge on each active voice communications service connection, and fund advisory services and training for public safety answering points (PSAP). In addition, the Board administers and distributes revenue and grants from the 911 Fund and the PSAP Grant Account.

The State Government Ethics Act establishes ethical standards for certain public servants, including conflict of interest standards. N.C.G.S. §138A-31 prohibits public servants from using their positions for their financial benefit or for the benefit of a member of their extended family or a business with which they are associated. N.C.G.S. §138A-36(a) prohibits public servants from participating in certain official actions from which the public servant, his or her client(s), a member of the public servant's extended family, or a business or non-profit with which the public servant or a member of the public servant's immediate family is associated may receive a reasonably foreseeable financial benefit.

Mr. Hauser fills the position of a director or manager of a fire-based PSAP. He is the Communications Division Manager for the Charlotte Fire Department which could seek and receive funding from the Board. As such, Mr. Hauser has the potential for a conflict of interest and should exercise appropriate caution in the performance of his public duties should issues regarding the Charlotte Fire Department come before the Board for official action.

In addition to the conflicts standards noted above, N.C.G.S. §138A-32 prohibits public servants from accepting gifts, directly or indirectly (1) from anyone in return for being influenced in the discharge of their official responsibilities, (2) from a lobbyist or lobbyist principal, or (3) from a person or entity which is doing or seeking to do business with the public servant's agency, is regulated or controlled by the public servant's agency, or has particular financial interests that may be affected by the public servant's official actions. Exceptions to the gifts restrictions are set out in N.C.G.S. §138A-32(e).

Pursuant to N.C.G.S. 138A-15(c), when an actual or potential conflict of interest is cited by the Commission under N.C.G.S. 138A-24(e) with regard to a public servant sitting on a board, the conflict shall be recorded in the minutes of the applicable board and duly brought to the attention of the membership by the board's chair as often as necessary to remind all members of the conflict and to help ensure compliance with the State Government Ethics Act.

Finally, the State Government Ethics Act mandates that all public servants attend an ethics and lobbying education presentation. Please review the attached document for additional information concerning this requirement.

Please contact our office if you have any questions concerning our evaluation or the ethical standards governing public servants under the State Government Ethics Act.

Sincerely,

A handwritten signature in cursive script that reads "Beth Carpenter".

Beth Carpenter
SEI Unit

cc: Mr. Gregory F. Hauser
Mr. Richard Taylor, Ethics Liaison
Mr. Paul C. Estes, Board Chair

Attachment: Ethics Education Flyer

Executive Director Report

Richard Taylor

c) Update on Rocky Mount PD Grant Appeal

Approval of Estimated FY17 PSAP Distributions

Marsha Tapler

(vote required)

PSAP	Current FY2016 Distribution	5 Year Rolling Average Distribution FY2017	Percentage of Change	FY2015 Ending Fund Balance
<u>Alamance County Central Communications</u>	632,543.77	565,851.61	-10.5%	940,503.36
<u>Alexander County Communications</u>	125,670.54	151,717.06	20.7%	713,739.95
<u>Alleghany County E911</u>	149,583.51	136,852.84	-8.5%	272,335.52
<u>Anson County Emergency Communications</u>	241,285.05	176,065.66	-27.0%	307,561.17
<u>Ashe County Communications</u>	255,219.03	256,483.38	0.5%	538,085.79
<u>Avery County Communications Center</u>	197,989.14	199,849.05	0.9%	337,932.18
<u>Beaufort County Communications Center</u>	145,497.37	167,513.79	15.1%	689,130.20
<u>Bertie County Sheriff's Communications</u>	122,800.22	162,001.53	31.9%	351,845.66
<u>Bladen County Sheriff's Communications</u>	186,444.74	269,461.07	44.5%	131,589.08
<u>Brunswick County 9-1-1</u>	659,435.00	712,963.17	8.1%	1,108,941.57
<u>Buncombe County Emerg. Communications</u>	875,307.90	932,643.36	6.6%	2,558,932.05
<u>Burke County Emerg. Communications</u>	559,958.07	637,543.31	13.9%	1,178,456.63
<u>Cabarrus County Sheriff Communications</u>	576,689.15	614,317.02	6.5%	708,966.57
<u>Caldwell County Communications</u>	304,404.39	402,062.22	32.1%	338,198.54
<u>Carteret County Communications</u>	537,419.87	556,077.26	3.5%	981,162.03
<u>Caswell County 911 Communications</u>	245,775.83	254,733.49	3.6%	228,658.99
<u>Catawba Co Communications Center</u>	352,839.41	495,350.39	40.4%	2,208,895.59
<u>Chatham County Emergency Operations Center</u>	588,204.84	550,849.41	-6.4%	618,386.10
<u>Cherokee County 911</u>	233,538.45	275,694.24	18.1%	382,823.01
<u>Chowan Central Communications</u>	335,678.00	162,853.84	-51.5%	289,402.01
<u>Clay County E911 Communications</u>	250,411.04	233,105.76	-6.9%	306,261.75
<u>Cleveland County Communications Center</u>	332,731.73	484,656.35	45.7%	392,537.11
<u>Kings Mountain (City of)</u>	114,301.90	78,681.22	-31.2%	204,725.80
<u>Shelby Police Communications</u>	100,228.28	107,075.81	6.8%	186,099.50
<u>Columbus Central Communications</u>	266,425.20	331,390.23	24.4%	1,010,325.27
<u>Craven County Sheriff Communications</u>	263,260.87	256,254.48	-2.7%	348,870.12
<u>Havelock Public Safety Comm.</u>	203,423.30	207,426.02	2.0%	141,545.93
<u>New Bern Communications Center</u>	311,353.64	316,959.60	1.8%	173,402.87
<u>Cumberland County Communications</u>	1,176,405.41	988,038.61	-16.0%	1,747,633.98
<u>Fayetteville City Communications</u>	856,109.91	819,347.71	-4.3%	1,318,308.97
<u>Currituck Central Communications</u>	174,236.08	161,958.33	-7.0%	498,205.03
<u>Dare Central Communications</u>	341,885.14	314,627.93	-8.0%	824,526.51
<u>Davidson County 911</u>	508,354.80	494,238.10	-2.8%	1,016,352.42
<u>Davie County Communications</u>	276,838.23	274,071.36	-1.0%	253,366.59
<u>Duplin County/Kenansville PSAP</u>	355,286.10	458,464.95	29.0%	306,680.32
<u>Durham Emergency Communications</u>	1,619,954.97	1,667,199.52	2.9%	187,987.60
<u>Edgecombe County E911</u>	96,539.16	299,735.23	210.5%	417,717.76
<u>Tarboro Police Communications</u>	112,948.34	165,637.24	46.6%	97,509.99
<u>Forsyth County 911 Communications</u>	631,531.91	622,517.07	-1.4%	1,037,959.87
<u>Winston Salem Police/Fire Communications</u>	490,715.73	479,070.70	-2.4%	1,887,623.76
<u>Franklin County Sheriff Communications</u>	393,027.64	345,284.47	-12.1%	343,027.68
<u>Gaston County Communications</u>	714,921.07	736,203.13	3.0%	1,631,001.51
<u>Mount Holly Police Department</u>	65,635.69	66,099.43	0.7%	369,163.49
<u>Gates County Communications</u>	129,497.74	133,866.01	3.4%	143,484.71
<u>Graham County Communications</u>	207,395.20	182,310.17	-12.1%	330,939.44
<u>Granville County Emergency Communications</u>	418,918.37	455,248.67	8.7%	296,246.03
<u>Greene County Communications</u>	110,303.98	162,139.68	47.0%	454,756.82
<u>Greensboro</u>	1,789,556.38	2,104,094.86	17.6%	1,424,453.86

PSAP	Current FY2016 Distribution	5 Year Rolling Average Distribution FY2017	Percentage of Change	FY2015 Ending Fund Balance
<u>High Point Police/Fire Communications</u>	537,177.04	534,372.68	-0.5%	209,839.48
<u>Halifax County Central Communications</u>	335,054.51	326,161.16	-2.7%	627,170.94
<u>Harnett County Communications</u>	700,030.22	685,937.23	-2.0%	1,158,159.47
<u>Haywood County 911</u>	298,205.05	341,719.68	14.6%	978,367.23
<u>Henderson County Communications</u>	589,031.45	570,025.43	-3.2%	363,117.07
<u>Hertford County Communications</u>	98,517.27	103,475.79	5.0%	384,007.73
<u>Ahoskie Police Department Communications</u>	94,888.48	60,055.27	-36.7%	371,357.48
<u>Murfreesboro</u>	19,731.37	22,069.86	11.9%	45,798.43
<u>Hoke County Emergency Communications</u>	336,450.42	324,142.40	-3.7%	71,794.54
<u>Hyde County Emergency Management</u>	106,623.50	106,623.50	0.0%	0.00
<u>Iredell County Emergency Communications</u>	454,050.33	453,857.70	0.0%	672,299.80
<u>Jackson County Emergency Communications</u>	484,804.71	486,394.91	0.3%	176,545.00
<u>Johnston County Communications</u>	2,548,858.53	1,107,706.38	-56.5%	650,269.58
<u>Lee County Emergency 911 Center</u>	320,507.09	385,575.50	20.3%	578,518.43
<u>Lenoir County Communications</u>	534,123.74	648,545.07	21.4%	96,484.41
<u>Lincoln County Communications Center</u>	253,037.64	297,388.48	17.5%	629,202.53
<u>Macon County Communications</u>	313,837.00	436,114.76	39.0%	253,875.23
<u>Madison County EOC</u>	207,249.42	247,543.02	19.4%	105,768.12
<u>Martin County Communications Center</u>	247,004.81	248,061.19	0.4%	217,829.64
<u>McDowell County Sheriff's Communications</u>	290,540.60	223,323.93	-23.1%	361,994.07
<u>Charlotte-Mecklenburg Police Department</u>	2,091,919.77	3,485,849.24	66.6%	3,836,496.75
<u>Cornelius-Huntersville Police Communications</u>	104,497.10	174,883.43	67.4%	517,083.99
<u>Pineville Police Comm. Center</u>	130,151.20	108,839.97	-16.4%	598,383.47
<u>Mitchell County Central Communications</u>	221,976.76	118,021.82	-46.8%	991,190.68
<u>Montgomery County Communications</u>	169,390.04	221,369.98	30.7%	227,216.33
<u>Moore County Emergency Communications</u>	413,395.13	403,339.72	-2.4%	1,003,900.23
<u>Nash County Central Communications</u>	366,837.12	436,669.98	19.0%	271,826.48
<u>Rocky Mount Police Communications</u>	340,532.47	311,074.33	-8.7%	335,170.98
<u>New Hanover County Sheriff Communications</u>	502,353.69	673,268.92	34.0%	1,149,418.11
<u>Northampton County E-911</u>	208,566.27	190,607.36	-8.6%	394,029.95
<u>Onslow County Communications</u>	393,271.71	363,212.91	-7.6%	867,769.87
<u>Jacksonville E911</u>	315,815.07	317,539.61	0.5%	554,395.05
<u>Orange County Emergency Communications</u>	509,171.68	545,454.27	7.1%	1,040,535.73
<u>Pamlico County Communications</u>	134,469.13	141,684.37	5.4%	293,120.24
<u>Pasquotank/Camden Central Communications</u>	373,301.82	406,153.38	8.8%	206,917.70
<u>Pender County Sheriff Communications</u>	304,737.81	350,118.71	14.9%	144,239.71
<u>Perquimans County Communications</u>	309,592.31	136,353.25	-56.0%	166,164.79
<u>Person County Communications</u>	538,768.00	438,823.89	-18.6%	207,643.75
<u>Pitt County 911 Communications</u>	503,369.82	562,807.98	11.8%	669,643.91
<u>Polk County Communications</u>	204,450.31	201,995.47	-1.2%	406,983.60
<u>Randolph County Emergency Communications</u>	581,016.69	659,358.16	13.5%	133,801.78
<u>Richmond County Emergency Comm.</u>	342,625.91	333,859.59	-2.6%	155,527.83
<u>Robeson County Communications</u>	360,715.83	466,034.52	29.2%	1,416,250.87
<u>Lumberton Emergency Comm.</u>	104,347.90	177,927.17	70.5%	329,532.78
<u>Rockingham County 911 Communications</u>	213,242.09	264,967.74	24.3%	602,414.32
<u>Rowan County Telecommunications</u>	633,690.60	665,201.60	5.0%	948,085.78
<u>Rutherford County Communications</u>	429,204.59	395,697.13	-7.8%	577,443.77
<u>Sampson County Sheriff Communications</u>	218,929.14	291,345.71	33.1%	747,803.73

PSAP	Current FY2016 Distribution	5 Year Rolling Average Distribution FY2017	Percentage of Change	FY2015 Ending Fund Balance
<u>Scotland County Emergency Communications</u>	335,492.72	299,135.09	-10.8%	8,411.74
<u>Stanly County Emergency Communications</u>	567,082.99	347,355.36	-38.7%	44,549.69
<u>Stokes County Emergency Communications</u>	320,161.83	292,892.47	-8.5%	518,908.29
<u>Surry County Communications Center</u>	379,402.90	440,851.27	16.2%	235,872.28
<u>Eastern Band Cherokees</u>	93,968.41	130,714.44	39.1%	389,161.18
<u>Swain County 911 Dispatch</u>	286,154.73	251,680.21	-12.0%	63,888.55
<u>Transylvania County Communications</u>	362,124.72	287,140.41	-20.7%	467,381.63
<u>Tyrrell County</u>	103,016.49	117,020.12	13.6%	253,041.88
<u>Union County</u>	513,740.92	832,555.11	62.1%	2,056,808.35
<u>Vance-Henderson 911 Center</u>	651,168.96	458,141.49	-29.6%	4,545.07
<u>Cary</u>	523,129.19	651,741.93	24.6%	490,855.24
<u>Holly Springs Public Safety Center</u>	216,643.40	118,516.06	-45.3%	1,122,449.84
<u>Raleigh Wake 911 Center</u>	2,861,093.36	2,033,717.57	-28.9%	2,069,250.37
<u>Warren County Sheriff Comm.</u>	155,730.32	168,285.50	8.1%	455,145.97
<u>Washington County Communications</u>	199,236.78	172,105.62	-13.6%	370,790.70
<u>Watauga County Sheriff Communications</u>	300,579.32	320,369.10	6.6%	407,068.96
<u>Beech Mountain Police Dept</u>	110,912.01	117,877.42	6.3%	134,219.05
<u>Boone Police Department 911</u>	119,666.18	120,983.92	1.1%	339,268.64
<u>Wayne County Central 911</u>	438,274.27	502,232.60	14.6%	1,662,952.20
<u>Wilkes County Sheriff Communications</u>	504,897.29	405,907.37	-19.6%	755,954.60
<u>Wilson County Emergency Communications</u>	441,966.53	437,471.22	-1.0%	498,368.13
<u>Yadkin County Emergency Communications</u>	85,627.00	237,630.03	177.5%	435,243.72
<u>Yancey County Sheriff Comm.</u>	149,936.53	166,005.33	10.7%	321,018.29
Subtotal:	\$49,148,552.08	\$49,988,470.13		\$72,086,806.42

	Current FY2016 Distribution	Basis for Estimated Secondary Funding FY2017		
Secondary PSAP				
Burlington PD	128,567.85	144,538.42	12.4%	765.73
Hickory PD	52,420.50	108,025.94	106.1%	24.21
Newton PD	10,543.50	22,151.53	110.1%	11,818.36
Kernersville PD	26,683.89	28,063.08	5.2%	0.00
Hendersonville PD	52,463.32	55,819.50	6.4%	3,433.43
Charlotte Fire	33,521.04	67,548.93	101.5%	264.81
Charlotte MEDIC	176,635.62	351,959.47	99.3%	119,855.60
Brevard PD	64,567.25	41,364.40	-35.9%	0.00
Subtotal:	545,402.97	819,471.27		136,162.14
TOTAL Primary & Secondary	\$49,693,955.05	\$50,807,941.40	2.2%	\$72,222,968.56

Distribution based on 5 years **FY2011-FY2015**

PSAP	PSAP Distribution: FY2014	PSAP Distribution FY2015	Average of prior two years distributions:	Maximum 20% Carry Forward	PSAP Fund Balance June 30, 2014	PSAP Fund Balance June 30, 2015	(+/-) Fund balance between FY13 and FY14	Based on Column L -- Meets 20% rule (Ok) or Over 20% (Reduce)	Amount over Approved 20% Carryforward	Final APPROVED FY2016 Distributions (Secondary's Included)	Proposed Estimated FY2017without Reducing Distribution (Based on 5YR rolling Avg)	PROPOSED ESTIMATED FY2017 Distribution Based on 5YR Rolling Avg WITH reductions due to carryforward	MONTHLY	Number of Seats
Alamance County Central Communications	671,388.81	678,223.00	674,805.91	134,961.18	958,868.79	940,503.36	-18,365.43	OK		632,544.00	565,851.61	565,851.61	47,154.30	18
Secondary Burlington PD	0.00	109,730.00	54,865.00	10,973.00	0.00	765.73	765.73	OK		128,567.85	144,538.42	144,538.42	12,044.87	
Alexander County Communications	139,120.84	135,596.02	137,358.43	27,471.69	729,708.72	713,739.95	-15,968.77	OK		125,670.54	151,717.06	151,717.06	12,643.09	3
Alleghany County E911	162,437.42	136,409.86	149,423.64	29,884.73	272,662.89	272,335.52	-327.36	OK		149,583.51	136,852.84	136,852.84	11,404.40	2
Anson County Emergency Communications	229,499.06	60,888.13	145,193.60	29,038.72	328,385.86	307,561.17	-20,824.69	OK		241,285.05	176,065.66	176,065.66	14,672.14	4
Ashe County Communications	244,763.73	234,502.01	239,632.87	47,926.57	672,159.52	538,085.79	-134,073.73	OK		255,219.03	256,483.38	256,483.38	21,373.62	3
Avery County Communications Center	167,318.27	194,781.10	181,049.69	36,209.94	308,932.56	337,932.18	28,999.62	OK		197,989.14	199,849.05	199,849.05	16,654.09	3
Beaufort County Communications Center	211,231.55	187,867.12	199,549.34	39,909.87	697,662.42	689,130.20	-8,532.22	OK		145,497.38	167,513.79	167,513.79	13,959.48	3
Bertie County Sheriff's Communications	142,796.42	121,933.28	132,364.85	26,472.97	423,817.84	351,845.66	-71,972.18	OK		122,800.22	162,001.53	162,001.53	13,500.13	2
Bladen County Sheriff's Communications	262,385.74	236,251.69	249,318.72	49,863.74	393,733.27	131,589.08	-262,144.19	OK		186,444.74	269,461.07	269,461.07	22,455.09	3
Brunswick County 9-1-1	761,711.17	1,006,952.15	884,331.66	176,866.33	1,309,587.70	1,108,941.57	-200,646.13	OK		659,435.00	712,963.17	712,963.17	59,413.60	7
Buncombe County Emerg. Communications	984,066.94	853,820.89	918,943.92	183,788.78	2,727,862.84	2,558,932.05	-168,930.79	OK		875,307.90	932,643.36	932,643.36	77,720.28	31
Burke County Emerg. Communications	813,107.94	467,805.71	640,456.83	128,091.37	1,571,223.11	1,178,456.63	-392,766.48	OK		559,958.07	637,543.31	637,543.31	53,128.61	11
Cabarrus County Sheriff Communications	754,223.50	699,367.20	726,795.35	145,359.07	698,501.14	708,966.57	10,465.43	OK		576,689.15	614,317.02	614,317.02	51,193.09	11
Caldwell County Communications	362,208.75	348,521.53	355,365.14	71,073.03	651,433.88	338,198.54	-313,235.34	OK		304,404.39	402,062.22	402,062.22	33,505.19	5
Carteret County Communications	521,906.07	454,029.76	487,967.92	97,593.58	886,107.87	981,162.03	95,054.16	OK		537,419.87	556,077.26	556,077.26	46,339.77	9
Caswell County 911 Communications	237,294.45	214,651.92	225,973.18	45,194.64	250,081.38	228,658.99	-21,422.39	OK		245,775.83	254,733.49	254,733.49	21,227.79	4
Catawba Co Communications Center	513,603.77	436,843.00	475,223.39	95,044.68	2,514,474.45	2,208,895.59	-305,578.86	OK		352,839.00	495,350.39	495,350.39	41,279.20	7
Secondary Hickory PD	0.00	58,711.00	29,355.50	5,871.10	0.00	24.21	24.21	OK		52,420.50	108,025.94	108,025.94	9,002.16	4
Secondary Newton Pd	0.00	11,809.00	5,904.50	1,180.90	0.00	11,818.36	11,818.36	Reduce	10,637.46	10,543.50	22,151.53	11,514.07	959.51	
Chatham County Emergency Operations Cent	606,563.75	454,223.41	530,393.58	106,078.72	539,477.03	618,386.10	78,909.07	OK		588,204.84	550,849.41	550,849.41	45,904.12	8
Cherokee County 911	261,144.99	234,425.84	247,785.41	49,557.08	352,725.03	382,823.01	30,097.98	OK		233,538.45	275,694.24	275,694.24	22,974.52	3
Chowan Central Communications	207,721.50	88,590.55	148,156.02	29,631.20	290,849.57	289,402.01	-1,447.56	OK		335,678.00	162,853.84	162,853.84	13,571.15	3
Clay County E911 Communications	239,999.59	265,015.28	252,507.44	50,501.49	188,500.85	306,261.75	117,760.90	Reduce	67,259.41	250,411.04	233,105.76	165,846.35	13,820.53	3
Cleveland County Communications Center	298,861.56	323,905.82	311,383.69	62,276.74	1,067,418.44	392,537.11	-674,881.33	OK		332,731.73	484,656.35	484,656.35	40,388.03	5
Kings Mountain (City of)	81,535.77	62,032.43	71,784.10	14,356.82	228,473.22	204,725.80	-23,747.42	OK		114,301.90	78,681.22	78,681.22	6,556.77	2
Shelby Police Communications	45,728.08	56,102.55	50,915.32	10,183.06	199,986.27	186,099.50	-13,886.77	OK		100,228.28	107,075.81	107,075.81	8,922.98	3
Columbus Central Communications	327,752.69	305,020.56	316,386.63	63,277.33	933,803.14	1,010,325.27	76,522.13	Reduce	13,244.81	266,425.20	331,390.23	318,145.43	26,512.12	6
Craven County Sheriff Communications	203,206.00	21,735.95	112,470.98	22,494.20	436,276.70	348,870.12	-87,406.58	OK		263,260.87	256,254.48	256,254.48	21,354.54	5
Havelock Public Safety Comm.	144,137.02	182,936.62	163,536.82	32,707.36	57,121.01	141,545.93	84,424.92	Reduce	51,717.56	203,423.30	207,426.02	155,708.46	12,975.71	3
New Bern Communications Center	235,011.36	288,096.37	261,553.87	52,310.77	187,366.28	173,402.87	-13,963.41	OK		311,353.64	316,959.60	316,959.60	26,413.30	3
Cumberland County Communications	1,074,719.33	913,161.94	993,940.64	198,788.13	1,516,325.44	1,747,633.98	231,308.54	Reduce	32,520.41	1,176,405.41	988,038.61	955,518.20	79,626.52	10
Fayetteville City Communications	805,519.92	1,721,988.00	1,263,753.96	252,750.79	363,222.97	1,321,613.77	958,390.80	Reduce	705,640.01	856,109.91	819,347.71	819,347.71	68,278.98	16
Currituck Central Communications	140,123.41	166,230.90	153,177.16	30,635.43	476,666.57	498,205.03	21,538.46	OK		174,236.08	161,958.33	161,958.33	13,496.53	4
Dare Central Communications	285,615.50	312,713.57	299,164.54	59,832.91	821,718.02	824,526.51	2,808.49	OK		341,885.14	314,627.93	314,627.93	26,218.99	7
Davidson County 911	527,796.31	494,011.56	510,903.94	102,180.79	1,029,714.47	1,016,352.42	-13,362.05	OK		508,354.80	494,238.10	494,238.10	41,186.51	13
Davie County Communications	263,175.99	200,654.45	231,915.22	46,383.04	227,432.58	253,366.59	25,934.01	OK		276,838.23	274,071.36	274,071.36	22,839.28	6

PSAP	PSAP Distribution: FY2014	PSAP Distribution FY2015	Average of prior two years distributions:	Maximum 20% Carry Forward	PSAP Fund Balance June 30, 2014	PSAP Fund Balance June 30, 2015	(+/-) Fund balance between FY13 and FY14	Based on Column L -- Meets 20% rule (OK) or Over 20% (Reduce)	Amount over Approved 20% Carryforward	Final APPROVED FY2016 Distributions (Secondary's Included)	Proposed Estimated FY2017without Reducing Distribution (Based on 5YR rolling Avg)	PROPOSED ESTIMATED FY2017 Distribution Based on 5YR Rolling Avg WITH reductions due to carryforward	MONTHLY	Number of Seats
Duplin County/Kenansville PSAP	371,988.63	558,871.00	465,429.82	93,085.96	295,311.53	306,680.32	11,368.79	OK		355,286.10	458,464.95	458,464.95	38,205.41	5
Durham Emergency Communications	1,482,086.84	1,608,226.04	1,545,156.44	309,031.29	552,649.41	187,987.60	-364,661.81	OK		1,619,954.97	1,667,199.52	1,667,199.52	138,933.29	18
Edgecombe County E911	573,900.00	286,718.00	430,309.00	86,061.80	368,140.59	417,717.76	49,577.17	OK		96,539.16	299,735.23	299,735.23	24,977.94	5
Tarboro Police Communications	135,765.87	238,341.00	187,053.44	37,410.69	117,086.98	97,509.99	-19,576.99	OK		112,948.34	165,637.24	165,637.24	13,803.10	3
Forsyth County 911 Communications	763,903.33	744,587.00	754,245.17	150,849.03	822,463.01	1,037,959.87	215,496.86	Reduce	64,647.83	631,532.00	622,517.07	557,869.24	46,489.10	8
Secondary Kernersville PD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	OK		26,683.89	28,063.08	28,063.08	2,338.59	
Winston Salem Police/Fire Communications	569,596.28	489,713.36	529,654.82	105,930.96	1,757,258.23	1,887,623.76	130,365.53	Reduce	24,434.57	490,715.73	479,070.70	454,636.13	37,886.34	13
Franklin County Sheriff Communications	349,846.61	315,757.23	332,801.92	66,560.38	386,233.58	343,027.68	-43,205.90	OK		393,027.64	345,284.47	345,284.47	28,773.71	5
Gaston County Communications	695,542.58	729,724.47	712,633.53	142,526.71	1,649,984.74	1,631,001.51	-18,983.23	OK		714,921.07	736,203.13	736,203.13	61,350.26	15
Mount Holly Police Department	61,072.03	67,951.95	64,511.99	12,902.40	370,445.41	369,163.49	-1,281.92	OK		65,635.69	66,099.43	66,099.43	5,508.29	2
Gates County Communications	118,394.69	124,449.29	121,421.99	24,284.40	288,160.33	143,484.71	-144,675.62	OK		129,497.74	133,866.01	133,866.01	11,155.50	2
Graham County Communications	198,633.43	198,633.00	198,633.22	39,726.64	188,445.71	330,939.44	142,493.73	Reduce	102,767.09	207,395.20	182,310.17	79,543.08	6,628.59	3
Granville County Emergency Communications	360,409.72	386,153.52	373,281.62	74,656.32	280,644.25	296,246.03	15,601.78	OK		418,918.37	455,248.67	455,248.67	37,937.39	4
Greene County Communications	148,550.92	150,221.17	149,386.05	29,877.21	561,859.54	454,756.82	-107,102.72	OK		110,303.98	162,139.68	162,139.68	13,511.64	2
Greensboro	2,607,288.00	2,760,822.00	2,684,055.00	536,811.00	1,389,114.64	1,424,453.86	35,339.22	OK		1,789,556.38	2,104,094.86	2,104,094.86	175,341.24	44
High Point Police/Fire Communications	437,475.00	544,049.95	490,762.48	98,152.50	120,107.42	209,839.48	89,732.06	OK		537,177.04	534,372.68	534,372.68	44,531.06	10
Halifax County Central Communications	418,533.21	324,571.52	371,552.36	74,310.47	632,187.19	627,170.94	-5,016.25	OK		335,054.51	326,161.16	326,161.16	27,180.10	6
Harnett County Communications	724,828.77	710,922.95	717,875.86	143,575.17	765,429.97	1,158,159.47	392,729.50	Reduce	249,154.33	700,030.22	685,937.23	436,782.90	36,398.58	9
Haywood County 911	483,056.95	274,815.13	378,936.04	75,787.21	970,261.21	978,367.23	8,106.02	OK		298,205.05	341,719.68	341,719.68	28,476.64	7
Henderson County Communications	527,425.76	595,910.00	561,667.88	112,333.58	308,425.01	363,117.07	54,692.06	OK		589,031.00	570,025.43	570,025.43	47,502.12	9
Secondary Hendersonville PD	0.00	77,639.00	38,819.50	7,763.90	0.00	3,433.43	3,433.43	OK		52,463.00	55,819.50	55,819.50	4,651.63	
Hertford County Communications	92,270.96	84,934.38	88,602.67	17,720.53	371,090.87	384,007.73	12,916.86	OK		98,517.27	103,475.79	103,475.79	8,622.98	2
Ahoskie Police Department Communications	90,382.77	72,367.41	103,903.89	20,780.78	363,698.48	371,357.48	14,677.59	OK		94,888.48	60,055.27	60,055.27	5,004.61	2
Murfreesboro	33,441.70	908.26	17,174.98	3,435.00	71,529.29	45,798.43	-25,730.86	OK		19,731.37	22,069.86	22,069.86	1,839.16	1
Hoke County Emergency Communications	225,350.16	323,931.52	274,640.84	54,928.17	47,307.92	71,794.54	24,486.62	OK		336,450.42	324,142.40	324,142.40	27,011.87	5
Hyde County Emergency Management	97,925.71	105,324.69	101,625.20	20,325.04	182,670.87	0.00	-182,670.87	OK		106,623.50	106,623.50	106,623.50	8,885.29	2
Iredell County Emergency Communications	408,311.01	491,883.94	450,097.48	90,019.50	484,941.77	672,299.80	187,358.03	Reduce	97,338.54	454,050.33	453,857.70	356,519.17	29,709.93	7
Jackson County Emergency Communications	517,828.38	502,359.52	510,093.95	102,018.79	196,648.50	176,545.00	-20,103.50	OK		484,804.71	486,394.91	486,394.91	40,532.91	3
Johnston County Communications	1,306,799.00	1,352,366.00	1,329,582.50	265,916.50	270,782.98	650,269.58	379,486.60	Reduce	113,570.10	2,548,858.53	1,107,706.38	994,136.28	82,844.69	21
Lee County Emergency 911 Center	366,334.99	366,243.00	366,289.00	73,257.80	800,931.99	578,518.43	-222,413.56	OK		320,507.09	385,575.50	385,575.50	32,131.29	4
Lenoir County Communications	347,412.28	343,270.00	345,341.14	69,068.23	741,045.13	96,484.41	-644,560.72	OK		534,123.74	648,545.07	648,545.07	54,045.42	4
Lincoln County Communications Center	316,607.65	329,821.00	323,214.33	64,642.87	558,763.63	629,202.53	70,438.90	Reduce	5,796.04	253,037.64	297,388.48	291,592.45	24,299.37	6
Macon County Communications	670,646.00	320,391.00	495,518.50	99,103.70	763,670.14	253,875.23	-509,794.91	OK		313,837.00	436,114.76	436,114.76	36,342.90	4
Madison County EOC	243,532.83	241,209.00	242,370.92	48,474.18	89,683.23	105,768.12	16,084.89	OK		207,249.42	247,543.02	247,543.02	20,628.59	4
Martin County Communications Center	144,465.20	291,648.00	218,056.60	43,611.32	238,282.45	217,829.64	-20,452.81	OK		247,004.81	248,061.19	248,061.19	20,671.77	3
McDowell County Sheriff's Communications	253,460.30	233,690.00	243,575.15	48,715.03	369,960.89	361,994.07	-7,966.82	OK		290,540.60	223,323.93	223,323.93	18,610.33	5
Charlotte-Mecklenburg Police Department	3,263,643.01	3,349,323.00	3,306,483.01	661,296.60	4,731,244.20	3,836,496.75	-894,747.45	OK		2,091,920.00	3,485,849.24	3,485,849.24	290,487.44	67

PSAP	PSAP Distribution: FY2014	PSAP Distribution FY2015	Average of prior two years distributions:	Maximum 20% Carry Forward	PSAP Fund Balance June 30, 2014	PSAP Fund Balance June 30, 2015	(+/-) Fund balance between FY13 and FY14	Based on Column L -- Meets 20% rule (OK) or Over 20% (Reduce)	Amount over Approved 20% Carryforward	Final APPROVED FY2016 Distributions (Secondary's Included)	Proposed Estimated FY2017without Reducing Distribution (Based on 5YR rolling Avg)	PROPOSED ESTIMATED FY2017 Distribution Based on 5YR Rolling Avg WITH reductions due to carryforward	MONTHLY	Number of Seats
Secondary Charlotte Fire	0.00	55,514.00	27,757.00	5,551.40	0.00	264.81	264.81	OK		33,521.04	67,548.93	67,548.93	5,629.08	
Secondary Charlotte MEDIC	0.00	292,524.00	146,262.00	29,252.40	0.00	119,855.60	119,855.60	Reduce	90,603.20	176,635.62	351,959.47	261,356.27	21,779.69	
Cornelius-Huntersville Police Communications	202,618.85	161,747.00	182,182.93	36,436.59	447,559.93	517,083.99	69,524.06	Reduce	33,087.48	104,497.10	174,883.43	141,795.96	11,816.33	4
Pineville Police Comm. Center	175,520.65	100,390.00	137,955.33	27,591.07	591,691.50	598,383.47	6,691.97	OK		130,151.20	108,839.97	108,839.97	9,070.00	5
Mitchell County Central Communications	268,319.54	139,926.00	204,122.77	40,824.55	905,505.15	991,190.68	85,685.53	Reduce	44,860.98	221,976.76	118,021.82	73,160.84	6,096.74	5
Montgomery County Communications	220,712.94	166,332.00	193,522.47	38,704.49	249,841.22	227,216.33	-22,624.89	OK		169,390.04	221,369.98	221,369.98	18,447.50	4
Moore County Emergency Communications	304,405.76	428,350.00	366,377.88	73,275.58	793,568.70	1,003,900.23	210,331.53	Reduce	137,055.95	413,395.13	403,339.72	266,283.77	22,190.31	10
Nash County Central Communications	692,947.16	476,846.00	584,896.58	116,979.32	290,884.15	271,826.48	-19,057.67	OK		366,837.12	436,669.98	436,669.98	36,389.17	14
Rocky Mount Police Communications	343,702.20	300,718.00	322,210.10	64,442.02	491,232.69	335,170.98	-156,061.71	OK		340,532.47	311,074.33	311,074.33	25,922.86	7
New Hanover County Sheriff Communications	623,620.12	558,476.00	591,048.06	118,209.61	1,170,584.09	1,149,418.11	-21,165.98	OK		502,353.69	673,268.92	673,268.92	56,105.74	21
Northampton County E-911	224,517.57	215,936.00	220,226.79	44,045.36	329,639.99	394,029.95	64,389.96	Reduce	20,344.60	208,566.27	190,607.36	170,262.76	14,188.56	5
Onslow County Communications	326,403.82	374,253.00	350,328.41	70,065.68	797,384.29	867,769.87	70,385.58	Reduce	319.90	393,271.71	363,212.91	362,893.01	30,241.08	7
Jacksonville E-911	316,280.85	329,467.00	322,570.93	64,514.19	802,114.36	554,395.05	44,292.16	OK		315,815.07	317,539.61	317,539.61	26,461.63	4
Orange County Emergency Communications	486,023.01	562,338.00	524,180.51	104,836.10	1,128,408.74	1,040,535.73	-87,873.01	OK		509,171.68	545,454.27	545,454.27	45,454.52	7
Pamlico County Communications	108,345.95	99,580.00	103,962.98	20,792.60	269,220.86	293,120.24	23,899.38	Reduce	3,106.79	134,469.13	141,684.37	138,577.59	11,548.13	2
Pasquotank/Camden Central Communications	592,750.00	284,248.00	438,499.00	87,699.80	285,159.83	206,917.70	-78,242.13	OK		373,301.82	406,153.38	406,153.38	33,846.12	5
Pender County Sheriff Communications	294,550.04	283,639.00	289,094.52	57,818.90	259,902.50	144,239.71	-115,662.79	OK		304,737.81	350,118.71	350,118.71	29,176.56	6
Perquimans County Communications	141,891.96	147,518.00	144,704.98	28,941.00	142,912.51	166,164.79	23,252.28	OK		309,592.31	136,353.25	136,353.25	11,362.77	5
Person County Communications	412,813.00	690,602.00	551,707.50	110,341.50	77,369.05	207,643.75	130,274.70	Reduce	19,933.20	538,768.00	438,823.89	418,890.69	34,907.56	6
Pitt County 911 Communications	594,247.62	594,248.00	594,247.81	118,849.56	633,897.44	669,643.91	35,746.47	OK		503,369.82	562,807.98	562,807.98	46,900.67	6
Polk County Communications	204,783.13	199,797.00	202,290.07	40,458.01	392,900.41	406,983.60	14,083.19	OK		204,450.31	201,995.47	201,995.47	16,832.96	3
Randolph County Emergency Communication	459,166.51	573,955.00	516,560.76	103,312.15	389,238.10	133,801.78	-255,436.32	OK		581,016.69	659,358.16	659,358.16	54,946.51	9
Richmond County Emergency Comm.	279,646.32	299,738.00	289,692.16	57,938.43	85,286.21	155,527.83	70,241.62	Reduce	12,303.19	342,625.91	333,859.59	321,556.40	26,796.37	3
Robeson County Communications	436,856.91	317,530.00	377,193.46	75,438.69	1,513,347.27	1,416,250.87	-97,096.40	OK		360,715.83	466,034.52	466,034.52	38,836.21	8
Lumberton Emergency Comm.	145,868.97	144,298.00	145,083.49	29,016.70	495,936.73	329,532.78	-166,403.95	OK		104,347.90	177,927.17	177,927.17	14,827.26	4
Rockingham County 911 Communications	306,265.03	278,860.00	292,562.52	58,512.50	537,481.50	602,414.32	64,932.82	Reduce	6,420.32	213,242.09	264,967.74	258,547.42	21,545.62	8
Rowan County Telecommunications	390,720.32	773,553.00	582,136.66	116,427.33	595,355.34	948,085.78	352,730.44	Reduce	236,303.11	633,690.60	665,201.60	428,898.49	35,741.54	12
Rutherford County Communications	440,898.10	440,898.00	440,898.05	88,179.61	451,430.47	577,443.77	126,013.30	Reduce	37,833.69	429,204.59	395,697.13	357,863.44	29,821.95	7
Sampson County Sheriff Communications	278,209.30	289,653.00	283,931.15	56,786.23	815,612.54	747,803.73	-67,808.81	OK		218,929.14	291,345.71	291,345.71	24,278.81	4
Scotland County Emergency Communications	215,320.35	228,362.00	221,841.18	44,368.24	298,548.94	8,411.74	-290,137.20	OK		335,492.72	299,135.09	299,135.09	24,927.92	2
Stanly County Emergency Communications	276,376.06	287,863.00	282,119.53	56,423.91	264,623.18	44,549.69	-220,073.49	OK		567,082.99	347,355.36	347,355.36	28,946.28	5
Stokes County Emergency Communications	278,977.15	341,797.00	310,387.08	62,077.42	393,676.08	518,908.29	125,232.21	Reduce	63,154.80	320,161.83	292,892.47	229,737.68	19,144.81	4
Surry County Communications Center	341,725.71	380,084.00	360,904.86	72,180.97	468,712.46	235,872.28	-232,840.18	OK		379,402.90	440,851.27	440,851.27	36,737.61	10
Eastern Band Cherokees	193,447.55	114,480.00	153,963.78	30,792.76	499,412.58	389,161.18	-110,251.40	OK		93,968.41	130,714.44	130,714.44	10,892.87	3
Swain County 911 Dispatch	233,387.00	258,105.00	245,746.00	49,149.20	77,909.09	63,888.55	-14,020.54	OK		286,154.73	251,680.21	251,680.21	20,973.35	4
Transylvania County Communications	381,876.16	406,494.00	394,185.08	78,837.02	372,702.79	467,381.63	94,678.84	Reduce	15,841.82	362,125.00	287,140.41	271,298.59	22,608.22	9

PSAP	PSAP Distribution: FY2014	PSAP Distribution FY2015	Average of prior two years distributions:	Maximum 20% Carry Forward	PSAP Fund Balance June 30, 2014	PSAP Fund Balance June 30, 2015	(+/-) Fund balance between FY13 and FY14	Based on Column L -- Meets 20% rule (Ok) or Over 20% (Reduce)	Amount over Approved 20% Carryforward	Final APPROVED FY2016 Distributions (Secondary's Included)	Proposed Estimated FY2017without Reducing Distribution (Based on 5YR rolling Avg)	PROPOSED ESTIMATED FY2017 Distribution Based on 5YR Rolling Avg WITH reductions due to carryforward	MONTHLY	Number of Seats
Secondary Brevard PD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	OK		64,567.25	41,364.40	41,364.40	3,447.03	
Tyrrell County	113,672.12	119,697.00	116,684.56	23,336.91	186,252.39	253,041.88	66,789.49	Reduce	43,452.58	103,016.49	117,020.12	73,567.54	6,130.63	2
Union County	1,081,898.00	767,714.00	924,806.00	184,961.20	2,245,102.34	2,056,808.35	-188,293.99	OK		513,740.92	832,555.11	832,555.11	69,379.59	9
Vance-Henderson 911 Center	369,177.35	418,000.00	393,588.68	78,717.74	94,578.82	4,545.07	-90,033.75	OK		651,168.96	458,141.49	458,141.49	38,178.46	12
Cary	1,324,904.00	866,921.00	1,095,912.50	219,182.50	257,596.47	490,855.24	233,258.77	Reduce	14,076.27	523,129.19	651,741.93	637,665.66	53,138.81	6
Holly Springs Public Safety Center	253,286.93	724,330.00	488,808.47	97,761.69	471,783.68	1,122,449.84	650,666.16	Reduce	552,904.47	216,643.40	118,516.06	118,516.06	9,876.34	2
Raleigh Wake 911 Center	2,161,215.24	2,222,079.00	2,191,647.12	438,329.42	1,971,497.51	2,069,250.37	97,752.86	OK		2,861,093.36	2,033,717.57	2,033,717.57	169,476.46	25
Warren County Sheriff Comm.	232,783.73	129,667.00	181,225.37	36,245.07	441,461.14	455,145.97	13,684.83	OK		155,730.32	168,285.50	168,285.50	14,023.79	3
Washington County Communications	174,849.23	181,210.00	178,029.62	35,605.92	350,786.95	370,790.70	20,003.75	OK		199,236.78	172,105.62	172,105.62	14,342.14	3
Watauga County Sheriff Communications	327,661.54	333,953.00	330,807.27	66,161.45	352,113.68	407,068.96	54,955.28	OK		300,579.32	320,369.10	320,369.10	26,697.43	4
Beech Mountain Police Dept	105,421.41	114,042.00	108,309.21	21,661.84	138,190.42	134,219.05	17,524.43	OK		110,912.01	117,877.42	117,877.42	9,823.12	2
Boone Police Department 911	120,945.46	118,950.00	127,550.23	25,510.05	326,134.43	339,268.64	19,899.10	OK		119,666.18	120,983.92	120,983.92	10,081.99	3
Wayne County Central 911	299,462.59	335,317.00	317,389.80	63,477.96	1,837,964.29	1,662,952.20	-175,012.09	OK		438,274.27	502,232.60	502,232.60	41,852.72	7
Wilkes County Sheriff Communications	349,519.65	447,775.00	398,647.33	79,729.47	559,821.34	755,954.60	196,133.26	Reduce	116,403.80	504,897.29	405,907.37	289,503.58	24,125.30	4
Wilson County Emergency Communications	377,746.33	373,621.00	375,683.67	75,136.73	540,371.17	498,368.13	-42,003.04	OK		441,966.53	437,471.22	437,471.22	36,455.94	9
Yadkin County Emergency Communications	265,176.43	133,573.00	199,374.72	39,874.94	744,338.28	435,243.72	-309,094.56	OK		85,627.00	237,630.03	237,630.03	19,802.50	3
Yancey County Sheriff Comm.	146,440.92	163,362.00	154,901.46	30,980.29	310,254.72	321,018.29	10,763.57	OK		149,936.53	166,005.33	166,005.33	13,833.78	5

Totals

\$51,231,744.31

\$51,385,618.47

\$74,566,041.23

\$72,226,273.36

\$2,986,734.26

\$49,693,954.70

\$50,807,941.40

\$49,079,751.62

Report not received	
Awarded Funding Reconsideration FY2016	
Approved Secondary PSAPs	

SECONDARY FUNDING:	PSAP Reconciled/ Unreconciled Expenditure Cost FY2015	Total 911 Calls	Cost Per Call	Calls Xferred to Secondary	Basis for Estimated Secondary Fuding FY2017
Alamance County Central Communications	697,595.20	101,261	6.89		
Burlington PD				20,978	\$ 144,538.42
Catawba Co Communications Center	761,213.88	89,426	8.51		
Hickory Police Dept.				12,694	\$ 108,025.94
Newton Police Dept.				2,603	\$ 22,151.53
Forsyth County 911 Communications	532,330.60	93,542	5.69		
Kernersville				4,932	\$ 28,063.08
Henderson County Communications	545,220.92	54,774	9.95		

[illegible]

Approval of 2016 Meeting Dates

(vote required)

Richard Taylor

2016 PSAP Managers-Staff-Board-Committee Meetings			
Date	Type Meeting	City	Location & Time
January			
1/5/2016	911 Board Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
1/6/2016	Funding Committee	Raleigh, NC	Banner Elk at 1:30 PM
1/7/2016	Standards Committee	Raleigh, NC	Banner Elk at 10:00 AM
1/12/2016	Next Generation 911 Committee	Raleigh, NC	Banner Elk at 10:00 AM
1/13/2016	Education Committee	Raleigh, NC	Banner Elk at 1:30 PM
1/29/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
February			
2/2/2016	911 Board Staff Meeting	Raleigh	Emerald Isle at 2:30 PM
2/3/2016	Funding Committee	Raleigh	Pinehurst at 10:00 AM
2/4/2016	Standards Committee	Raleigh	3900 WFR at 10:00 AM
2/17/2016	Education Committee	Raleigh	Banner Elk at 1:30 PM
2/18/2016	Next Generation 911 Committee	Raleigh	Banner Elk at 10:00 AM
2/26/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
March			
3/1/2016	911 Board Staff Meeting	Rutheford County	4:00 PM
3/2/2016	Western Regional PSAP Managers Meeting	Rutherfordton, NC	9:00 AM
3/3/2016	Central Regional PSAP Managers Meeting	Concord, NC	9:00 AM
3/9/2016	Northeast Regional PSAP Managers Meeting	Winton, NC	9:00 AM
3/10/2016	Next Generation 911 Committee	Raleigh, NC	3900 WFR at 10:00 AM
3/17/2016	Southeast Regional PSAP Managers Meeting	Kinston, NC	9:00 AM
3/18/2016	911 Board Meeting	Kinston, NC	10:00 AM
3/22/2016	Funding Committee	Raleigh, NC	Banner Elk at 1:30 PM

3/22/2016	911 Board Staff Meeting	Raleigh, NC	Banner Elk at 4:00 PM
3/23/2016	Standards Committee	Raleigh, NC	Banner Elk at 10:00 AM
3/30/2016	Education Committee	Raleigh, NC	Banner Elk at 10:00 AM
April			
4/6/2016	Funding Committee	Raleigh, NC	Banner Elk at 1:30 PM
4/7/2016	Education Committee	Raleigh, NC	Banner Elk at 10:00 AM
4/13/2016	Standards Committee	Raleigh, NC	Banner Elk at 1:30 PM
4/14/2016	Next Generation 911 Committee	Raleigh, NC	Banner Elk at 10:00 AM
4/22/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
May			
5/3/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 Pm
5/4/2016	Funding Committee	Raleigh, NC	Banner Elk at 1:30 PM
5/5/2016	Education Committee	Raleigh, NC	Banner Elk at 10:00 AM
5/11/2016	Standards Committee	Raleigh, NC	Banner Elk at 1:30 PM
5/12/2016	Next Generation 911	Raleigh, NC	Banner Elk at 10:00 AM
5/20/2016	911 Work Session & Board Meeting	Charlotte, NC	
5/24/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 Pm
June			
6/8/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30:00 PM
6/9/2016	Standards Commitg	Raleigh, NC	3900 WFR at 10:00 AM
6/10 to 6/12/2016	NASNA Meeting	Indianapolis, In	
6/11 to 6/16/2016	NENA National Conference	Indianapolis, In	
6/24/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
6/28/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
6/29/2016	Education Committee	Raleigh, NC	3900 WFR at 10:00 AM
6/30/2016	Next Generation Committee	Raleigh, NC	3900 WFR at 10:00 AM
July			

7/6/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30 PM
7/7/2016	Standards Committee	Raleigh, NC	3900 WFR at 10:00 AM
7/13/2015	Southeast Regional PSAP Managers Meeting	Fayetteville, NC	
7/14/2016	Next Generation Committee	Raleigh, NC	3900 WFR at 10:00 AM
7/20/2016	Western Regional PSAP Managers Meeting	Boone, NC	
7/21/2016	Central Regional PSAP Managers Meeting	Statesville, NC	
7/28/2016	Northeast Regional PSAP Managers Meeting	Williamston, NC	
7/29/2016	911 Board Meeting	Williamston, NC	
August			
8/2/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
8/3/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30 PM
8/4/2016	Education Committee	Raleigh, NC	3900 WFR at 10:00 AM
8/14 to 8/17/2016	APCO National Conference	Orlando, FL	
8/17/2016	Standards Committee	Raleigh, NC	3900 WFR at 1:30 PM
8/18/2016	Next Generation 911 Committee	Raleigh, NC	3900 WFR at 10:00 AM
8/26/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
8/30/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
September			
9/7/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30 PM
9/8/2016	Standards Committee	Raleigh, NC	3900 WFR at 10:00 AM
9/11 to 9/15/2016	NC NENA-APCO State Conference	Sunset Beach, NC	
9/21/2016	Education Committee	Raleigh, NC	3900 WFR at 1:30 PM
9/22/2016	Next Generation 911 Committee	Raleigh, NC	3900 WFR at 10:00 AM
9/30/2016	911 Board Meeting	Raleigh, NC	
October			

10/4/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
10/5/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30 PM
10/6/2016	Standards Committee	Raleigh, NC	3900 WFR at 10:00 AM
10/12/2016	Statewide PSAP Managers Meeting	Greensboro, NC	
10/13/2016	Statewide PSAP Managers Meeting	Greensboro, NC	
10/19/2016	Education Committee	Raleigh, NC	3900 WFR at 1:30 PM
10/20/2016	Next Generation 911 Committee	Raleigh, NC	3900 WFR at 10:00 AM
10/28/2016	911 Board Meeting	Raleigh, NC	Banner Elk at 10:00 AM
November			
11/1/2016	Staff Meeting	Raleigh, NC	Emerald Isle at 2:30 PM
11/2/2016	Funding Committee	Raleigh, NC	Pinehurst at 1:30 PM
11/3/2016	Education Committee	Raleigh, NC	Pinehurst at 10:00 AM
11/10/2016	Next Generation 911 Committee	Raleigh, NC	3900 WFR at 10:00 AM
11/22/2016	Standards Committee	Raleigh, NC	3900 WFR at 1:30 PM
December			
12/1/2016	Thursday-911 Board Work Session	Surry County	
12/2/2016	Friday-Nov/Dec 911 Board Meeting	Surry County	

Update On NextGen 911 Committee **Jeff Shipp**

a) Approval of NG911 Concept of Operations
(vote required)



North Carolina NG9-1-1 Concept of Operations

November, 2015

Prepared by:



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Executive Summary

The basis of North Carolina's 9-1-1 service is currently a legacy E9-1-1 environment. There are 119 primary Public Safety Answering Points (PSAPs) and six additional call taking centers capable of receiving 9-1-1 calls and funded by the NC 911 Board. These centers range in size from two positions to 67 positions.

Primary PSAP's	119
Other Call centers	6
TOTAL	125

In 2014 the state of North Carolina PSAPs handled 7,294,803 calls and answered over 90% of those within 10 seconds.

The legacy 9-1-1 system has been a reliable and effective solution for emergency calls for almost 50 years. During that time it has been augmented, and modified to adopt new technologies and has continued to perform at a high level. However, due to the rapid adoption of technological advancements, the legacy 9-1-1 system may decline in its ability to meet demand.

PSAPs throughout the State are connected via Centralized Automatic Message Accounting (CAMA) trunks from a local telecommunications provider for all call delivery. CAMA has been a long utilized and very useful method of delivering 9-1-1 calls to the PSAP. CAMA trunks are analog, have limited bandwidth, cannot be scaled effectively, and are often a barrier to Next Generation 9-1-1 (NG9-1-1) implementation. The PSAPs currently utilize 880 total CAMA trunks for service. The State will replace these over time with broadband capable Internet Protocol (IP) connections.

The PSAPs receive all calls through four local exchange carriers (LEC) that handle 9-1-1 call routing. These providers support 9-1-1 call delivery through selective routing calls to the appropriate PSAP.

- AT&T – 9 Selective Routers
- Centurylink – 4 Selective Routers
- Frontier – 2 Selective Routers
- Windstream – 1 Selective Router

While the LEC providers connect to the individual PSAPs they may partner with a 9-1-1 system service provider.

What follows is a summary of findings.

- The 9,943,964 people living in the State generate approximately 7,294,803 9-1-1 calls every year, or about 0.73 calls per person per year. The national average is approximately 0.82 calls per person per year.
- 76% of the total calls were delivered wirelessly, 7% were Voice over IP (VoIP) and 17% were from landlines, which is consistent with national call trends.
- The State has 840 9-1-1 answering positions, about one for every 11,300 persons. No national figures are available for comparison of this statistic.
- Disparate 9-1-1 equipment, networks and processes at the county / city level discourages sharing of systems and resources. This creates a siloed infrastructure that increases duplication of infrastructure.
- The radio systems in the State consist of disparate networks (different frequency bands and different non-compatible technologies), making interoperability on the dispatch side of 9-1-1 (calls forwarded) challenging, and most PSAPs cannot dispatch to other PSAPs first responders.
- A more effective and efficient method for allowing PSAPs to back each other up in an emergency is imperative.

The limitations of the legacy 9-1-1 system stem from its foundation on 1970s circuit-switched network technology. Over the course of time the 9-1-1 system has been modified, augmented and patched to meet new technology advancements. While this approach has been carried out with great care and has proven to be effective for the most part, it has created gaps within the system. A wireline network comprising fixed locations and fixed addresses form the basis of the current 9-1-1 system. The mobility of today's users and their devices can quickly overwhelm the complex arrangements created to meet these technologies. The current 9-1-1 technology is reaching obsolescence in the evolving technological environment.

Each PSAP is responsible for planning and design of their own 9-1-1 systems. Some of these 9-1-1 systems are approaching the end of their useful life. Some of these 9-1-1 systems using legacy telecommunications technology to deliver 9-1-1 calls have been augmented, modified and retrofitted to allow additional data, additional "bolted on" systems to deliver wireless/cellular voice, and VoIP 9-1-1 to the PSAP.

This can create a barrier to internetworking 9-1-1 systems. A new network based upon current technology would assist PSAPs in communicating with each other and callers

while enhancing the ability for law enforcement, fire departments, and emergency medical services to respond.

An advanced NG9-1-1 system would also provide the ability to quickly and easily reroute emergency calls to another call center when the primary answering point is unavailable or overloaded.

The collection of these advanced capabilities will enhance the ability to provide more efficient, effective and dynamic emergency responses; however, major changes will be required in the 9-1-1 system. The new system is referred to as Next Generation 9-1-1, or NG9-1-1.

As each new technology adopted by consumers will require an adjustment through the technology model as shown in Table 1.

Table 1 – E9-1-1 vs. NG9-1-1 Comparison

E9-1-1/NG9-1-1 Comparison		
	Today's E9-1-1	NG9-1-1
Networks	Complex Analog Trunking and Data Network to meet IP	Managed Private Emergency Services IP Network (ESInet)
Routing	Class 5 Switch for Selective Routing, limited forwarding of calls	IP Routers, call forwarding more dynamic and flexible
Accepted Media	Voice Calls Only	Integrated Voice, Text, and Video
Integration	Complex Interfaces	Standard IP Interfaces
Data	20 Character Data Limit	Broad Data Bandwidth
Location/Call Routing	Complex translations based on tabular data (MSAG), Location fix occurs at back end of call	Geo-Location/Routing, Location fix more precise and happens at front end of call

Costs of products and services will continue to increase placing greater demand on the fund. Some of this is because PSAPs procure systems individually. Raising the procurement and operation of systems and services to a statewide level can enhance economies of scale and save costs.

In addition, this Concept of Operations offers a guideline for overcoming some limitations that can be a barrier to NG9-1-1 including:

- Current networks built for wireline 9-1-1 and fixed locations
- Limited to Local Area Transport Areas (LATA) as defined by the regulated telephone companies
- Multiple connections required to increase bandwidth and capability
- Siloed applications and systems
- Duplication without diversity or redundancy
- Excessive capacity or stranded bandwidth
- Higher costs for replacement, support and sustainability
- Multiple maintenance and management arrangements
- Lack of interoperability

Table of Contents

Executive Summary	2
1. Introduction	9
2. Overview of the Strategic Vision for NG9-1-1 in NC	11
2.1 Administration	13
2.1.1 Administrative Support Framework Following NG9-1-1 Statewide Implementation.....	14
2.1.2 Governance to Support NG9-1-1	14
2.1.3 Legislative Changes Necessary to Support NG9-1-1 Activities	14
2.1.4 Enhance the Program’s Ability to Determine Eligible Expenses	14
2.1.5 Align NG9-1-1 Program with National 9-1-1 Program Efforts.....	15
2.2 Operation	15
2.2.1 Establish Best Practices and Oversight for All NG9-1-1 Activities	15
2.2.2 Capabilities Direction	16
2.2.3 Periodic Technical and Operational Audits	16
2.2.4 Increased Collaboration among PSAPs.....	16
2.3 Finance	17
2.3.1 Funding and Distribution of Funds	17
2.3.2 Cost of Ownership Model.....	17
2.4 Strategy	17
2.4.1 Situational Awareness and Disaster Recovery	18
2.4.2 Seamless Interconnectivity	18
2.4.3 Distribution and Use of Resources	18
2.4.4 Sharing Existing Broadband Networks.....	18
2.4.5 Advancing Interoperability.....	19
2.4.6 Conceptual Network Designs and Models for 9-1-1 Applications	19
3. Approach	20
4. NC NG9-1-1 Roadmap	23
4.1 Roadmap	23
4.2 Phased Implementation	23
4.2.1 Emergency Services IP Network (ESInet)	26

4.2.2	Hosted Call Handling	26
4.2.3	GIS, Mapping, Geo-Based Call Routing	27
4.2.4	Network Monitoring and Management	28
4.2.5	Radio Interoperability	29
4.2.6	CAD Interoperability	31
5.	Emergency Services IP Network (ESInet)	32
5.1	Overview	32
5.1.1	Purpose of the ESInet	34
5.1.2	New Communications Technologies	35
5.1.3	Redundancy, Diversity and Self-healing	36
5.1.4	Bandwidth and Quality of Service (QoS)	36
5.2	Assumptions / Constraints	36
5.3	Recommendations for ESInet	37
6.	Hosted Call Handling	40
6.1	Overview	40
6.2	Assumptions / Constraints	41
6.2.1	Logging and Recording	42
6.3	Recommendations for Hosted Call Handling	42
7.	GIS, Mapping, GEO-Based Call Routing	44
7.1	Overview	44
7.2	Assumptions / Constraints	45
7.2.1	Remediation and Maintenance	46
7.3	Recommendations and GIS priorities	46
8.	Network Monitoring and Assistance	48
8.1	Overview	48
8.1.1	Network Monitoring and Assistance Center (NMAC)	48
8.1.2	Help Desk	49
8.1.3	Cybersecurity	50
8.1.4	Configuration and Network Change	51
8.2	Assumptions / Constraints	51
8.2.1	Service Level Considerations	52

8.3	Recommendations and NMAC Priorities.....	53
9.	Radio Interoperability	55
9.1	Overview.....	55
9.1.1	Radio Interoperability in an NG9-1-1 Environment	55
9.1.2	Interoperability Guidelines	56
9.1.3	North Carolina Interoperability	56
9.2	Assumptions / Constraints	59
9.2.1	Radio Interoperability - Guidelines	59
9.2.2	Existing Public Safety Radio Systems in Use	60
9.2.3	State Initiatives	61
9.3	Conceptual Design(s)	61
9.3.1	VIPER Solution	62
9.3.2	Future Gateway Solution – IP Based	64
9.3.3	Existing Gateway Network	66
9.3.4	FirstNet – NC NG9-1-1 Synergies.....	67
9.4	Operational Effects	68
9.5	Recommendations for Radio Interoperability	68
10.	CAD Interoperability.....	70
10.1	Overview.....	70
10.2	Assumptions / Constraints	70
10.2.1	Shared CAD Events.....	70
10.3	CAD Interoperability Features.....	70
10.4	Candidate Solutions for Statewide CAD Services.....	71
10.4.1	Single Vendor CAD System for All PSAPs	71
10.4.2	Interfacing Multiple CAD System	71
10.4.3	Middleware Solution.....	72
11.	Definitions	73
11.1	Standards and Sources	77
11.2	Acronyms.....	79

1. Introduction

The North Carolina 9-1-1 Board is preparing for the implementation of NG9-1-1 strategically to ensure cost control, efficiency, and effective oversight. The Board engaged Federal Engineering to review the current state of 9-1-1 operations, provide insight into options and strategies, and assist the Board with mapping the future of NG9-1-1 in the State. The purpose of this document is to provide a Concept of Operations baseline for Next Generation 9-1-1 (NG9-1-1) for the state of North Carolina.

The state of North Carolina aligns with the standards bodies in believing that an NG9-1-1 System is a method of increasing the capability of 9-1-1 to allow users access to 9-1-1 through any wired, wireless, or Internet Protocol (IP)-based device. An NG9-1-1 system is generally an “ecosystem”, comprising transport networks, routers, switches, applications, and intelligent services such as policy routing and security tools.

This *North Carolina NG9-1-1 Concept of Operations* is a formal document that provides a vision of NG9-1-1 in the state of North Carolina in the context of an emergency services internetwork that provides for Administrative, Operational, Tactical and Strategic objectives to increase the efficiency and effectiveness of NG9-1-1 for the state of North Carolina.

An undertaking such as this should not commence without clearly defining the purpose and intent. The North Carolina 9-1-1 Board established the following goals (in no particular order) as the purpose for undertaking this study:

- Improve public safety for the citizens of and visitors to the state of North Carolina.
- Improve operations and control costs by creating a State-wide strategy for NG9-1-1 as opposed to implementing individual NG9-1-1 systems by PSAP.
- Increase the functionality for all PSAPs providing greater equality of capabilities across the State. (Murphy to Manteo)
- Provide a consistent high level of service across the state of North Carolina for all 9-1-1 callers regardless of where they are calling from.
- Improve call transfer functionality and introduce the ability to forward calls to another PSAP to share information across jurisdictions, including Local Access and Transport Area (LATA) boundaries.
- Improve communications between PSAPs.

- Facilitate an ability to share Geographical Information System (GIS) information across jurisdictional boundaries.
- Enable PSAPs to receive multimedia messages including (telematics, text, video, VoIP).
- Improve reliability and redundancy in the 9-1-1 systems.
- Facilitate a cooperative project initiative involving all stakeholders and other potential partners in North Carolina.

This document provides a common understanding of how the program plans to proceed into a NG9-1-1 environment in several key areas, enumerated and defined in the *Overview* section of this document.

2. Overview of the Strategic Vision for NG9-1-1 in NC

The North Carolina 9-1-1 Board presently operates a \$71M fund for 9-1-1 throughout the state of North Carolina. This budget is used for the expenditures of PSAPs and has been diligently maintained for over 15 years, first as a wireless 9-1-1 board and since 2004 as an overall 9-1-1 board. The fund is currently undergoing a change via HB730¹ that will impact the overall fund balance going forward. This change, which allows for the Board to withhold 10% of the fund for NG9-1-1 purposes, will be used to establish the strategy defined throughout this Concept of Operations. As PSAPs pursue NG9-1-1 on the local level and seek reimbursement, the fund may find difficulty keeping costs under control.

The Board recognized that the 9-1-1 program and funds may incur a shortfall if all 119 PSAPs choose to implement individual NG9-1-1 solutions. Therefore it is necessary to strategically align a plan for ensuring that the program is not exhausted during the transition into NG9-1-1.

Key operational considerations:

1. Control costs of NG9-1-1 implementation
2. Create standardized procurement measures
3. Ensure standard NG9-1-1 requirements are met
4. Avoid deployment of disparate NG9-1-1 systems
5. Minimize duplication and siloed implementations
6. Normalize NG9-1-1 implementation
7. Increase interoperability among PSAPs across existing boundaries
8. Increase the technical support to PSAPs
9. Minimal disruption to existing PSAP operation

In 2014, the North Carolina 9-1-1 Board published a Request for Information (RFI) to gather feedback from prospective vendors for a statewide NG9-1-1 solution. The RFI was the initial step in defining a strategy for how NG9-1-1 would be implemented across the state of North Carolina. Thirteen prospective vendors submitted responses describing how their solution would support a statewide NG9-1-1 capable solution.

In parallel, the North Carolina 9-1-1 Board identified the need for a comprehensive strategy and Concept of Operations to ensure that the path forward into NG9-1-1

¹ <http://www.ncga.state.nc.us/gascripts/BillLookUp/BillLookUp.pl?Session=2013&BillID=H730>; accessed 10/29/2015

achieves the intended results. The Concept of Operations is important in defining required changes and future focus areas.

The Board defined their approach to NG9-1-1 into 6 specific areas.

- **Network / Emergency Services IP Network (ESInet)** – the definition of, and strategic design for a statewide network to support emergency services, applications and supporting systems that includes the NG9-1-1 functional elements
- **GIS** – the strategy for GIS data integration to support all PSAPs throughout the state for the purpose of call routing in NG9-1-1
- **Network Monitoring and Assistance Center (NMAC)** – the implementation of a facility that includes a Network Operations Center (NOC), Security Operations Center (SOC), and help desk to provide oversight and technical support of the statewide infrastructure, applications, security, services and systems
- **Hosted Call Handling solution** – the design of a hosted Customer Premise Equipment (CPE) solution(s) within the ESInet to include a hosted recording platform(s) and Computer Aided Dispatch (CAD) platform(s)
- **CAD Interoperability** – the design and implementation of a hosted CAD solution
- **Radio Interoperability** – the strategy for increasing radio interoperability statewide

To ensure standardization throughout the State, the State will only pursue NG9-1-1 capable systems. The National Emergency Number Association (NENA) and the Association of Public-Safety Communications Officials (APCO) are standards organizations that typically endorse NG9-1-1 standards, including the following features:

1. Provides or supports a foundation for NG9-1-1 and is designed to support or interoperate with core i3² functionality
2. Are secure and resilient to cyber-attack, penetration, abuse or misuse
3. Provides the ability to alarm, report, monitor, manage and support on a 24x7x365 basis

² https://www.nena.org/?page=i3_Stage3; accessed 10/29/2015

4. Provides or supports increased fault tolerance, reliability, resiliency and disaster recovery, route diversity and redundancy
5. Provides or supports clear demarcations of responsibility and accountability in the handling of all traffic related to an emergency request originating from the public and delivered to a PSAP via the NG9-1-1 ecosystem
6. Provides or supports a seamless infrastructure proactively managed and administered which delivers a consistent and equitable level of service to PSAPs, enabling PSAPs to improve the quality of service to the public
7. Provides for or supports Enterprise-wide call accounting and data collection
8. Allows for complete integration of Network, i3 functional elements, and hosted services

NG9-1-1 solutions will be designed in modular fashion based on open standards and industry best practices to facilitate the addition of new functionality as it becomes available without requiring a major revision of the underlying system.

Some existing networks may influence this strategy. Networks such as FirstNet may present an opportunity for collaboration.

FirstNet

In February of 2012, the Middle Class Tax Relief and Jobs Creation Act of 2012 (Act) was signed into law, and created the First Responder Network Authority (FirstNet), fulfilling the last of the 9/11 Commission recommendations.³ This law provided FirstNet a blueprint for its mission to design and deploy a nationwide broadband network to meet fundamental needs of the public safety community in all 56 states and territories. The law also allocated spectrum in the 700 MHz band (which the FCC subsequently licensed to FirstNet), and provided initial funding for planning and network procurement.

2.1 Administration

Creating a method for administration of NG9-1-1 in the state of North Carolina, may require operational modification in some areas. These changes are necessary to ensure proper management of the implementation of NG9-1-1 across the State. As a result, this section focuses on the following key areas:

- Administrative support framework once NG9-1-1 is implemented state-wide

³ <http://www.9-11commission.gov/report/911Report.pdf>

- Governance to support NG9-1-1
- Legislative changes necessary to support NG9-1-1 activities
- Enhance the ability of the program to determine eligible expenses
- Align NG9-1-1 program with National 9-1-1 Program efforts

2.1.1 Administrative Support Framework Following NG9-1-1 Statewide Implementation.

The current model used by the NC9-1-1 Board is functional for legacy 9-1-1 purposes. A well-organized board and technical committee are already in place. As the NG9-1-1 project progresses both the Board and Committee will remain a key component in defining the strategy for implementation and ongoing service management.

2.1.2 Governance to Support NG9-1-1

Presently, the Board controls funding for the PSAP's. To extend a governance model that reflects NG9-1-1 but does not supersede statutory commitments, the Board should consider employing policy directives. Policy directives can be a useful tool to further define the strategic efforts and influence the desired outcomes. Other States have utilized this approach to great success while ensuring alignment with the statute.

Policy directives are often used to provide common briefings relating to technical, operational, tactical and administrative decisions by the Board. Their ability to influence strategy is useful in assuring that the PSAPs align with the common strategy. Typically these policy directives are useful in establishing rules and guidelines for PSAPs to follow when they procure new equipment, services or systems. As an example, a policy could provide definitions for all equipment and direct that it must be NG9-1-1 capable.

2.1.3 Legislative Changes Necessary to Support NG9-1-1 Activities

The first and most important step to support NG9-1-1 was completed by the passage of HB730 to create a protected allocation for NG9-1-1. The funds received from this effort will begin accruing in January 2016 and will be used specifically for NG9-1-1 implementation.

2.1.4 Enhance the Program's Ability to Determine Eligible Expenses

The program operates by paying for eligible expenses at the PSAP level defined in the approved eligibility list. The eligibility of products and services purchased by PSAPs must be NG9-1-1 compliant.

2.1.5 Align NG9-1-1 Program with National 9-1-1 Program Efforts

NG9-1-1 is not restricted to a single state. We must be prepared to align our NG9-1-1 program efforts with other state and national 9-1-1 efforts. This will ensure that NG9-1-1 installed in each individual state can interoperate and may join together in a nationwide NG9-1-1 framework.

2.2 Operation

The Federal Engineering team reviewed the existing PSAP operational environment to gain an understanding of current practices, technology and administrative functions. The following key areas are:

- Establish best practices and oversight for all NG9-1-1 activities across the State including network operation, service management and documentation.
- Provide direction for capabilities for NG9-1-1 including security and recognition of disruptions, mitigation, recovery of outages and avoidance of trouble.
- Conduct periodic technical and operational audits to ensure NG9-1-1 conformance to ensure performance objectives are met.
- Increase collaboration between PSAPs including sharing of resources across the NG9-1-1 platform.

2.2.1 Establish Best Practices and Oversight for All NG9-1-1 Activities

Establishing best practices across the State include network operation, service management and documentation. Typically, National Emergency Number Association (NENA) standards direct the development of best practices for NG9-1-1. The state of North Carolina will utilize the standards for the technical and operational components of the ESInet to ensure that their NG9-1-1 is a standards-based implementation.

Creating a review and best practices approach will encourage participation on the network from the PSAPs and ensure that products and services comply with the NG9-1-1 system. The ESInet will facilitate a great deal of interaction that is not available today. This requires the additional coordination to the PSAPs that are moving toward or have already implemented fully functional or partially functional NG9-1-1 systems. Furthermore, coordination efforts to create the NG9-1-1 program can ensure achievement of the most effective and efficient method for deployment.

Service management is another important consideration for the NG9-1-1 program. Following implementation of the NG9-1-1 solution it is necessary to meet the demands of

the PSAPs through appropriate operation, maintenance and continual improvement of the service.

2.2.2 Capabilities Direction

Providing direction for capabilities for NG9-1-1 include security, recognition of disruptions, mitigation, recovery of outages and avoidance of trouble. Standards will be utilized and PSAPs will be required to verify and validate that their local networks follow applicable NG9-1-1 standards.

Direction of capabilities statewide must also include implementation of a statewide solution for network and service management including a help desk function, trouble ticketing and Service Level Agreement (SLA) oversight.

The NMAC is a single point of contact that monitors the network from a service level across all providers, suppliers and resources. This approach ensures that one point of contact is in place for any incident, problem or trouble.

2.2.3 Periodic Technical and Operational Audits

Conducting periodic technical and operational audits ensures NG9-1-1 conformance with standards and safeguards that performance objectives are met. Development of an approved equipment list specifically designed for NG9-1-1 components, equipment and services purchased through a statewide agreement(s) will aid the performance of these audits.

A contract vehicle for common purchase agreements to enhance the financial efficiency can be used to benefit all PSAPs. This solution will increase the coordination among procurements and ensure that purchases are all within the technical and financial threshold expected.

2.2.4 Increased Collaboration among PSAPs

Increased collaboration among PSAPs, including sharing of resources across the NG9-1-1 platform will aid in removing duplication of equipment, services and technology. In addition, sharing will enhance the ability to eliminate or minimize silos that exist from PSAP to PSAP. That is, each PSAP is treated as a single entity with many purchasing the same equipment and services. By collaborating more effectively, a system of sharing to support multiple PSAPs across the NG9-1-1 system can be created.

HB730 enables the Board to provide additional support for the implementation of NG9-1-1 systems and services as PSAPs transition into the NG9-1-1 ecosystem.

2.3 Finance

Financial control of the State's 9-1-1 funds are an important consideration since the same fund will pay expenditures for both the legacy 9-1-1 and NG9-1-1. Much of this section relates to the accompanying Cost Analysis report.

The following are additional areas for consideration:

- Funding and distribution of funds
- Review of NG9-1-1 from a capital expenditure (CAPEX) and operational expenditure (OPEX) perspective to ensure cost of ownership type model

2.3.1 Funding and Distribution of Funds

Funds are distributed directly to the PSAP's to cover expenditures at the PSAP level. This method will not require a change initially, but will necessitate a change at some point. The reason to implement a change is to ensure that the NG9-1-1 program is the focus for future services and solutions. The stresses placed on the ability to fund both NG9-1-1 and the PSAPs will require an adjustment in priority. At this time there is no specific change identified, but as with all funding programs NG9-1-1 costs may offset common PSAP expenditures.

2.3.2 Cost of Ownership Model

Review of NG9-1-1 from a capital expenditure (CAPEX) and operational expenditure (OPEX) perspective will ensure a cost of ownership type model. Presently, the review of legacy 9-1-1 expenditures occurs on an annual basis and plans for NG9-1-1 include the same review schedule. Reviews of Capital and Operational expenditures will ensure the sustainability of funding for NG9-1-1 and the PSAPs. The resulting dollar amounts provide a baseline / benchmark for what NG9-1-1 may cost.

2.4 Strategy

Strategically, NG9-1-1 must be implemented in a cost effective manner that increases the capabilities for 9-1-1 at the PSAP level. This section focuses on the following key areas:

- Increasing situational awareness and providing greater disaster recovery options
- Enhancing the ability to seamlessly interconnect services efficiently and effectively

- Maximizing efficient distribution and use of resources across multiple jurisdictions
- Sharing existing broadband networks where possible to increase the connectivity options and expand redundancy
- Advancing interoperability through increasing coordination between PSAPs
- Conceptual network designs and models for 9-1-1 applications

2.4.1 Situational Awareness and Disaster Recovery

One of the primary benefits of NG9-1-1 is the additional situational awareness opportunities gained through better network coordination and collaboration. More information will be available through NG9-1-1 than the existing 9-1-1 system. The ability to receive additional supportive and supplemental data from an emergency including the sharing of information between PSAPs will allow for greater visibility and increased collaboration

Disaster Recovery is another benefit of the NG9-1-1 network. The ability to reroute traffic and share resources among PSAPs can increase the ability to avoid, mitigate and recover from outages that affect 9-1-1.

2.4.2 Seamless Interconnectivity

With 119 primary PSAPs in the State, the potential for having a variety of NG9-1-1 systems and configurations is likely. While standards will ensure the interconnection of each configuration, some integration work may still be required to enable internetworking of stand-alone NG9-1-1 systems efficiently and effectively.

2.4.3 Distribution and Use of Resources

The distribution of funds will continue to support the PSAPs as always; however, the alignment of the distribution of funds to NG9-1-1 concept of operations will aid PSAPs that are pursuing stand-alone NG9-1-1 systems. This will occur by increasing the ability to share the system across multiple PSAPs. Maximizing the efficient distribution and use of resources across multiple jurisdictions may result in cost efficiency gained by PSAPs using the ESInet though sharing these resources and minimizing silos.

2.4.4 Sharing Existing Broadband Networks

Existing broadband networks purchased for other state agencies should always be considered as a potential connectivity option. Existing networks with bandwidth that is

available or scalable to meet NG9-1-1 capacity requirements may provide transport for an NG9-1-1 connection. In addition these networks may be useful for a secondary or backup network in the event of a disruption of the primary NG9-1-1 path.

Networks such as these may provide the opportunity to share transport and infrastructure to aid in the cost efficiency for the NG9-1-1 solution.

2.4.5 Advancing Interoperability

Interoperability is a common goal for all NG9-1-1 strategies. Some PSAPs currently interoperate without an NG9-1-1 network. While others already share resources or work together to share functions in the current legacy 9-1-1 model, but this is typically limited to geographic area. The NG9-1-1 network removes geographic restrictions to increase the ability to interoperate.

2.4.6 Conceptual Network Designs and Models for 9-1-1 Applications

The high level conceptual designs for each of the focus areas are presented in later sections of this document. These conceptual designs are at a high level and presented to serve as an outline for establishing the strategy necessary for the Concept of Operations. The next phase of the project will further refine each design.

3. Approach

NG9-1-1 implementations across the country began through many different approaches. Most commonly the planning, design and procurement of an ESInet is the first step into NG9-1-1. This method allows a network to be configured and become operational prior to deployment of any NG9-1-1 functions or hosted applications. ESInets can be a catalyst enabling greater flexibility than legacy systems and may provide an architecture capable of supporting the capabilities provided by NG9-1-1. Many consider NG9-1-1 an ecosystem that utilizes the ESInet to establish the functionality and value identified by the NENA standards for implementation. A key advantage of an “ESInet first” approach is the ability to remove legacy boundaries and extend the reach beyond a specific geographic limit.

A proactive approach to avoid a disparity of NG9-1-1 implementations at the PSAP level is to implement a common ESInet. Presently, several ESInets and NG9-1-1 capable solutions already exist across the State. These will require integrated into the state-wide ESInet. Figure 1 provides the status of each county with regard to the degree of integration into NG-1-1. Table 2 provides the characteristics of typical ESInet models.

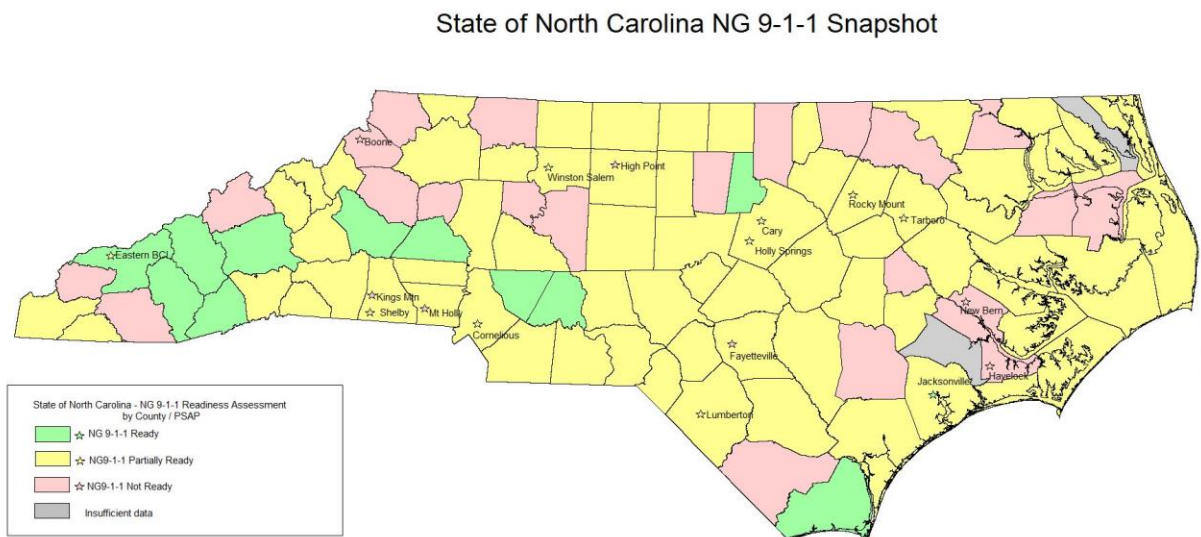


Figure 1 – Current NG readiness by PSAP

Table 2 – Characteristics of ESInet implementations

Typical ESInet Models	Characteristics	Advantages	Caveats
Statewide	An IP network connected to all desired locations. May be provided by a single provider or be an interconnected system comprising local and regional networks.	Standardization across all networks	Can increase monitoring and maintenance challenges
		Statewide control of policies	May include multiple service providers
		Standardization of SLA's	Service management
Regional	An IP network connecting a specific region; or collection of PSAPs.	Distribution networks can be seamless	Multiple operational processes and procedures
		Internetworking can be expedited	Multiple providers may not interoperate efficiently
		Standards based	Scalability
Local	An IP network connected within a single PSAP boundary.	Easily implemented	Local policies and procedures can limit ability to scale
		Cost advantages to smaller PSAPs	Often smaller service provider footprint
		Rapid deployment	Limited operational management

Working from a top-down approach, a statewide solution can greatly enhance the effectiveness of an NG9-1-1 implementation. Statewide NG9-1-1 networks can increase the value generated by existing ESInets and allow for the internetworking of solutions.

The strategy provided within this concept of operations supports a statewide ESInet and policy for all network configurations. In order to ensure that this can remain functional this Concept of Operations document focuses on the statewide ESInet and NG9-1-1 platform from an overarching perspective.

NG9-1-1 supports new technical opportunities but also affects the operation and governance of 9-1-1. Migration to a statewide NG9-1-1 ecosystem in the state of North Carolina requires that all policies, procedures and operational methods are capable of supporting the transition. A consistent approach that ensures that the technical and operational capabilities can be integrated in a cost efficient and technically effective manner is the objective.

The deployment of a statewide ESInet that can internetwork the NG9-1-1 functional elements will allow all PSAPs to support broadband communication technologies unlike the current legacy 9-1-1 system.

4. NC NG9-1-1 Roadmap

4.1 Roadmap

In this roadmap, the ESInet is essential for NG9-1-1 and will be designed to provide connections to the PSAP's. The configuration of the ESInet will also to support the Next Generation Core Services such as Hosted Call Handling (CPE), GIS services, Network Monitoring and Assistance, and eventually Radio and CAD interoperability.

For these reasons, the roadmap provides a high level timeline and plan to support the gradual implementation of the features and functions required. During the implementation the Board must continue to provide coordination activities with the PSAP community.

4.2 Phased Implementation

This Concept of Operations presents a phased implementation that provides the basis for an organic growth into a fully implemented statewide NG9-1-1 network. An assessment of the state of North Carolina operational and technical information shows that this approach aligns with the State's objectives and provides a method for implementing NG9-1-1 gradually. Many states have utilized a similar approach to great success and North Carolina is poised to duplicate the success as they move forward.

A phased approach also allows PSAPs to make use of the capabilities as they progress into the fully functioning network.

In a phased approach, the following are the most common and successful phases for achieving NG9-1-1 in other efforts:

1. Implementation of an ESInet
2. Installation of a Hosted Call Handling platform with Legacy Network Gateway, Legacy PSAP Gateway and/or Legacy Selective Router Gateway
3. Implementation of a service management solution that includes a Network Operations Center (NOC) responsible for monitoring, management and maintenance of the ESInet and hosted call solution
4. Implementation of GIS and Geo-based call routing services and data to support NG9-1-1 call routing

5. Implementation of the NG9-1-1 core services functional elements and functions (Border Control, Emergency Services Routing Proxy, Policy Routing Function, Emergency Call Routing Function)
6. Establishment and implementation of an interoperable radio solution that utilizes the NG9-1-1 system as appropriate
7. Establishment of an interoperable CAD solution that allows the PSAPs to share records in a more efficient manner through a common CAD platform

Table 3 provides a roadmap and sample timeline for implementing NG9-1-1.

Table 3 – Roadmap

Task		2015		2016												2017											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Phase I	Esinet specifications						RFP				Award																
	Hosted Call Handling specification						RFP				Award																
	GIS specification						RFP				Award																
	Network Monitoring and Assistance Center specification								RFP			Award															
	Contract Negotiation ESInet, Hosted call handling, GIS																										
	Contract Negotiation NMAC																										
Phase II	ESInet implementation																										
	Hosted call handling implementation																										
	GIS implementation																										
	Network Monitoring and Assistance Center implementation																										
	Radio interoperability specification																	RFP			Award						
	CAD interoperability specification																		RFP				Award				
	ESInet / Hosted call handling / GIS test and acceptance																										
	ESInet / Hosted call handling / GIS system soak																										

4.2.1 Emergency Services IP Network (ESInet)

An ESInet is Internet Protocol (IP) based and offers the capability to meet current challenges with broadband communications and deliver a high degree of service level to meet future technology enhancements. IP has proven capability, reliability, resiliency, and scalability. The Internet Engineering Task Force (IETF) defines IP standards. The IETF also defines related protocols used on the public Internet and that may be adopted for use on private IP networks, including public safety IP networks.

Over the past several years, a number of ESInets have been deployed to support the need for meeting the challenge of the public safety market. These networks are commonly private networks that utilize IP as a transport protocol. Typically, ESInets are built for the purpose of providing 9-1-1 and other public safety services at the local level and at the state level.

NENA has led the way in developing best practices and standards for ensuring configuration of ESInets in a manner that supports effective delivery of emergency calls and related public safety data while easing the interconnect to ESInets and has the potential to create an interconnected, national ESInet. In addition, NENA produced standards that directly apply to the functional elements and Next Generation Core Services that migrate call delivery from a Public Switched Telephone Network (PSTN) model into an IP-based system. Use of these directives and standards ensure the alignment of all NG9-1-1 implementations.

4.2.2 Hosted Call Handling

All PSAPs have equipment specifically purposed for handling 9-1-1 calls and the associated data. The industry name for this equipment is Customer Premise Equipment (CPE). It performs the functions of 9-1-1 call handling. Call handling is the process of setting up, delivery and tear down of a communications and data transmission path specifically for a 9-1-1 call between a caller and a PSAP (and specifically a dispatcher). The CPE is designed within a PSAP to link to the PSTN network interfaces, applications and services that are necessary for 9-1-1. This includes directly interfacing to the Selective Routers within the PSTN and connecting to the databases to capture call number (Automatic Number Identification (ANI)) and location (Automatic Location Identification (ALI)). CPE is often referred to as an ANI/ALI controller.

The CPE is primarily the switch that collects all 9-1-1 calls entering a PSAP and prepares the call and data for “ringing” to a call taker and dispatcher. In the state of North Carolina the majority of CPE implementations are designed to support the specific boundaries of a county. Historically, this method of implementation was the standard for 9-1-1. A

limitation of this type of configuration is the difficulty of transferring forwarded calls from one PSAP to another PSAP due to the boundary-based configuration. However, with the implementation of ESInets and movement toward NG9-1-1 systems, CPE can move into a hosted and shared model.

Hosted Call Handling can place the CPE inside the NG9-1-1 system and increase the ability for PSAPs to share a single CPE unit instead of each county having their own. The Hosted Call Handling approach will utilize the capabilities of the ESInet to create the paths necessary between the PSTN network and the NG9-1-1 functions. Another advantage of this configuration is the ability to increase the PSAPs' ability to interoperate. If PSAPs share a system through the NG9-1-1 system they can seamlessly transfer a 9-1-1 call with location information from one PSAP to another PSAP.

Other components that will be hosted within the ESInet include CAD and logging recorders.

4.2.3 GIS, Mapping, Geo-Based Call Routing

The state of North Carolina GIS is currently a local function handled by each county. Therefore the GIS capability will require a significant amount of attention to ensure that the GIS data provided by each county is usable in a state-wide GIS system.

GIS plays a fundamental role in NG9-1-1. In NG9-1-1, the caller's location is normally delivered as part of the original call-setup messages using the Session Initiation Protocol (SIP) protocol, carried over the IP network. All calls are routed to the appropriate PSAP based on the caller's location, which is based upon the GIS location of the caller. This is known as location-based routing and is performed through the GIS system. When a call arrives, the caller's location is identified and the location is plotted onto the GIS map. From there, the GIS utilizes additional "map layers" to determine the proper routing for the call. This effort determines which PSAP should get the call. This call routing solution is similar to the current selective routing done in legacy 9-1-1; however, it is much more dynamic and can be more efficient.

At the PSAP a call will be plotted on the GIS map identifying the location of the caller. Then through using the map layers the GIS has the ability to recommend a responder to dispatch for the call location. This information is then displayed on the map in various ways, or is available to the dispatcher with a mouse click.

GIS is extremely important in the NG9-1-1 system. In NG9-1-1 the information contained in GIS is used to route calls to the correct PSAP. Therefore, the PSAP of the future will rely on GIS and the data within GIS to ensure that calls reach the proper destination.

4.2.4 Network Monitoring and Management

The operation of an ESInet involves several network monitoring and management functions.

All ESInets require monitoring to ensure proper operation and performance. A monitoring system design and implementation should be able to make routine periodic checks on the ESInet to insure that the critical network elements and applications are operating as required. Monitoring system alerts are essential to notify the system administrator if a network element or application fails to meet the desired threshold or fails entirely.

The monitoring system should also have the ability to track traffic statistics and usage. If traffic becomes excessive on a part of the ESInet, the monitoring system should trigger an alarm to alert a system administrator of an anomaly that requires investigation. The monitoring system should also periodically log traffic loads, error rates, and other monitored parameters for trend analysis.

Network monitoring and management contains the following responsibilities

- Help Desk
- Trouble ticketing
- Incident management
- Problem management
- Availability management
- Capability management
- SLA management
- Security management
- Reliability management
- Capacity management
- Response and Recovery
- Escalation
- Trouble closure
- Logging and Reporting
- Documentation

While the ESInet itself requires monitoring, there must also be consideration for alarms and other environmental sensors located in the rooms/buildings within the NG9-1-1 system.

A Network Monitoring and Assistance Center (NMAC) will serve as a third party to manage all facets of the 9-1-1 infrastructure. The NMAC will be the primary monitoring and management function for all ESInet and NG9-1-1 related functionality, as well as a “help desk” for PSAPs. Individual vendors may include a monitoring component within their service, but the NMAC will be the primary point of contact for all.

4.2.5 Radio Interoperability

When a typical PSAP receives a 9-1-1 call that requires dispatching of first responders, the dispatcher uses local two-way radio networks for dispatch communications. Each PSAP, and in some cases, even each agency, uses a radio network. These networks provide radio communications in specific geographic areas local to the PSAP, city, or county served by the agencies, and may include voice and data, fire paging, fire station alerting, and siren activation. The systems in use on a daily basis for local dispatch are known as “operable” systems.

During emergency situations or large planned events it is necessary to provide communications between agencies/departments that normally do not talk to each other. Systems used in these situations are known as “interoperable” systems, and may take the form of “mutual-aid”. Some agencies also use mutual-aid in non-emergency situations.

Under normal operable conditions, there is little need for radio interoperability. However, as noted above, in emergency situations and for large planned events, radio interoperability is a critical need to ensure safety for first responders and the public. Advancing interoperability has been a long-standing objective of State, and driven by Department of Homeland Security – Office of Emergency Communications (DHS-OEC) policy and guidelines. North Carolina’s Statewide Interoperability Executive Committee (SIEC) has made substantial progress in advancing interoperability.

A unique case of radio interoperability is the NG9-1-1 requirement that when a PSAP forwards all its calls to another PSAP, the PSAP receiving the forwarded calls must be able to dispatch first responders of the PSAP sending the calls (dispatch to “follow forwarded calls”). This is based on the assumption that the PSAP forwarding calls is no longer staffed (PSAP evacuated), and may be out of service (local disaster). If time allows, the PSAP forwarding calls may be able to transfer their staff to the PSAP receiving the forwarded calls. While the development of an NC NG9-1-1 system using an ESInet may provide a transport network able to connect PSAPs together (for 9-1-1 calls), this ESInet does not address the radio dispatch of a PSAP’s first responders from another PSAP. This is due to the numerous disparate radio networks in use in North Carolina. Radio networks across the State use various frequency bands, various technologies (analog, digital, conventional, trunked, and with some being proprietary to specific vendors), and

various radio control and backhaul methods. There is currently no statewide network accessible by all agencies.

There is no easily deployable single solution today that meets the States NG9-1-1 radio interoperability requirements.

The most obvious solution is to have all public safety in the State use a common standards-based radio system. However, as noted above, many different systems exist today, and this approach would require the replacement of many radio systems, including the portables and mobile radios now in use. This may be a long-term strategy for the State's consideration, but would require significant funding and time to implement.

Combining existing radio systems into a "system of systems" at the statewide level is possible, and would require the design and deployment of an IP-based gateway system. These gateways would need to connect all radio systems and dispatch consoles together, so that any PSAP could dispatch any user in the state. In this scenario, the NG9-1-1 ESInet could serve as the transport network, but would require "last mile" connections to each radio system. Due to the many different types of existing radio systems, the common denominator for interoperability would be voice communications for dispatch. Any overall solution must address the unique paging and alerting systems (such as fire paging, fire station alerting, and siren activation). As in the case of a common standards-based radio system mentioned above, this approach would require significant funding and time to implement.

Use of an existing statewide radio network could address interoperability between PSAPs for all PSAPs/agencies programmed for and using the statewide network. In North Carolina, the VIPER system is an existing statewide network, which could be used for interoperability under the NG9-1-1 requirement. The VIPER system also has a dedicated microwave network connecting all sites together in the state. Use of VIPER to meet the NC NG9-1-1 radio interoperability requirement may entail:

- Discussion with and approval from the state of North Carolina (who owns and operates the network)
- Proper planning and design, coordinated with the State
- Consideration of the ESInet as backup backhaul/transport to the VIPER microwave network
- Development of talkgroups on a statewide level (above and beyond the current statewide talkgroups)

- Radio system expansion sized to accommodate anticipated call volume (radio channels, base stations/repeaters, consoles, and microwave)
- Reprogramming or possible replacement of radio consoles at PSAPs
- Reprogramming or possible replacement of subscriber radios (portables and mobiles)
- Statewide System User ID numbering system configured to facilitate operations
- Development of operating procedures, training, and exercises
- Identifying and securing funding

PSAPs/agencies currently not using VIPER would not be part of this solution until those PSAPs/agencies implement VIPER ability. This could be accomplished over time, as the existing radio systems reach end-of-life, and agencies replace them.

4.2.6 CAD Interoperability

In a typical PSAP, the call taker/dispatcher generally deals with four or five screens at the answering position. There is a screen for the 9-1-1 system itself, listing incoming calls, calls in queue, and ALI data. There is a screen or console to operate the radio. There is a GIS/mapping system screen, and typically, a Computer Aided Dispatch (CAD) system display. And, there may be a separate Records Management System (RMS) display, unless this is already integrated with the CAD system.

In the GIS-centric PSAP, the information on the 9-1-1 display is all found on the GIS map screen, thereby eliminating the 9-1-1 display. Some systems overlay CAD information, such as current location of units and their status, on the map. These strategies may reduce call taker or dispatcher work load and reduce the number of displays the dispatcher has to monitor, which can reduce the chance for overlooking something important or other such errors.

The ESInet makes it possible for PSAPs to share and exchange more information. Some of this information may take the form of CAD records and systems. CAD systems provided by a single vendor are typically different in every installation throughout the State.

Systems are available that can integrate disparate CAD systems into a common format.

5. Emergency Services IP Network (ESInet)

5.1 Overview

An ESInet is the first step in the roadmap to NG9-1-1. The Concept of Operations employed by the Board focuses on developing the specifications for a statewide ESInet according to the NENA model and focuses on deploying a solution that meets the long term i3 standard. We describe many of those specifications here and further define them in the specifics of the Conceptual Designs for the state of North Carolina.

Essentially the ESInet is the transport infrastructure and intelligent routing framework to enable the NG9-1-1 capabilities. An ESInet on its own does not include the capabilities to deliver NG9-1-1 calls, rather it transports calls and data.

A typical NG9-1-1 solution begins with the implementation of the ESInet with the layering in of the functional elements to deliver calls via NG9-1-1.

ESInets offer the following advancements over legacy 9-1-1 systems:

- Increasing the reliability of network resources through enhancements to resiliency, security and service management
- Increasing the flexibility and scalability of the network to remove location based and sometimes physical site limitations
- Enabling the transfer of calls between all PSAPs connected to the ESInet
- Enhancing the ability to establish backup scenarios without requiring the deployment of a physical backup location.

Table 4 compares some of the physical attributes and functions of ESInets and NG9-1-1

Table 4 – ESInet and NG9-1-1

ESInet's	NG9-1-1 Functions
Physical connections - capabilities	Logical internetwork - functions
Routers / Switches	Functional elements
Interconnections	Internetworking - Network addressing (IP, SIP, etc)
Redundant networks and Security	Security
Bandwidth	Applications
The foundation for applications and functions	Utilization of the ESInet

Technically an ESInet is an IP-based system comprising the following elements:

- Managed networks
- Ability to replicate E9-1-1 features and functions

Practically an ESInet will:

- Improve access to emergency services for callers
- Improve the effectiveness and efficiency of emergency communications and response
- Allow migration into fully functional NG9-1-1

ESInets have demonstrated their effectiveness by allowing 9-1-1 enhancements to occur without requiring substantial changes to the underlying infrastructure. An ESInet can add capabilities to support changes for current and new types of Originating Service Providers and increase flexibility for the PSAPs. Lastly, the ESInet can add capabilities to integrate and interoperate with emergency entities beyond the PSAP.

Figure 2 and the bullet list that follows briefly describe the primary components of the ESInet necessary for NG9-1-1 functionality. These components of the network are necessary along with the network infrastructure to supply the bandwidth and instructions for routing 9-1-1 traffic in the NG9-1-1 system.

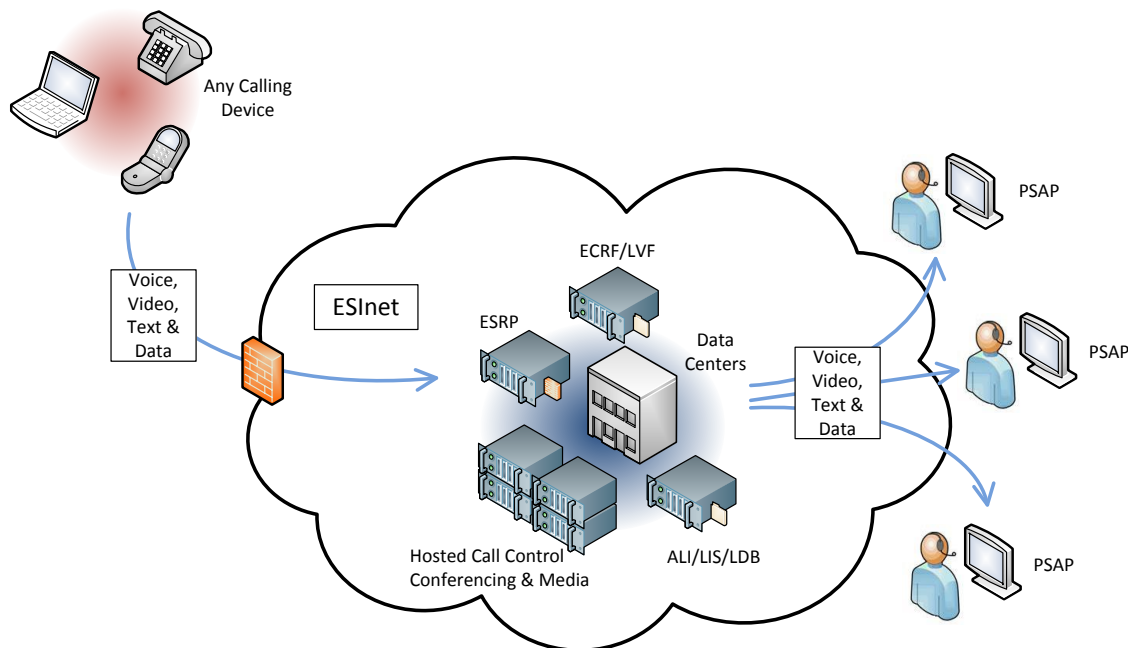


Figure 2 – ESInet Overview

An ESInet comprises several components that create the ability to progress to NG9-1-1. An ESInet is an efficient method of transitioning into NG9-1-1.

Typical ESInet components include the following:

- Routers and switches to create the IP network to transport information
- Legacy Network Gateway/Legacy Selective Router Gateway (LNG/LSRG) to connect to legacy networks and the legacy selective router for the ability to deliver calls
- Emergency Services Routing Proxy (ESRP) to create an ability to route emergency services such as calls and to route traffic to, from and within the ESInet
- Policy Routing Function (PRF) ability to create custom routing policies
- Emergency Call Routing Function (ECRF)/Location Validation Function (LVF) to enable geo-based and GIS routing
- Border Control Function (BCF) to enable a firewall component at all edges of the network

5.1.1 Purpose of the ESInet

The primary purpose of deploying an ESInet is to create a flexible, reliable, secure, and scalable network to serve all Emergency Service activities including 9-1-1. Configuration of the ESInet can arrange the interconnections necessary to integrate telecommunications providers, PSAPs and other agencies including administrative and government officers.

The ESInet is typically used for IP network communication between locations to hosts and services. In addition the ESInet can greatly enhance the capability for PSAP-to-PSAP and PSAP-to-emergency responder communications. Finally an ESInet can inherently support call transfers without boundary and include relevant call associated information.

An ESInet often aids in situational awareness. By using the logging functions within the ESInet the Board may be able to increase their visibility to events affecting the PSAP(s) and react quicker to potential areas of concern. Over time the implementation of an ESInet has become more or less mandatory for building the infrastructure required to support NG9-1-1.

Other ESInet factors include:

- Ability to replicate all features of E9-1-1 with IP-based, software and database versions
- Seamless support of all existing calling types through IP networking
- Foundation to minimize service disruption during transition
- Enhanced ability to transfer calls and data between PSAPs and other entities within the NG9-1-1 system
- Direct control of system functions and dynamic routing
- Sharing of applications and costs
- Disaster related call control
- Dynamic programming of the NG9-1-1 system to operate

5.1.2 New Communications Technologies

Many new communications technologies, such as text, email, instant messaging and social media applications have grown at a rapid pace. Existing legacy 9-1-1 networks have limited capability to deal with these new services and may not allow the communication of the valuable information available to the PSAP.

The only method to truly meet the advancement of new technology is to implement a completely new system as a foundation comprising the capabilities and NG9-1-1 core services to support new communication services. An ESInet is the primary step to provide the bandwidth, flexibility, redundancy and scalability to support these applications of the telecommunication infrastructure.

Additional potential new communications include:

- Automatic Crash Notification
- Text – both Short Message Service (SMS) and Multimedia Message Service (MMS)
- Alarms and sensors
- Pictures and video
- Social Media (Facebook, Twitter, etc.)
- Email

5.1.3 Redundancy, Diversity and Self-healing

The basis of the traditional 9-1-1 network is “telephone-grade” central office equipment, and multiple analog and time-division multiplexing (TDM) digital circuits. This network was based on legacy telecommunications services and has required special attention to redundancy, diversity and the ability to self-heal itself in the event of a disruption.

ESInet designs retain the legacy telecommunications redundancy, diversity and self-healing framework. The ESInet design contains no single point of failure. This includes the diversity and fault tolerance measures to minimize disruptions.

An ESInet utilizes IP networking capabilities and can create a logical based routing and switching of packets. Instead of multiple low-bandwidth circuits the ESInet uses broadband IP to aggregate bandwidth.

5.1.4 Bandwidth and Quality of Service (QoS)

The ESInet design must include enough bandwidth to meet current demands. However, within the specification, an ESInet should also include the ability to scale to meet anticipated demands in the near and long term. A scalable ESInet is important to meet the potential growth of NG9-1-1 services.

Quality of Service (QoS) provides a method to govern bandwidth across and within the ESInet. QoS standards regulate and prioritize the network bandwidth that supports different applications through prioritizing the packets of information.

5.2 Assumptions / Constraints

The state of North Carolina ESInet will provide the following:

- Ability to enable SIP interfaces between remote locations and public / private networks via SIP delivering 9-1-1 calls and ANI/ALI to the Emergency Services System (e.g., Automatic Collision Notification (ACN), Poison Control, etc.)
- Interfaces to systems and databases not at the remote location that supply data and assistance in processing a call (e.g., Location to Service Translation (LoST), Emergency Call Routing Function (ECRF), etc.)
- Interfaces to systems that handle a call past the point where a call taker has exclusive control over it, such as the handoff to the Computer Aided Dispatch (CAD) system

- Interfaces to upper level management systems, such as disaster management systems, as well as peer remote locations
- Interfaces to other networks (e.g., public safety radio systems, other ESInets, etc.)

Minimum functions provided by the state of North Carolina ESInet:

- Legacy Network Gateway (LNG)/Legacy Selective Router Gateway (LSRG)
- Emergency Services Routing Proxy (ESRP)
- Policy Routing Function (PRF)
- Emergency Call Routing Function (ECRF)/Location Validation Function (LVF)
- Border Control Function (BCF) which consists of a Session Border Controller (SBC) and Firewall

We recognize that the use of CPE designed to support SIP-based calling will require specific features and functions of the ESInet. We assume that the ESInet will support commonly used Internet-based telecommunications, messaging, image, and video protocols in order to maintain interoperability with Internet applications. The network design must address IP quality of service (QoS) and security to ensure system reliability.

Adherence to industry accepted guidelines and best practices provides many advantages including future proofing, protection from obsolescence, improved supportability, reduced costs, and improved interoperability. The ESInet also meet, at a minimum, the following recommendations and guidelines.

5.3 Recommendations for ESInet

Statewide ESInet network design, management, and operation services provided by a standards-based solution supplies:

- Standards based:
 - ESInet that meets open standards and increase interoperability
 - System and component level monitoring, alarming, diagnostics and reporting services, disaster recovery and system restoration services including a 24/7/365 help desk, trouble ticketing and customer facing support services

- 24/7/365 Network Operations Center (NOC) monitoring services to include Security Operations Center (SOC) functions in accordance with NENA and State policy
- NENA i3 NG9-1-1 based standards for all core functions and capabilities
- Legacy 9-1-1 integration
- Text to and from 9-1-1 services based upon the Message Session Relay Protocol (MSRP)
- Elimination of any single point of failure where possible or provide an alternative to minimize the effect of a single point of failure where identified
- Utilization of a highly reliable and redundant architecture
- Availability, diversity, redundancy and resiliency focus for ESInet design
- Support the automatic adjustment of traffic priorities in order to meet established QoS levels as defined in NENA i3
- Ability to handle legacy 9-1-1 calls and ensure the capability of handling future call types
- Functional areas:
 - Minimum level of bandwidth to support delivery of calls and associated data from originating service providers or other integrated ESInets to the PSAPs
 - Ability to automatically reroute traffic to alternate routes or systems in order to avoid network outages and system failures
 - Ability to prioritize critical traffic at multiple levels by importance of applications or users
 - Scalability without adverse effects on performance or costs
 - Ability to ensure performance through the use of traffic shaping and traffic policing
 - Fully redundant ESInet connections to PSAP locations
 - Ability to allow peering arrangements, interagency agreements or mutual aid at local PSAPs following documented policies, or dynamically through custom changes to the routing policy within the network

- Location of equipment and network resources within the state of North Carolina at Data Centers selected with approval by the State

6. Hosted Call Handling

6.1 Overview

The ESInet design will include implementation of the CPE utilized for call delivery in a hosted environment. Hosted Call Handling may be used to support several PSAPs and can directly have a positive influence on the cost of purchasing and maintaining CPE systems. At the present time there are 119 primary PSAPs and each one contains some form of CPE. The present CPE framework serves 840 positions and handles 7,294,803 calls per year.

In a legacy network, typical rough order of magnitude (ROM) cost for a single site (non-hosted) for CPE is roughly \$75K per position. The same cost when installing a hosted solution utilizing an NG9-1-1 infrastructure is more typically near \$35K per position. This is due to the ability to share the NG9-1-1 infrastructure required to support a hosted CPE system. Hosting services inside of the NG9-1-1 system can generate financial efficiencies through economies of scale.

A Hosted Call Handling solution can allow the potential for housing multiple hosted CPE solutions. This will increase the choices of call handling systems at the PSAP and may streamline maintenance, repair and upgrade activities. The hosted systems, to some extent, will be capable of cross system communication using standard SIP signaling aligned with NENA i3. This will enhance the ability for PSAPs to transfer and forward calls between hosting solutions without having to rely on resources located outside of the ESInet.

The hosted solution will interface with administrative call handling systems located at the PSAPs as required. Support for standard call handling capabilities will be required and they should support multiple call delivery methods (ACD, Ring-all etc.). Figure 3 is a high-level diagram of a hosted solution.

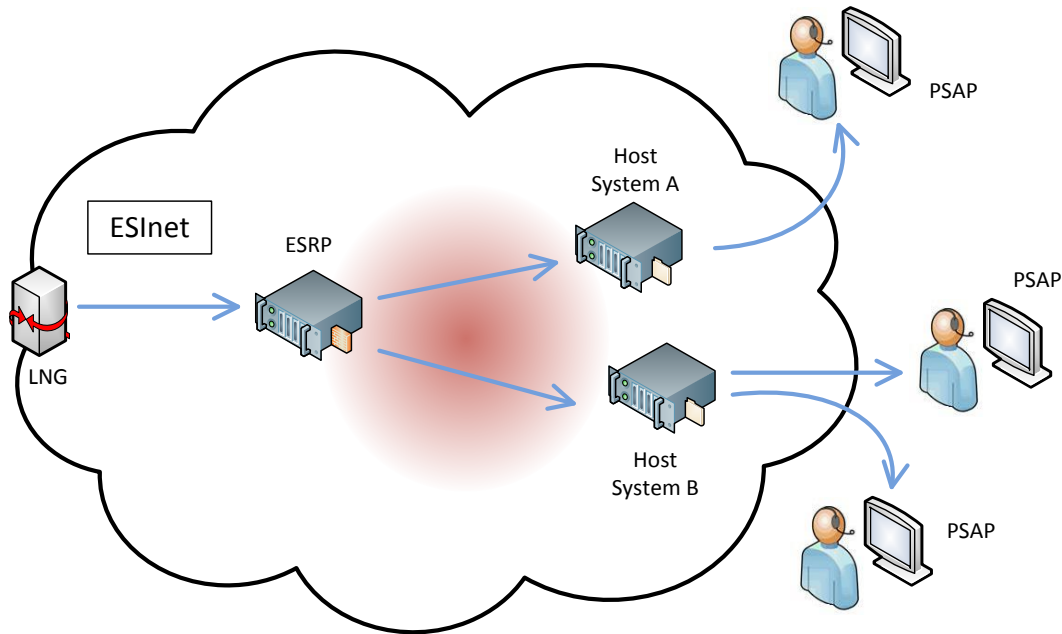


Figure 3 – Hosts operating within an ESInet

While this section primarily focuses on Hosted Call Handling, there are other potential hosted solutions that can offer additional benefits over stand-alone deployments. CAD, GIS, and Recording as well as a variety of individual PSAP applications may offer better service and support when hosted inside of the ESInet.

6.2 Assumptions / Constraints

All Hosted Call Handling solutions will use the Session Initiation Protocol (SIP) to handle all calls, data and information within the NG9-1-1 network. SIP is the call transport and delivery standard for NG9-1-1.

SIP is an application layer IP-based protocol for establishing, manipulating and tearing down communication sessions. SIP can be used to support instant messaging via text channels, contain geographic location data and even support supportive and supplemental data that arrives with a call.

The ESInet also provides an open source platform based on IP communications, designed to support many types of media calls and services without being tied to any one company's proprietary platform. NG9-1-1 will deliver all calls, using whatever network is native to a call, to the ESInet through gateway services. Following delivery of a call into the ESInet, the ESInet will route the call, based on its originating location, to the most appropriate PSAP over new and existing state-based IP networks.

Hosted Call Handling systems are being built around the use of SIP and the ESInet to treat calls in a similar fashion as they are within the PSTN. The 9-1-1 CPE systems will build upon their common foundational components of call handling, transport and delivery.

Hosted Call Handling can also provide greater geographic diversity by allowing multiple access points to a common host. Systems may choose to split redundant mission critical components and place them in different physical locations to lessen the risk of a failure (due to weather, power disruption or infrastructure damage) at any one site from seriously degrading system performance. IP-based 9-1-1 CPE connectivity is built around highly reliable and secure IP networks that, as long as they are connected, are unaffected by spreading out individual components that make up the CPE system in different physical locations.

Remote agent applications are being widely used in the call center industry to reduce costs associated with commuting to work for employees and are a natural fit for the 9-1-1 industry as an option for PSAP managers in inclement weather and heavy call volume scenarios. These proven systems can send calls to remotely located dispatchers just as easily as dispatchers located in the same building as the CPE system as long as the dispatchers have secure access to the network. Hosted Call Handling allows the idea of a PSAP location to become less about the building and more about getting the call to the most appropriate dispatcher regardless of that dispatcher's physical location.

6.2.1 Logging and Recording

While CAD interoperability will encourage greater collaboration and interaction among PSAPs, an area that can also be directly affected is logging and recording. Each PSAP contains a logging recorder within their local system. These recorders are highly secure and accessible only from the local network.

NG9-1-1 capabilities, and in particular the ESInet, permit the sharing of the function of logging and recording calls. Loggers and recording equipment may be moved into the data centers and sized appropriately to handle multiple counties. This may provide greater logging and recording abilities for many PSAPs and could result in quicker access to recording information by all.

6.3 Recommendations for Hosted Call Handling

A desirable Hosted Call Handling platform would have the following features:

- Equipment that meets all applicable NG9-1-1 standards, security requirements and recommended specifications

- Modular system architecture based on open standards and industry best practices to support the addition of new functionality as it becomes available without requiring a major revision of the underlying system code
- Hosted Call Handling equipment that meets the redundancy, resiliency and reliability concerns and provides continuity in operations to prevent the occurrence of any single point of failure in the equipment
- Ability for call takers to dial and receive calls across the ESInet including 9-1-1 calls, non-emergency/administrative calls, ring downs, VoIP and TDD
- Integration of stand-alone recording or a hosted logging recorder currently in use or that may be in use in the future
- Identification and retrieval of any calls in queue, easily and quickly
- Dynamic configuration of the distribution of calls across the ESInet
- Transference of calls to any other position internal to the system or externally along any provided secure network to another PSAP
- Allows for system administrators and/or users to save any system-wide configuration, per-user and/or per role
- Method for call takers to play back the recording of any call from their assigned workstation, provided they have the proper permissions, regardless of whether the call was answered at that workstation by the call taker or elsewhere in the system by a different call taker

7. GIS, Mapping, GEO-Based Call Routing

7.1 Overview

GIS serves many purposes in NG9-1-1. Most importantly, GIS is a component of creating the Emergency Call Routing Function (ECRF) data.

A GIS server typically contains the ECRF data used in NG9-1-1 to route calls based on geographic location. The critical nature of the ECRF and the eventual replacement of selective routing increases the emphasis on ensuring the consistency of GIS data and workflow processes to maintain, synchronize and join GIS information with the ECRF.

Although there are many steps to creating a GIS system; there are generally three primary roles of GIS in call routing.

- Call Routing
- Dispatch
- Workflow

Here we describe the importance of each of these GIS roles:

- **Call Routing** – All GIS addressing information, especially jurisdictional boundaries, become an integral part to the proper routing of 9-1-1 calls. During network design and implementation, a GIS authority should review current datasets, accuracy of data, processes for data maintenance and integration of data between systems with each PSAP. This may be a lengthy process to collect and join 100 county datasets and will most likely be an ongoing task.
- **Dispatch** – Computer Aided Dispatch (CAD) systems may also use GIS to assist the dispatcher in visually identifying the location of a call or event. Some CAD systems have their own GIS mapping tools that require integration with the GIS system once implemented.
- **Workflow** – Implementation of the GIS system into a larger statewide system must include consideration of the standards and policies required to ensure that the preparation of GIS data is consistent with future system guidelines. Specific workflows and policies may be necessary to effective data integration across the NG9-1-1 system.

With GIS at the heart of the NG9-1-1 database, public safety agencies need to continually focus on four key considerations to keep this data timely and accessible:

- **Accuracy** – In NG9-1-1, GIS uses road center lines, the addresses of buildings and jurisdictional boundaries as guides for deciding to which public safety answering point (PSAP) a call should be routed. Assuring the accuracy of this information in the GIS database is crucial to prevent erroneous routing and assure timely emergency responder responses.
- **Maintenance** – In NG9-1-1, address information must be updated and maintained regularly at the local level and then be pushed up to an emergency call routing function (ECRF) database server in the Emergency Services Internet-Protocol (IP) network (ESInet). The ECRF, which stores precise location data, determines the best route for the call, based on the location of the calling device. If the address information is not up to date, the whole routing process can degrade.
- **Standards** – In an NG9-1-1 system, data is likely to be received from a large number of agencies, PSAPs, counties and other jurisdictions that operate within the same ESInet. This data must be standardized for integration into the ECRF. For example, National Emergency Number Association (NENA) standards require the name of a street such as “West Main Street” to be stored in three separate fields: “W,” “Main” and “St.,” with “W” being the predirectional, “Main” being the street name and “St” being the street suffix or type. If a local agency stores it as “West Main” and “Street,” it may be unrecognizable to the ECRF because it does not adhere to the expected standards for addressing. Information must be entered consistently in all the database fields.
- **Policy and Governance** – Each PSAP jurisdiction will be evaluated to understand their policies on maintenance, workflow and assignment of new addresses and assure that staff members who update GIS data follow those policies. Policy and Governance must include documented decisions regarding the frequency of information update and who is responsible for carrying out this task. In some smaller communities, a planning department might assign addresses without GIS. Surrounding areas that have complete GIS addressing will lack these street names and addresses.

7.2 Assumptions / Constraints

This report assume that GIS capabilities will remain with the local entity currently responsible for GIS. GIS information will be collected, combined and stored within the ECRF server to allow 9-1-1 call routing.

The GIS must meet the NENA standards for:

- Spatial Accuracy
- Service Area Boundaries
- PSAP Boundaries
- Emergency Service Zones
- Point file (locations)

7.2.1 Remediation and Maintenance

Remediation activities on the GIS layers and data will remain a function of the local entity. The GIS department, Planning department or other entity responsible for updating and remediating the GIS data will continue to perform those tasks.

Since the GIS layers and data will comprise the call routing function in the NG9-1-1 system, verification and validation of the information on an ongoing basis is crucial. All quality assurance and quality control measures must in place prior to uploading any data to the State GIS system for utilization by the ECRF.

The GIS system will utilize the following as a best practice or guideline:

- NENA GIS and data standards
- Common workflow for uploading GIS information and synchronization of files for use with the ECRF
- Ensuring maintenance files are uploaded in a regular and routine manner
- Local entities will remain responsible for ALI, MSAG, and GIS maintenance, validation and synchronization

7.3 Recommendations and GIS priorities

All GIS activities regarding the data integrity required for 9-1-1 and NG9-1-1 will align with NENA standards. The GIS system will ensure that all boundary information is available in the correct format for call routing, dispatch functionality and PSAP utilization in NG9-1-1 including:

- Emergency Service Boundaries from the PSAPs and GIS data that identifies associated Emergency Service Zones (ESZ) and Emergency Service Numbers (ESN).

- PSAP boundaries that correspond to non-overlapping boundaries for PSAPs throughout the State
- Fire service agency boundaries that correspond to non-overlapping boundaries for fire dispatch areas throughout the State
- Law enforcement service agency boundaries that correspond to non-overlapping boundaries for all local, regional, and state law enforcement agencies (police and sheriff departments) throughout the State
- Emergency Medical Services agency boundaries that correspond to non-overlapping boundaries for all emergency medical services agencies throughout the State
- Applicable Master Street Address Guide (MSAG) community boundaries, within which number/street name are unique
- Applicable municipal, local and adjacent state boundaries.

The State may select a vendor to provide GIS data normalization services, including quality assurance and control services.

8. Network Monitoring and Assistance

8.1 Overview

The NG9-1-1 system will require a method for monitoring the system and assisting PSAPs in dealing with service activities. The intent behind a Network Monitoring and Assistance Center (NMAC) is to serve the function of a help desk or service desk that responds to calls and web queries for assistance. In addition, the NMAC will continually monitor the activity on the network and recognize patterns, trends and proactively interface to the provider when events, incidents and problems occur.

The NMAC will operate 24x7x365, staffed in a manner that ensures monitoring of all activities. The role of the NMAC is very important in assuring that the provider and suppliers of 9-1-1 service meet their SLAs. In addition, the NMAC will be responsible for assuring the bundling of the entire service and SLAs into an overarching service level framework for 9-1-1.

8.1.1 Network Monitoring and Assistance Center (NMAC)

The NMAC will be the primary Network Operations Center, Security Operations Center and Help Desk for the state of North Carolina NG9-1-1 program. The NMAC is the point-of-contact for stakeholders, such as PSAPs and service providers, to report trouble, request changes, or obtain information about the status of the network.

Providers may have their own NOC capabilities but the State will utilize the NMAC as an overarching management function for all elements of the NG9-1-1 operation. The NMAC will be reachable by several communications methods, including telephone, email, and web site. The NMAC will be the single point of contact when it comes to getting network issues diagnosed and resolved.

As the single point of contact (SPOC) for all NG9-1-1 system activities, the NMAC provides day-to-day interface with the provider and suppliers. The NMAC will perform the following functions:

- Handles incidents and resolves them before they create problems
- NMAC owns the escalation process between all entities
- Reports and manages problems
- Handles all service requests

- Provides information to all PSAPs and users as required
- Communicates with the Board, PSAPs and vendors regarding incidents, problems, trouble tickets, changes and potentially service affecting activities
- Manages all requests for change, including hardware and software updates/upgrades
- Manages the performance of the entire solution including the provider SLA metrics
- Monitors incidents and service requests against the SLA targets and provides reports to document the level of service achieved
- Monitors availability, reliability, and capacity
- Monitors and administers network and services cybersecurity

8.1.2 Help Desk

The Help Desk is the primary customer support point of contact for the NG9-1-1 system. The Help Desk does not eliminate the need for vendors to have their own service management system. The role of the help desk is to supply additional technical and operational support to the PSAPs.

The goal of the help desk is to provide better customer service across the State while increasing the level of technical support for PSAPs. The ability to correctly prioritize incidents based upon impact and urgency is a requirement for the Help Desk staff. The common goals within the Help desk include:

1. Increase in the focus on customer service for PSAPs
2. Ease of provisioning of support through a single point of contact
3. Provision of faster resolution of incidents, problems and the fulfillment of request of the service desk
4. Escalation point of contact for urgent activities
5. Reduction of potential impacts in the event of service affecting issues
6. Ensuring the accuracy of performance metrics associated with the service

The Help Desk is also concerned with restoration of service in the event of a failure. Other responsibilities of the Help Desk include:

- Logging all incidents and requests with the appropriate level of detail
- Categorizing incidents and requests for analysis
- Agreeing on the correct priority with the provider and user on impact and urgency utilizing the SLA where appropriate
- Investigating, diagnosing, and resolving incidents whenever possible
- Deciding upon the correct support team to whom to escalate the incident should the NMAC be unable to resolve it
- Communicating progress and resolution
- Confirming closure of resolved incidents with the user

8.1.3 Cybersecurity

The NMAC SOC function will monitor security standards enforcement within the NG9-1-1 system. The NMAC SOC will utilize the NENA NG-SEC 75-001 standard for all equipment, services and systems. The cybersecurity framework for NG9-1-1 will combine the NENA standard with the standards required by the state of North Carolina.

The NMAC will ensure the continual monitoring and management of security for the entire NG9-1-1 network according to the security plan.

Security addresses the following areas to protect the State and PSAP data and resources.

- Implement an Identity and Access Management tool, system and/or process to prevent unauthorized access to the NG9-1-1 system
- Provide firewall, intrusion detection and prevention capabilities
- Ensure implementation of proper encryption within the system
- Prevent interception and manipulation of data
- Establish a centralized reporting and monitoring capability within the NMAC
- Manage and coordinate the definition updates to Anti-Virus, Anti-Spam and Anti-Malware software

- Ensure the integrity of all software used within the NG9-1-1 system
- Log all security concerns and provide a report with measurements of security issues, breaches and resolved issues

8.1.4 Configuration and Network Change

As the ESInet grows and evolves, sites will be added, sites will be removed, or sites may move to a different location. Interconnections with service providers and with other IP networks will undergo similar changes. New applications will be added to the network, and existing applications modified. Security configurations will require modification to remain current. This will demand a diligent approach to minimize the vulnerabilities that may include malware, virus protection, and the continual monitoring of potential threats. Equipment will require upgrade or replacement.

Although a necessary activity, making configuration changes on an operating network contains elements of risk. For example, a simple incorrect configuration change in a backbone router may cause IP routing failures that may affect large portions of the network with potentially serious repercussions. The ESInet design and implementation will minimize the number of single points of failure. This includes physical and logical internetworking across the NG9-1-1 core backbone as well as access networks that reach out to the PSAP.

8.2 Assumptions / Constraints

The NMAC function will ensure consistent monitoring and management of the services provided (ESInet, Hosted Call Handling, GIS, Telecommunications, Radio, CAD, Recording, etc.) and quick resolution of any problem or trouble. Many vendors will offer a common method of managing their individual service; however, this can lead to multiple levels (and layers) of management contracts. The potential exists for contracts to overlap, supersede or contradict each other when considering the entire solution. The NMAC will oversee this process.

The NMAC will become the primary interface between the Board and all vendors. Implementation of this arrangement will ensure that vendors are held accountable for any potential incident, or problem.

The NMAC will govern all SLAs which must address:

- QoS, to include delay, packet loss and jitter on network elements
- Voice availability

- All hardware availability and reliability
- Applications availability
- Spares availability
- Network availability
- Maintenance down time
- Installation
- Denial of service
- Reports
- Administration and escalation
- Order processing
- Trouble response times
- Network security

8.2.1 Service Level Considerations

An NG9-1-1 system introduces a different level and a different type of service than that currently implemented in legacy 9-1-1. As discussed previously, multiple service levels will exist within the system and will need to be combined in a manner that serves the entire system and not the individual components. Service levels are a guarantee that the service will meet its intended threshold. Service levels affect the continuing performance, and response and repair times to correct an issue. A service level agreement also defines the liability and cost for exceeding the defined threshold.

The procurement process for the system will define the service levels to support the desired NG9-1-1 system. The ability of the NMAC to assemble an umbrella service level agreement is a necessary component of the NG9-1-1 management function.

The NMAC will be responsible for these functional areas:

- Accounting management
- Change management
- Configuration management, which includes release management
- Fault management, which includes network incident management and problem management

- Performance management, which includes capacity management and availability management
- Security management
- Service level management
- IT service continuity management

8.3 Recommendations and NMAC Priorities

This NMAC is the established single point of contact on a 24x7x365 basis and the primary notification point for all system issues such as the following.

- Continuously monitor the performance and availability of all devices, network connections, applications, CPE, and other functional elements throughout the NG9-1-1 system and network
- Monitor network performance, including throughput, latency, jitter, packet loss, and other parameters, including any performance criteria identified in a vendor supplied Service Level Agreement (SLA).
- Monitor the network for network intrusion attempts and potential security breaches, and issue alerts as required to protect the NG9-1-1 system and network.
- The network performance monitoring tools shall be industry standard platforms designed for and deployed by network operators on networks of the same size and complexity as the NG9-1-1 network.

The NMAC will allow for integration of diagnostic tools to monitor and manage the equipment, applications, appliances, services and alarms to alert the NMAC personal to an event, failure or disruption of the operation.

- The NMAC will provide system health monitoring and assurances that the system is functioning properly and in accordance with performance criteria.

The NMAC will include the requirements for operating as the SOC for the network, which may include:

- Accounting, Authentication and Authorization services

- The NMAC will also ensure that intrusion protection service and detection are performed in a proactive manner to minimize security threats.
- The NMAC will maintain security patch management, Anti-Virus, Anti-Spam, and Anti-Malware processes and products.
- The NMAC will perform operational reporting via statistical data to ensure real-time reports are consistent with expected service level and performance criteria.
- The NMAC will be the single point of contact for any changes or configuration modifications necessary within the system. These may include:
 - Software upgrades
 - Hardware changes
 - Access authorization
 - Change management and planning
- The NMAC will ensure software integrity controls throughout the life cycle, including during development, testing, and production.
- The NMAC will manage all encryption on all communications in coordination with the vendor.
- The NMAC will partner with the vendor to maintain a disaster recovery and continuity of operations plan.

9. Radio Interoperability

9.1 Overview

9.1.1 Radio Interoperability in an NG9-1-1 Environment

One of the advantages of an NG9-1-1 system is the ability to forward 9-1-1 calls (voice and data) from one PSAP to another PSAP. While this allows the forwarding of calls as a function of the NG network, there is an additional requirement that must be met – that of forwarding radio dispatch to the same PSAP, now answering the calls. This is to allow communications between the PSAP now answering the forwarded calls and the public safety users in the original area from which the calls originated. The NC NG9-1-1 Board is considering use of the NG9-1-1 ESInet as a backhaul network to facilitate this radio interoperability when calls are forwarded.

There are multiple types of radio systems in use in North Carolina, ranging from frequency band used (VHF, UHF, and 700/800 MHz) to technology used (analog, conventional, trunked, digital, P25, EDACS, and NXDN). Due to the disparate radio systems in use in North Carolina, and the fact that the radio systems are usually controlled by the individual dispatch center, limits methods for full interoperability at this time.

Current radio systems in NC consist of VHF (low-band and high-band), UHF, 700 MHz, and 800 MHz. Multiple vendors and technologies in use include proprietary technologies such as Motorola SmartNet® and SmartZone®, and Harris EDACS. There are also standards-based technologies in use such as APCO P25, and NXDN. NXDN is not currently considered mission-critical grade, and its use is driven more by cost than interoperability.

Information gathered by the PSAP Survey provided only high-level insight into radio systems in use, and lack the detail required to complete a full evaluation. Many responses from PSAPs included the type of radio control console used, and it is important to recognize that a significant quantity of these radio consoles are at end-of-life, and support from vendors has or will soon end. If the radio systems associated with these end-of-life consoles are of the same age, the radio systems may also be at end-of-life and need replacement in the near future.

9.1.2 Interoperability Guidelines

DHS-OEC (SAFECOM)⁴ drives public safety interoperability. DHS-OEC published guidelines⁵ describe how to approach this topic on a statewide basis. The foundation of interoperability is the Interoperability Continuum, as shown in Figure 4.

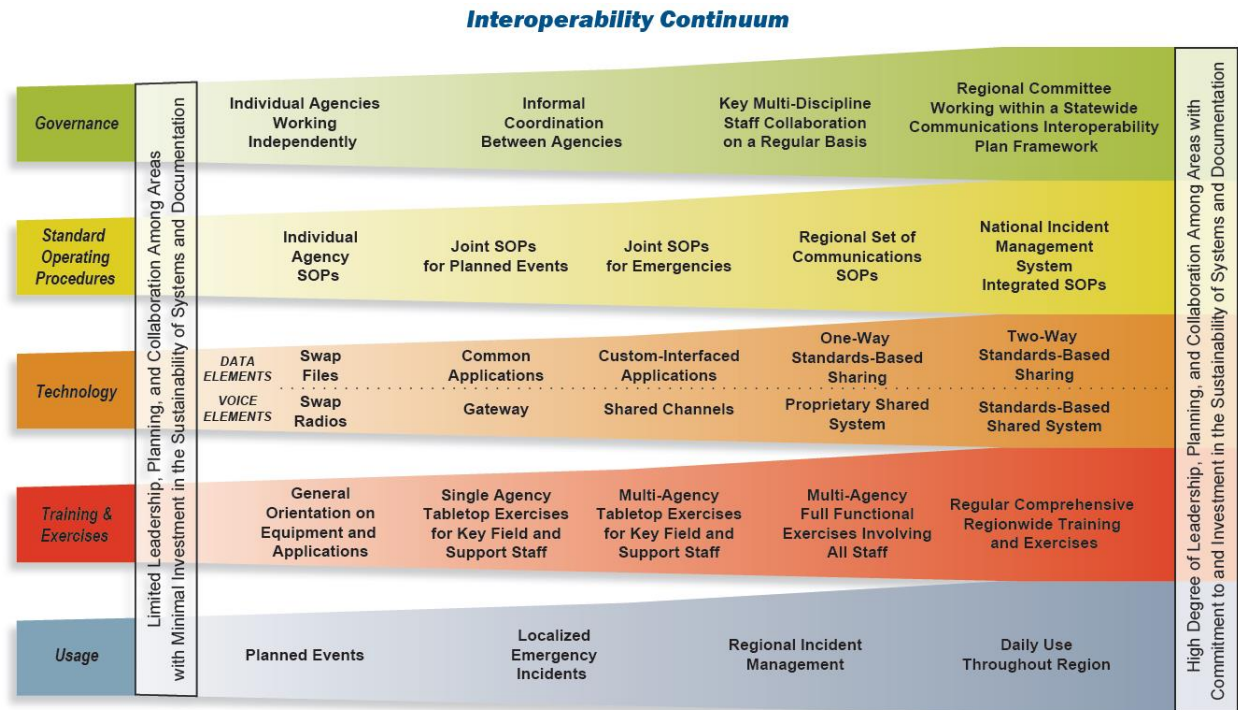


Figure 4 – Interoperability Continuum

The Interoperability Continuum consists five “lanes” which, addressed together, form a cohesive plan for the State. As each lane progresses from left to right, it describes the evolution of interoperability toward the DHS-OEC objective of full interoperability (far right). While interoperability dictates addressing all lanes for radio, the major focus for the NC NG9-1-1 project is the Technology lane, and moving as far to the right in the lane as possible. Within this lane the farther right you proceed, the more developed the interoperability.

9.1.3 North Carolina Interoperability

In compliance with the DHS-OEC Guidelines, most states, including North Carolina, developed Statewide Communication Interoperability Plans (SCIPs), and put into place governance structures to address interoperability. Part of this governance structure

⁴ <http://www.dhs.gov/safecom>

⁵ <http://www.dhs.gov/safecom/planning>

includes a Statewide Interoperability Coordinator (SWIC), responsible for advancing interoperability within the state and with adjacent states.

The State Interoperability Executive Committee (SIEC) addresses public safety radio interoperability in NC. The SIEC is a subcommittee of the NC State Emergency Response Commission (SERC). Figure 5 shows the current governance structure.

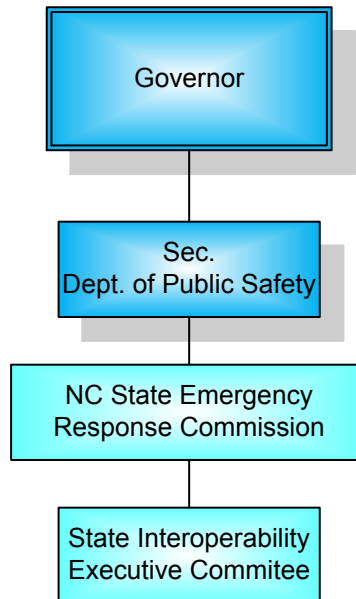


Figure 5 – Governance Structure in North Carolina

Within North Carolina, the current plan within the SCIP is to use the 700/800 MHz P25 VIPER system as a part of the interoperability solution. This system is a standards-based shared system (on the far right hand side for the voice communications half of the Technology lane in the continuum), which through appropriate system and radio programming, allows interoperability between all users.

Counties already partnered with NCDPS in use of the VIPER system include:

- Alamance County
- Beaufort County
- Bertie County
- Bladen County
- Brunswick County
- Buncombe County
- Durham County
- Edgecombe County
- Gaston County
- Gates County
- Graham County
- Granville County
- Pasquotank County
- Pender County
- Perquimans County
- Pitt County
- Rockingham County
- Sampson County

- Burke County
- Cabarrus County
- Caldwell County
- Carteret County
- Catawba County
- Cherokee County
- Chowan County
- City of Asheville
- City of Lenoir
- City of Mooresville
- Clay County
- Cleveland County
- Columbus County
- Craven County
- Cumberland County
- Dare County
- Duplin County
- Halifax County
- Harnett County
- Hertford County
- Hoke County
- Hyde County
- Iredell County
- Lee County
- Lenoir County
- Lincoln County
- Macon County
- Martin County
- Mecklenburg County
- Mitchell County
- Nash County
- New Hanover County
- Orange County
- Stanly County
- Stokes County
- Surry County
- Swain County
- Town of Chapel Hill
- Town of Creedmoor
- Town of Hudson
- Town of Plymouth
- Town of Seven Springs
- Town of Swan Quarter
- Tyrrell County
- Vance County
- Wake County
- Washington County
- Wilkes County
- Yancey County

Of the 67 partner counties using VIPER for interoperability, 37 of those use VIPER as their operable system. Use of the system as an “operable” system means that the county uses VIPER for communications all of the time. All EMS vehicles in the State have VIPER equipped radios. The VIPER system does not provide alerting (paging, fire stations alerting, or siren activation); these functions are provided at a local level.

The current VIPER system consists of:

- 214 planned sites across NC, with 210 operational and 2 additional sites funded and planned
- Approximately 78,000 users, across 268 public safety agencies

South Carolina has a similar interoperable system allowing NC and SC to talk to each other with the same radio equipment, if programmed appropriately.

NC Department of Public Safety (DPS) implemented a gateway-based system for interoperability, based on the concept that disparate agencies could use the gateway system to talk to each other and tie together radio channels or talkgroups. This solution represents the left-hand side of the continuum, and provides a lower level of interoperability than those solutions that are further to the right in the technology lane. Gateway systems usually provide voice interconnectivity only, but not radio IDs, emergency alarms, and aliases, unless the systems employ the same standard (such as P25). The current gateway system is able to pass data/metadata (User IDs, etc.), provided the sending and receiving sides in a “patch” use the same types of systems and signaling. This gateway system, implemented in 2003, has declined in use over the years as more agencies join VIPER. Also, the gateway system has had portions of the network decommissioned.

The purpose of the gateway is to patch (cross-connect) disparate radio systems and channels together. Note that while the systems/channels can be patched together, this method does not allow a user to roam into areas not served by the “home” network (unless the systems include shared radio channels common between the areas). Most current gateway systems rely on an IP interconnect of all resources in the gateway network (and the ESInet could serve this purpose). This method allows a dispatch location to communicate with users in different areas. This patching is a manual process and usually controlled by a separate console/PC position.

Gateway system configurations vary. If the gateway connects only to the dispatch console, only that dispatch console can cross-patch channels/talkgroups. If the gateways connect directly to the radio systems, remote access to the radio systems is possible from other locations. The more disparate radio systems added to the gateway system, the more complex operational procedures become.

9.2 Assumptions / Constraints

9.2.1 Radio Interoperability - Guidelines

All efforts for radio interoperability, including the specific requirement of NC NG9-1-1 to have dispatch follow the forwarding of 9-1-1 calls, need to be based on and follow the DHS-OEC Interoperability Continuum guidelines. With a focus on the Technology lane of the Continuum, solutions may be developed that affect the other lanes in the Continuum; therefore, all solutions must address their potential to affect other lanes. This will require coordination with other departments and agencies within North Carolina, and other partners such as adjacent states and federal agencies.

9.2.2 Existing Public Safety Radio Systems in Use

All candidate interoperability solutions must take into account the multiple types of radio systems and backhaul networks used to connect radio sites to dispatch centers. Figure 6 shows the backhaul methods currently in use in the State. Many of the PSAP survey respondents noted that they use multiple methods for backhaul (such as leased line with control stations for backup access).

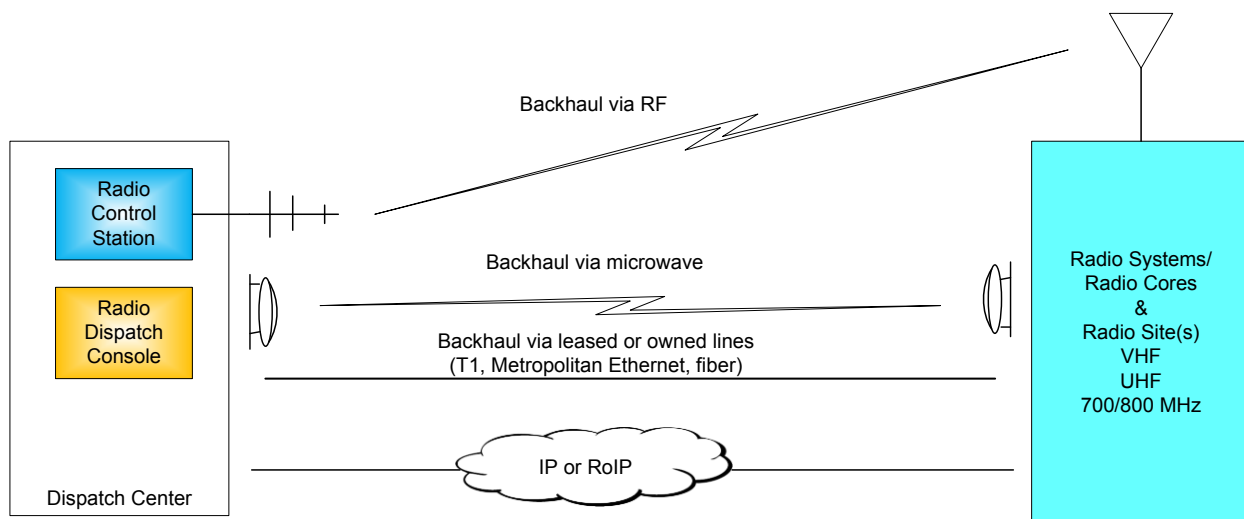


Figure 6 – Current Backhaul Methods in Use in NC

One constraint in forwarding dispatch to another PSAP/dispatch center will require establishing a parallel backhaul link between each of the radio sites to/from the PSAP for forwarding the 9-1-1 calls and dispatch. Considerations for such a backhaul include:

- Control stations: The PSAP must be within the radio range of the sites. If calls and dispatch are forwarded to a PSAP that is not within range of the radio sites, control stations cannot be used.
- Microwave: To be fully interoperable, the microwave system must be statewide, and all PSAPs connected to the microwave and radio systems.
- Leased or owned lines (T1, Metropolitan Ethernet, fiber): With the LECs moving away from T1 lines to IP based circuits, new circuits would need to be implemented between the radio sites and the dispatch center, and to the statewide interoperability network (VIPER, ESInet).
- IP or RoIP: Similar to the leased lines, circuits would be IP based, and need to connect radio sites and dispatch sites to the interoperability network.

9.2.3 State Initiatives

The Broadband Infrastructure Office (BIO) within the North Carolina Department of Information Technology (DIT) consolidates the foundational pieces of the NC Broadband effort, FirstNet, and other state broadband initiatives. DIT is directly and indirectly involved in the development, management, and operation of broadband networks for several different departments, agencies, and broadband policy and planning for the state.

- BIO continues the federally funded NC Broadband initiative to provide planning and technical services to communities, for economic development, and for education concerns within the State. Mapping of broadband availability in the State is provided, and available on the website - <https://ncbroadband.gov> and at @BroadbandIO
- FirstNet-NC is responsible for all activities in the State regarding the FirstNet initiative, including outreach and education, governance, consulting with FirstNet on State needs, and data collection efforts. Further information on FirstNetNC is found at firstnet.nc.gov

Since the NC NG9-1-1 project will include a new statewide ESInet, which is also a broadband IP-based network, how (and if) the BIO and FirstNetNC initiatives integrate with the ESInet are yet to be determined. Discussions are ongoing with FirstNet-NC to determine if any synergies are possible, and the form that they may take.

9.3 Conceptual Design(s)

The radio interoperability objective is to have the dispatch functions follow the 9-1-1 call forwarding from one PSAP to another PSAP, regardless of location of the PSAPs in the State.

In the interoperability solutions discussed below, none will provide 100% radio interoperability at the start of the project, based on the current radio systems in the State. Radio interoperability a phased approach. Radio interoperability may require upgrading, replacing or reprogramming some radio system equipment. Recognizing that achieving radio interoperability will be a multi-department/agency effort and require coordination between the NC NG9-1-1 community, VIPER, and the SIEC, is essential to the success of the project.

In any radio interoperable scenario, agreements between the users (PSAPs and individual agencies) must be in place, with adherence to the established State governance policies.

Based on the knowledge of radio systems currently in use, and the planned upgrades or replacements, a schedule can be developed for migration to a statewide fully interoperable network which has the functionality for radio dispatch to follow the 9-1-1 call forwarding. Surveys of the current radio systems in use will identify their potential role as part of the interoperability solution.

Success criteria will be the demonstration of radio dispatch following 9-1-1 call forwarding between PSAPs, in accordance with the developed schedule.

Because the FirstNet system is still in the planning process, the exact requirements for integration with the ESInet are unknown. However, the ESInet is flexible and can allow for future interconnections between the PSAPs and the FirstNet core. As the FirstNet network and use is defined, the requirements for the required ESInet bandwidth, security, and GIS interoperability may be defined.

9.3.1 VIPER Solution

If the NC VIPER system is to be used for interoperability throughout the State, it will be necessary to have each PSAP and each user agency part of the VIPER system in the future. This includes having the individual subscriber radios (portables and mobiles) of each agency able to communicate on the VIPER system. VIPER need not be the operable systems used by all agencies (the day-to-day radio system for the county/agencies), but must be part of the interoperable solution. This may require replacement of radio systems and subscriber radios (portables, mobiles).

The North Carolina SIEC and VIPER have been addressing public safety radio interoperability for decades. Interoperability is the main focus of the SIEC. To this end, the State implemented a statewide standards-based P25 network (VIPER) operating on 700/800 MHz. The VIPER network has the best potential to provide interoperability associated with the implementation of the NC NG9-1-1 network; however, using VIPER to provide interoperability for NG9-1-1 requires that VIPER satisfy specific conditions.

As an example, if PSAP 1 forwards 9-1-1 calls to PSAP 2, and both PSAPs/Counties are partners in VIPER (with consoles direct-connected to VIPER, and the subscriber radios able to communicate on VIPER), it is possible to have PSAP 2 dispatchers communicate with PSAP 1 radio subscribers (police, fire, EMS). Figure 7 shows the paths for communication in normal and 9-1-1 calls forwarded modes. The red lines show the communication path in the forwarded 9-1-1 call scenario. Noted that PSAP 1 does not need to be staffed or operational for this scenario. Currently only Motorola consoles are able to connect directly to VIPER, since the State has not purchased the Console SubSystem Interface (CSSI) equipment to allow connection of other manufacturer consoles.

VIPER uses microwave networks to interconnect the sites and dispatch locations. In the 9-1-1 call forwarding mode, the new NC NG9-1-1 ESInet is not required for backhaul. However, the ESInet could serve as a backup for backhaul, in the event of microwave system failures. This requires review and discussion with VIPER as well as identification and quantification of technical requirements.

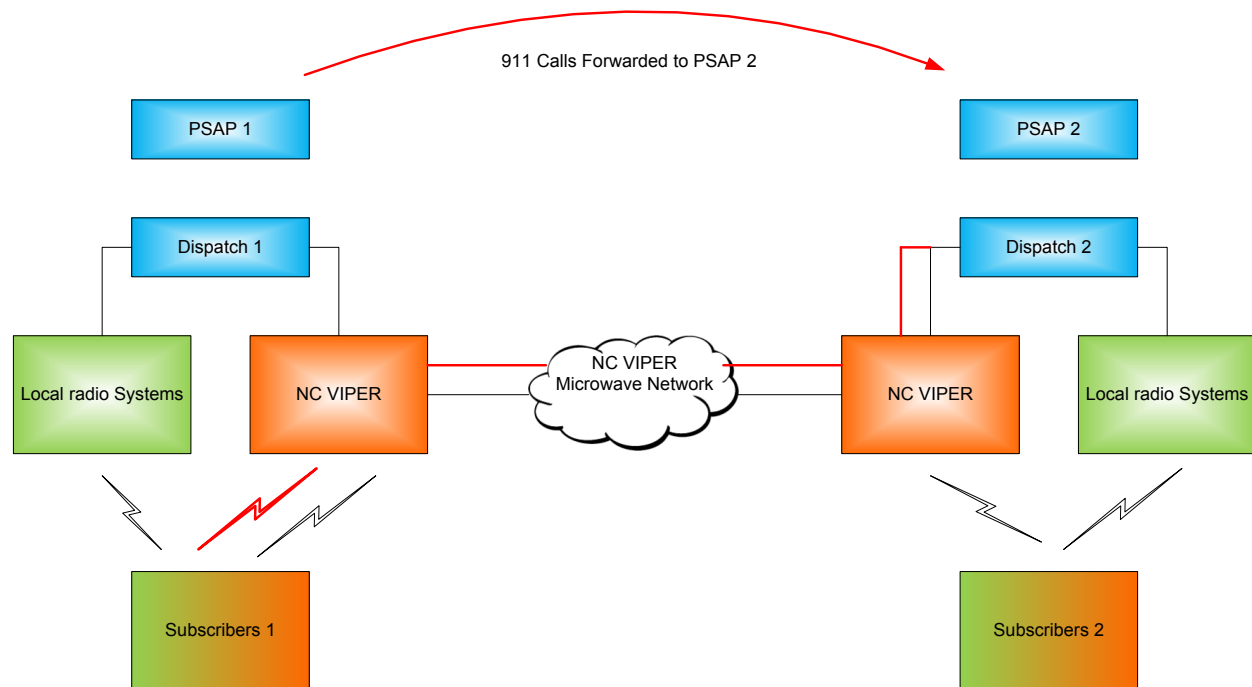


Figure 7 – Communication Paths in Normal and Calls Forwarded Modes

This method of operation requires the following:

- Revised governance to facilitate interoperability between all PSAPs and first responder agencies
- Coordination with VIPER for use of the VIPER network for interoperability, availability of microwave connectivity and capacity to all VIPER partners, and other technical issues
- Inclusion of only counties/agencies with subscriber access to VIPER and consoles direct-connected to VIPER
- Development of unique talkgroups for interoperable use in the 9-1-1 call transfer mode (the State implemented statewide talkgroups; however, their appropriateness for use is unknown at this time)

- Reprogramming of the system, radio consoles, and subscribers – to include all of the newly developed talkgroups (Development of new unique talkgroups for this use would provide statewide use of the talkgroups and control from any dispatch position)
- Development of operating procedures and training/exercises for the use of the new talkgroups
- Expansion of agreements (MOUs) between PSAPs and agencies to include this mode of interoperability

Counties/PSAPs not partnered with VIPER would not be part of this interoperability network. If counties/PSAPs partner with VIPER in the future, this would require investigation of replacement or reprogramming of their radio systems.

9.3.2 Future Gateway Solution – IP Based

A gateway solution to interconnect the radio resources in the State is possible, and could follow-on to the gateway network deployed by VIPER (Tactical Solution).

At a high level, the gateway system would allow the interconnection of the existing disparate radio systems, providing control of the radio systems (and communications with the existing subscribers), if the system meets the following criteria.

- The gateway system is IP-based
- All critical radio resources in the State have gateway access (this would require the installation of gateways connected to all radio systems deemed “critical” by each PSAP area and public safety agencies)
- All PSAPs have gateway terminals (this would require the installation of gateways in each PSAP)
- All PSAPs have consoles with access to the gateway system (this would require gateways connected to all consoles in the State)
- All gateways reside on a common (or linked) IP network (such as the new planned ESInet)
- Each PSAP’s gateway users (logon) have appropriate access to link to any required resource in the State (accomplished through appropriate of the gateway consoles)

Figure 8 reflects a high-level statewide gateway network. The blue shaded blocks indicate the existing radio consoles and radio resources (base stations and repeaters), while the orange blocks indicate the additional gateway equipment needed to implement a full statewide gateway solution.

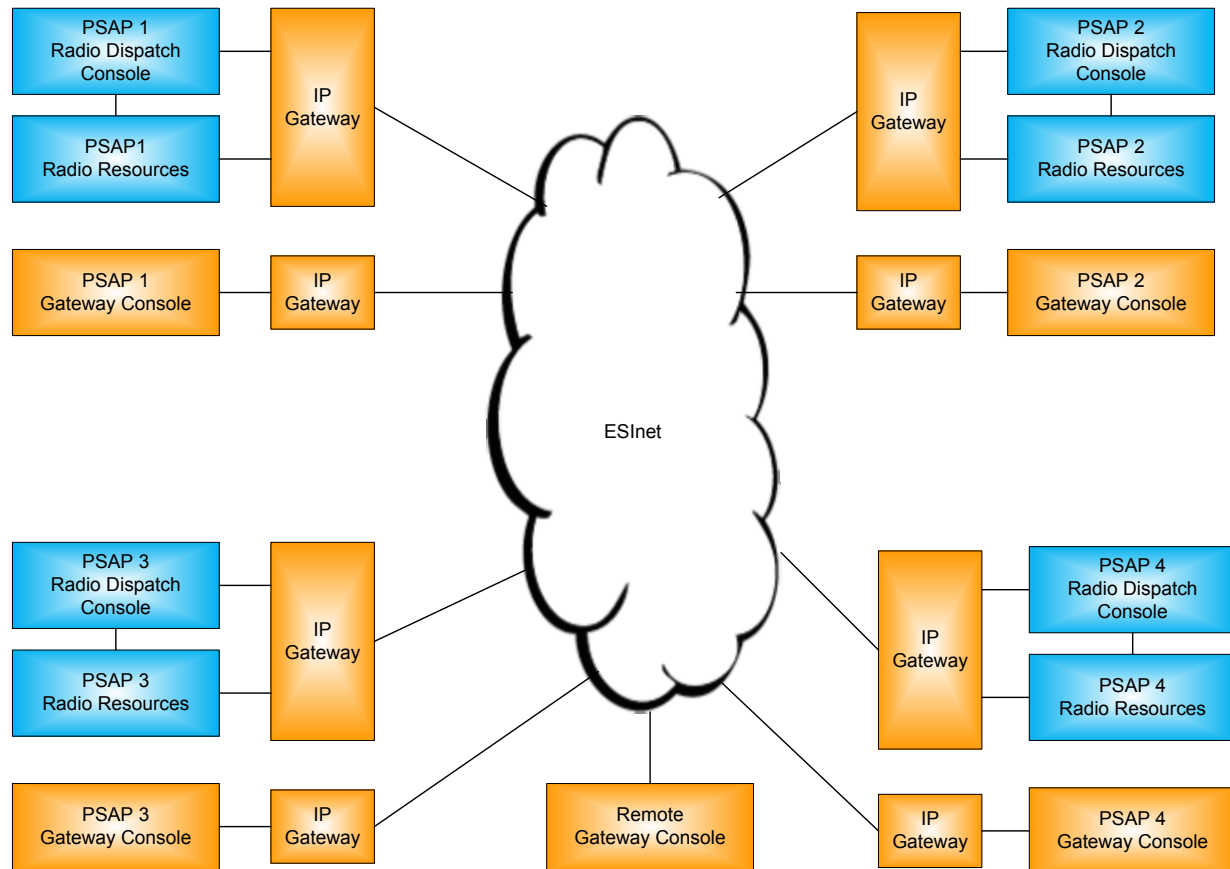


Figure 8 – High-Level IP Gateway Network

If a full statewide gateway network is implemented, each PSAP gateway console (or any gateway console installed and connected to the IP network) could control the patching of dispatch consoles to radio resources/radio consoles, and access any “critical” radio system in the State, permitting the radio dispatch to follow the 9-1-1 forwarded calls. While technically possible, this represents an additional operational complexity that would require the development of standard operating procedures, ongoing training and exercises, and a governance structure put into place.

Note also that the common denominator in the gateway network would be control of audio only. Determining the ability of the system to retain any data features (such as IDs, alarms, group calls, etc.) would require a detailed study.

9.3.3 Existing Gateway Network

The State has already implemented a gateway interoperable network to allow patching between disparate and legacy radio networks. This network, deployed in 2002/2003, uses Raytheon JPS ACU1000/ACU2000 master/slave equipment at 19 sites along the North Carolina State Highway Patrol (NCSHP) microwave backbone network, such that it can access all 100 counties of the State. Each fixed site contains radio equipment along with the ACU1000/ACU2000 that allows connections between county level law enforcement, fire and EMS personnel, both in county and across adjacent counties as well as to other external agencies called upon to respond. Provisions are also available to bridge between the tactical gateway network and strategic components of 800 MHz VIPER network. This gateway system has declined in use, as more agencies join VIPER. Also, several portions of the network have been decommissioned.

Administration and control of the network, including the set-up of patches is performed at the NCSHP Communications Centers. Patches are set up at the request of user agencies.

As this gateway system ages, limited efforts have been made to expand the network. Also, as more counties join the 800 MHz VIPER system, the necessity and use of the gateway network has diminished.

Figure 9 shows the locations of the Inter-Agency Interoperability Sites (this map may not show all applicable sites, due to recent changes).

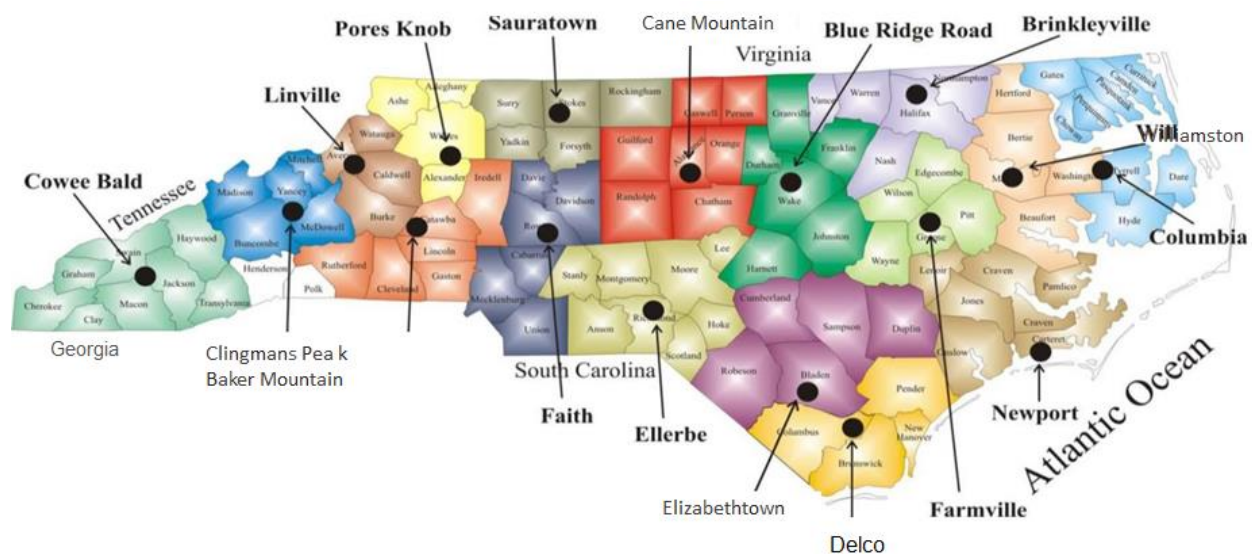


Figure 9— Inter-Agency Interoperability Site Locations⁶

⁶ NC SCIP, dated April 2013, revised as of March 27, 2014

Either a new IP-based gateway network, or enhancements to the existing Raytheon JPS network will include requirements for new or replacement equipment. Resolution of governance for the network between multiple departments within the State is necessary. Along with the equipment, considerations must include new operational procedures, training, and exercises.

9.3.4 FirstNet – NC NG9-1-1 Synergies

As FirstNet planning continues, the State recognizes synergies between the NC NG9-1-1 and the FirstNet projects. FirstNet will provide prioritized broadband access to first responders, using new sets of applications, many of which still require definition. The State also recognizes that the PSAP of the future will be the nexus for not only 9-1-1 calls and radio dispatch, but also for communicating with first responders using FirstNet or other carriers.

Discussions with the NC Single Point of Contact (NC SPOC) for FirstNet identified that the connection between the FirstNet core and the PSAP could be done through the NG9-1-1 ESInet. Figure 10 shows a possible architecture with the FirstNet core connected via the ESInet to the PSAP.

FirstNet plans to release their RFP for the network and services by the end of 2015, and the target date for awards is mid-2016. At this point in time there are many unknowns about the FirstNet network, and the NC NG9-1-1 Board should continue to work with the NC-SPOC as the FirstNet planning continues. This will allow for proper sizing of the initial bandwidth requirements of the connection between the FirstNet core and the ESInet, as well as any effects on the ESInet bandwidth requirements.

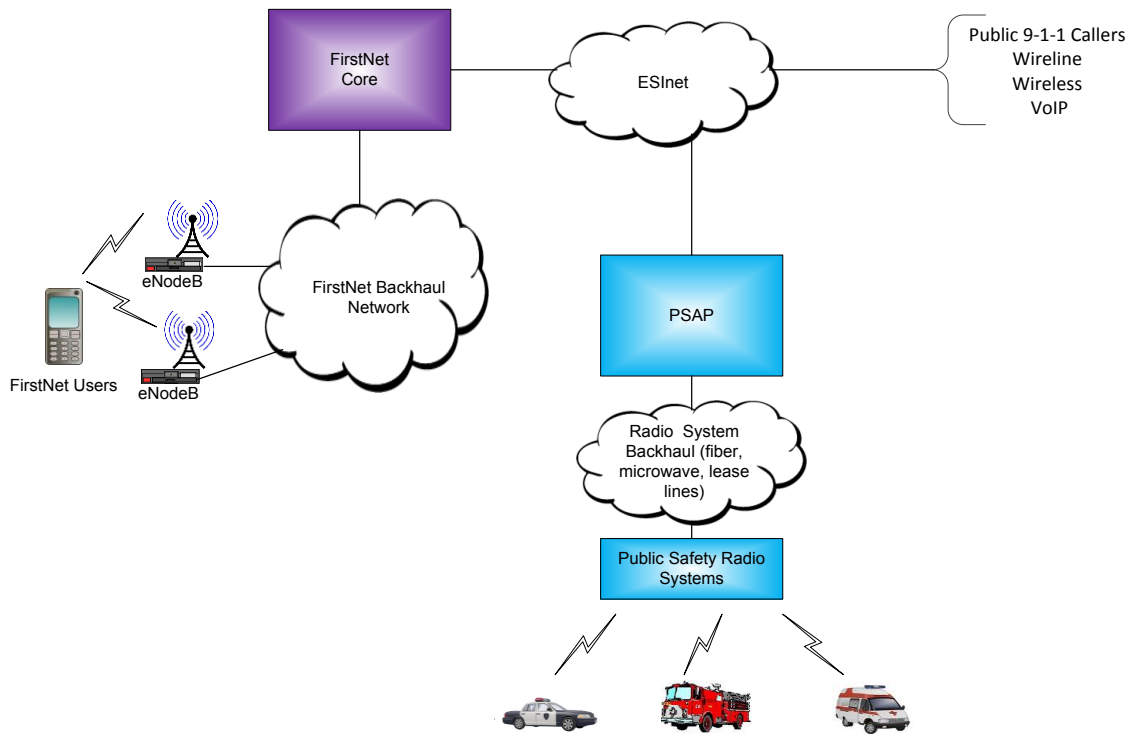


Figure 10 – Possible FirstNet – NC NG9-1-1 Network Connections

9.4 Operational Effects

Regardless of the radio interoperability solution implemented, there will be operational implications. The goal of having any PSAP provide radio dispatch for any other PSAP's first responders mandates development of new procedures, policies, and governance. These effects include:

- Integration with the State's ongoing radio interoperability efforts (this will require multiple State agencies to coordinate work efforts, specifically with the State SIEC).
- Development of new procedures and policies for use of PSAP radio interoperability
- Development of training, both initial and ongoing
- Exercises, as part of the State's interoperability plans

9.5 Recommendations for Radio Interoperability

The following are recommendations for Board consideration.

- Radio interoperability network design, implementation, management, and operation provided by standards-based solutions that supply:
 - The ability for PSAPs in the State to have the radio dispatch capabilities to first responders in any other PSAP area (radio dispatch “follows” forwarded 9-1-1 calls) to the greatest extent possible
 - The ability to perform paging, fire station alerting, and siren activation
 - The most cost effective and feasible combination of transport technologies available for connectivity (including use of ESInet where possible for connectivity)
 - Use a highly reliable and redundant architecture to the greatest extent possible to maximize availability
 - Scalability for adding new PSAPs without adverse effects
 - System and equipment level monitoring, alarming, diagnostics and reporting services, disaster recovery and system restoration services, coordinated with VIPER
- Formalization of a working relationship between the affected State agencies and departments (NC9-1-1 Board, SIEC, and VIPER) to develop a working solution and ongoing operations
- Development of required PSAP/agency migration plans for radio interoperability, coordinated with VIPER and the SIEC
- Vendor supplied installation, testing, optimization, and ongoing maintenance services
- Comprehensive vendor supplied Project Management services for all phases of the project
- Development of revised operating procedures for radio interoperability, coordinated with VIPER and the SIEC
- Continued development of FirstNet requirements for use of the ESInet as a transport network between the FirstNet Core and PSAPs, coordinated with the State’s FirstNet SPOC

10. CAD Interoperability

10.1 Overview

CAD interoperability is the functionality that allows disparate CAD systems to communicate. A common approach is the implementation of a third party application as a function of the ESInet. The primary goal is to allow PSAPs to utilize the ESInet and NG9-1-1 functions to share CAD records, data and call information that may be typically only available within their locally installed CAD system.

Increasing the ability for PSAPs to work together by sharing information also requires greater technical and operational support. CAD sharing and interoperability will enhance the visibility of events engaged across multiple PSAPs. CAD events will be visible to all PSAPs that are online in the system and may allow for the performance of specific dispatch capabilities relative to the event.

10.2 Assumptions / Constraints

10.2.1 Shared CAD Events

CAD events are often local to the PSAP where the call arrives; however, with the introduction of the internetworking through NG9-1-1, a PSAP has the ability to link to PSAPs beyond their boundaries. In a legacy network this was often not an option as the cost to create the connections were beyond the normal or standard operation of a PSAP. A properly designed and implemented ESInet and NG9-1-1 functionality removes this barrier and allows for a virtual network. The network provides the pathway to allow the applications (such as CAD) to be reached from a distant location.

CAD Interoperability is a solution that will permit the sharing of CAD events across the State in the event of a disruption at a PSAP. One solution is the implementation of an application that collects CAD events and translates them into a common CAD record and sends them to another CAD platform.

10.3 CAD Interoperability Features

CAD interoperability between PSAPs contains the following list of features:

- Capability for PSAPs to share CAD information
- Enhanced ability for PSAPs to resolve incidents through better collaboration and coordination with each other

- Enhanced ability for multiple PSAPs to respond in a wide scale event
- Increased ability for PSAPs to proactively assist one another in time of need
- Greater communication between PSAPs
- Application-based or middleware product to create a CAD interoperability model that all PSAPs can utilize without affecting their current operational CAD system
- Minimization or elimination of the current PSAP barriers to sharing information and increasing backup scenarios

10.4 Candidate Solutions for Statewide CAD Services

10.4.1 Single Vendor CAD System for All PSAPs

On a robust ESInet a single vendor, single database CAD system is a technically feasible option. This option would require significant interagency, interjurisdictional, and interdisciplinary coordination, cooperation, and support. There are a number of implementations that are large, geographically diverse systems, but nothing that the authors are aware of at this time that would compare to the size and complexity a project that would encompass the entire state of North Carolina and all of its PSAPs and/or answering positions.

There are many considerations, such as the feasibility of every agency switching to the same vendor, the logistics and timing of such a proposed effort, and challenges of selecting a single vendor. However, from a cost/cost-savings perspective, this would probably be the least expensive for the following reasons:

- Consolidated/unified equipment and hardware
- Maximized buying power related to procuring modularity and licensing
- Interfaces to a single vendor versus a single interface to multiple vendors

10.4.2 Interfacing Multiple CAD System

Interfacing multiple CAD systems together entails integrating disparate system from multiple vendors using CAD-to-CAD interface technology. This type of implementation is highly complex and requires significant cooperation and coordination between the different vendors as well as the different jurisdictions. It requires detailed configuration commonalities and inter-agency alignment related to mutually acceptable procedures and system processing rules to be able to define the shared environment(s).

The National Capital Region (NCR) has such an operation, but it has taken many years to implement, and it is still under development and expansion to meet the needs of the agencies involved.

10.4.3 *Middleware Solution*

This option makes use of a middleware solution to interpret and present the various elements of multiple CAD systems. This allows a single vendor to interpret the information provided by multiple vendors' products. These middleware systems tend to have limited functionality (often inquiry only) and with limitations related to the amount of information shown. Examples of this would be middleware providers such as FATPOT, WebEOC, Knowledge Center™, and others. These vendors have many statewide and large regional projects. However, the authors are unaware of any implementations these vendors have that would be of a similar size and scope as a statewide North Carolina PSAP project. This option may be the quickest to implement and could have the smallest effect on individual jurisdictions/operations.

11. Definitions

9-1-1: A three-digit telephone number to facilitate the reporting of an emergency requiring response by a public safety agency.

9-1-1 Service Area: The geographic area granted authority by a state or local governmental body to provide 9-1-1 service.

9-1-1 System: The set of network, database, and CPE components required to provide 9-1-1 service.

24x7x365: twenty-four (24) hours a day, seven (7) days a week, three hundred sixty-five (365) days a year.

Applications and Appliances: the hardware and software required for 9-1-1 call and payload acceptance, processing, and delivery to a PSAP.

Automatic Location Identification (ALI): The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone and supplementary emergency services information.

Automatic Number Identification (ANI): Telephone number associated with the access line from which a call originates.

Backup Public Safety Answering Point (PSAP): Typically a disaster recovery answering point which serves as a backup to the primary PSAP and is not co-located with the primary PSAP.

Board: the state of North Carolina 9-1-1 Board.

Call: a session established by signaling with two way real-time media that involves a human making a request for help or a non-human initiated call. Sometimes it is referred to as a "voice call", "video call" or "text call" when specific media is of primary importance. The term "non-human-initiated call" refers to a one-time notification or series of data exchanges established by signaling with at most one way media, and typically does not involve a human at the "calling" end. The term "call" may also be used to refer to either a "Voice Call", "Video Call", "Text Call" or "Data-only call", since they are handled the same way through most of Next Generation 9-1-1. It is an element of current and anticipated 9-1-1 payloads.

Call delivery: the capability to route a 9-1-1 call to the designated selective router for ultimate delivery to the designated PSAP for the caller's ANI.

Call Processing: the system and process that permits a PSAP to receive, process, and route a 9-1-1 call and other current and anticipated payloads to a PSAP within the defined environment providing complete payloads with callback and location information of the calling party to the call taker position. Call processing also includes the ability to identify and answer TDD/TT/TTY and abandoned and silent calls including complete and accurate ANI and ALI of the TDD/TT/TTY calls.

Call Transfer: The capability to redirect a call to another party.

Central Office (CO): The Local Exchange Carrier facility where access lines are connected to switching equipment for connection to the Public Switched Telephone Network.

Communication Services: includes any of the following: (a) the transmission, conveyance or routing of real-time, two-way voice communications to a point or between or among points by or through any electronic, radio, satellite, cable, optical, microwave, wireline, wireless or other medium or method, regardless of the protocol used; (b) the ability to provide two-way voice communication on the public switched network; (c) wireless enhanced 9-1-1 service; (d) wireline enhanced 9-1-1 service; (e) interconnected VoIP provider service as defined by the FCC regulations; (f) IP-enabled service; or (g) prepaid wireless service.

Computer Aided Dispatch (CAD): A computer-based system which aids PSAP attendants by automating selected dispatching and record keeping activities.

Customer Premises Equipment: (CPE) equipment at a PSAP.

DataBase: An organized collection of information, typically stored in computer systems, comprising fields, records (data) and indexes. In 9-1-1, such data bases include MSAG, telephone number/ESN, and telephone customer records.

Emergency Call: A telephone request for public safety agency emergency services, which requires immediate action to save a life, to report a fire or to stop a crime. May include other situations as determined locally.

Emergency Call Routing Function or ECRF: a functional element in an ESInet, which is a LoST protocol server where location information (either civic address or geo-coordinates) and a Service Uniform Resource Name (URN) serve as input to a mapping function that returns a Uniform Resource Identifier (URI) used to route an emergency call toward the appropriate PSAP for the caller's location or towards a responder agency.

Emergency Services Internet Protocol Network or ESInet: a managed IP network used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing Next Generation 9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).

Emergency Service Number (ESN)/ Emergency Service Zone (ESZ): An ESN is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency (s).

Exchange: A defined area, served by one or more telephone central offices, within which a Local Exchange Carrier furnishes service.

FCC: the Federal Communications Commission.

Functional Element: major process, application, or appliance, including network bandwidth and bandwidth support.

Geographic Information Systems or GIS: a computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit

geographic data (such as a civic address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map i.e., latitude/longitude from a wireless 9-1-1 call.

Interoperability: The capability for disparate systems to work together.

Legacy Network Gateway or LNG: a signaling and media interconnection appliance between legacy wireline/wireless originating networks and the Next Generation 9-1-1 provider's ESInet.

Legacy PSAP: a PSAP that cannot process calls received via i3-defined call interfaces (IP-based calls) and still requires the use of CAMA or ISDN trunk technology for delivery of 9-1-1 emergency calls.

Legacy PSAP Gateway or LPG: an i3 functional element that supports the interconnection of the ESInet with legacy PSAPs.

Legacy Selective Router Gateway or LSRG: This gateway facilitates the routing/transfer of emergency calls between the ESInet and the legacy emergency services network. The LSRG will have to interwork location infrastructure between Next Generation 9-1-1 and legacy emergency services environments.

Legacy System: the existing analog-based enhanced 9-1-1 systems in the state of North Carolina.

Local Exchange Carrier (LEC): A Telecommunications Carrier (TC) under the state/local Public Utilities Act that provides local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

Location to Service Translation (LoST) Protocol: a protocol that takes location information and a Service URN and returns a URI; is used generally for location-based call routing and, in Next Generation 9-1-1, is used as the protocol for the ECRF and LVF.

Location Validation Function or LVF: function that provides sufficient location-based information to a PSAP that allows a 9-1-1 call taker to dispatch emergency responders to a 9-1-1 call scene. The location information is provided by civic based addresses or latitude/longitude data.

Logging Recorder: A voice-band audio recorder which records to and plays from a permanent storage media such as tape or disk. Logging recorders are typically multi-channel so as to simultaneously record from several sources.

Login: The process of identifying and authenticating oneself to a computer, ACD or E9-1-1 attendant position system.

Master Street Address Guide (MSAG): A data base of street names and house number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.

National Emergency Number Association (NENA): The National Emergency Number Association is a not-for-profit corporation established in 1982 to further the goal of "One Nation-One Number." NENA is a networking source and promotes research, planning and training. NENA

strives to educate, set standards and provide certification programs, legislative representation and technical assistance for implementing and managing 9-1-1 systems.

NENA i3 Standards or i3: NENA Next Generation 9-1-1 standards and requirements, including without limitation, the NENA Security for Next Generation 9-1-1 Standard and the NENA i3 Technical Requirements Documents, now available or as may become available in the future.

Next Generation 9-1-1: an enhanced 9-1-1 system that incorporates the handling of all 9-1-1 calls and messages, including those using IP-enabled services or other advanced communications technologies in the infrastructure of the 9-1-1 system itself.

Public Safety Answering Point (PSAP): A facility equipped and staffed to receive 9-1-1 calls. A Primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a Secondary PSAP.

Public Switched Telephone Network (PSTN): The network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.

Real-Time: The availability of information at the exact time it is occurring.

Redundancy: Duplication of components, running in parallel, to increase reliability.

Repair: a permanent fix or repair, including replacement if necessary, of a broken, damaged, or failed network device, database, or CPE that allows such system or system component to be fully operational.

Response: a response from a Respondent to the Request for Proposals. A response shall include submissions commonly referred to as "bids," "quotes," or "proposals."

Selective Routing (SR): The routing of a 9-1-1 call to the proper PSAP based upon the location of the caller. Selective routing is controlled by the ESN which is derived from the customer location.

Service Provider: An entity providing one or more of the following 9-1-1 elements: network, CPE, or database service.

Single Point of Failure: A hardware or software component or subsystem which experiences a failure causing more than 50% of the total system to fail. (Ref. NENA 04-001 Reliability Objectives)

Spatial: Relating to, occupying, or having character or space. Geographical information systems store spatial data in regional databases.

Synchronization: In the context of timing, synchronization means to bring clocks or data streams into phase so they agree with the PSAP master clock. (Ref. NENA 04-002)

TDD/TT/TTY: A telecommunications device consisting of modems that permit typed telephone conversations with or between deaf, hard of hearing or speech impaired people.

Teletypewriter (TTY): Also known as TDD. A device capable of information interchange between compatible units using dial up or private-line telephone network connections as the transmission medium. ASCII or Baudot codes are used by these units. (per EIA PN-1663)

Transfer: A feature which allows the PSAP call taker to redirect a 9-1-1 call to another location.

Trouble: Any event that: 1) affects the functioning or operations of a PSAP; or 2) is reported to the contractor's help desk by a PSAP or the State 9-1-1 Department.

Trouble Ticket: A tracking document that contains a concise, complete, and accurate history of the trouble from the time the trouble is reported to repair of the trouble. A trouble ticket shall include, but not be limited to, PSAP location, date and time of ticket opening, date and time of ticket closing, ticket number, detailed description of problem, all steps taken during repair efforts and reason for closing ticket.

Trunk: Typically, a communication path between central office switches, or between the 9-1-1 Control Office and the PSAP.

Trunk Group: One or more trunks terminated at the same two points.

Voice over Internet Protocol or VoIP: A type of IP-enabled service that allows for the two-way real-time transmission of voice communications and has access to the public switched network.

11.1 Standards and Sources

Common Standards	Location
ECRIT Standards:	http://ecrit.sourceforge.net
ECRIT Implementation	http://ecrit.sourceforge.net
NENA i3 ESIND 08-506	http://www.nena.org
NENA i3 Technical Requirements Document. September 2006	http://www.nena.org/standards/technical/voip/i3-requirements
NENA Functional and Interface Standards for Next Generation 9-1-1 (i3)	http://www.nena.org/standards/technical/voip/functional-interface-NG9-1-1-i3
NENA Detailed Functional and Interface Standards for NENA (i3) Solution Stage 3	http://www.nena.org/standards/technical/i3-solution
NENA IP-Capable PSAP Minimum Operational Requirements Standard.	NENA 58-001 June 9, 2007 Revised
NENA/APCO Human Machine Interface & PSAP Display Requirements (ORD). NENA 54-750 v1	http://www.nena.org/sites/default/files/54-750_20101027_v1.pdf
NENA GIS Data Collection and Maintenance Standards NENA 02-014, Issue 1, July 17, 2007.	http://www.nena.org/standards/technical/data/gis-data-collection-maintenance

Common Standards	Location
NENA Master Glossary of 9 1 1 Terminology, NENA 00-001—Version 13A, dated March 17, 2010,	http://www.nena.org/standards/master-glossary
Next Generation 9 1 1 (NG9 1 1) Architecture and Analysis Report. November 2007.	http://www.its.dot.gov/ng911/pdf/1.F2_FINAL_MED_ArchitectureAnalysis_v1.0.pdf
NRIC Best Practices	https://www.fcc.gov/nors/outage/bestpractice/BestPractice.cfm
The Shortcut Guide to Improving IT Service Support through ITIL. Herold, Rebecca, 2007. Real-time Nexus.	http://nexus.realtimepublishers.com/sgitil.php
IETF Standards:	http://www.ietf.org
IETF RFC 4346, The Transport Layer Security (TLS) Protocol, Version 1.1, April 2006	http://tools.ietf.org/html/rfc4346
IETF RFC 5491, GEOPRIV Presence Information Data Format Location Object (PIDF-LO) Usage Clarification, Considerations, and Recommendations, March 2009	http://tools.ietf.org/html/rfc5491
IETF RFC 4119, A Presence-based GEOPRIV Location Object Format, December 2009	http://tools.ietf.org/html/rfc4119
IETF, RFC 5222, LoST: A Location-to-Service Translation Protocol, August 2008	www.telcordia.com
Telcordia Standards	http://www.adc.com/Library/Literature/102264AE.pdf
TIA-942 Telecommunications Infrastructure Standards for Data Centers,	http://www.adc.com/Library/Literature/102264AE.pdf

11.2 Acronyms

Acronym	Meaning
ANI	Automatic Number Identification
BCF	Border Control Function
BGP	Border Gateway Protocol
CAMA	Centralized Automatic Message Accounting
CoS	Class of Service
CPE	Customer Premise Equipment
E9-1-1	Enhanced 9-1-1
ECRF	Emergency Call Routing Function
ESInet	Emergency Services Internet Protocol Network
ESRP	Emergency Services Routing Proxy
FCC	Federal Communications Commission
GIS	Geographic Information System
GPS	Global Positioning System
ID	Identification
IETF	Internet Engineering Task Force
IP	Internet Protocol
LNG	Legacy Network Gateway
LoST	Location to Service Translation
LVF	Location Validation Function
MSAG	Master Street Address Guide
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
NOC	Network Operations Centers
PBX	Private Branch Exchange
PRF	Policy Routing Function
PSAP	Public Safety Answering Point
PSTN	Public Switched Telephone Network
QoS	Quality of Service
SBC	Session Border Control
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SMS	Short Message Service

Acronym	Meaning
SOC	Security Operations Center
TDM	Time Division Multiplex

Update On NextGen 911 Committee

Jeff Shipp

b) Approval of NG911 Cost Analysis

(vote required)



North Carolina NG9-1-1 Cost Analysis

November 2015

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Introduction

This Cost Analysis is a companion document to the Concept of Operations document. The costs represented in this study align with the strategy recommended in the Concept of Operations and provides a basis of understanding for operational and technical costs in transitioning to NG9-1-1.

The Concept of Operations provides the technical overview of each of the systems identified, describes the functionality desired and outlines a plan for implementation of NG9-1-1 services through the procurement of components that create the capabilities and functionality for NG9-1-1. The areas of focus in this Cost Analysis include the primary components identified in the Concept of Operations including an ESInet, NG9-1-1 call routing, Hosted Call Handling, Geographical Information System (GIS), Network Management and Assistance Center (NMAC), Computer Aided Dispatch (CAD) sharing, and Radio Interoperability.

This Cost Analysis report utilizes the Concept of Operations as a guide to establishing a Rough Order of Magnitude (ROM) cost basis for those components described in the Concept of Operations.

To complete the ROM cost estimate, Federal Engineering (**FE**) developed a Concept of Operations as the basis for the following calculations. As the NC 911 Board completes the steps of its *NG9-1-1 Roadmap*, we will develop detailed conceptual designs to refine the technical and operational areas identified in the Concept of Operations.

The following represent the high level basis for this cost analysis as presented in this analysis:

- Estimation of reasonable costs for implementation of NG9-1-1
- Focus on affordability (Table 1 categories costs into current, future and considerations)

Table 1 – High level cost matrix

NC NG9-1-1 Cost matrix			
Current Plans	Current Costs	Future Costs	Considerations
ESInet	Trunks	ESInet	Connections
GIS	Equipment	Equipment	Distances
CPE	CAD	CAD	Capacity
NOC	Recording	Radio	NG capable
* CAD	Backup centers	GIS	Hosting
* Radio	Admin Lines	Text	Replacement cost
	ECaTS	ECaTS	
		Service Management	

- Transition
 - Initially install ESInet and NG9-1-1 applicable core functions
 - Migrate PSAPs into NG9-1-1 core
- Timeline – 18-24 months from the time the ESInet and core functions are in place
- Statute only funds primary PSAP's and approved secondary PSAPs
- Secondary PSAP's can obtain funding based upon call volume
 - Interconnections of Primary and Secondary PSAP's will need to be mapped
- ECATS information will be used to identify volume and interconnection



Table of Contents

Introduction	2
1. Methodology	6
1.1 Data Collection	6
1.2 Data and Information Utilized.....	7
1.2.1 PSAPs, Positions and Trunks (as of 2014).....	7
1.2.2 Population and Call Volume (as of 2014).....	7
1.2.3 Call Type (as of 2014).....	7
1.2.4 PSAP NG9-1-1 Readiness and High Level Breakdown.....	8
1.3 Data Analysis	8
1.4 Assumptions	9
2. Analysis of Recent Board Funding of 911	11
2.1 Recent Expenditures.....	11
2.1.1 Legacy 9-1-1 Costs will not Stop Immediately	11
2.1.2 Legacy 9-1-1 Costs Impacted by NG9-1-1.....	12
2.1.3 9-1-1 Costs Not Impacted by NG9-1-1.....	13
2.1.4 9-1-1 Costs Replaced by NG9-1-1:.....	14
2.1.5 Summary of Recent 9-1-1 Costs.....	15
3. New Costs from NG9-1-1.....	17
3.1 Future 9-1-1 Costs	17
3.2 NG9-1-1 Cost drivers.....	18
3.3 PSAP Readiness will Impact Costs.....	18
3.3.1 Legacy PSAP Gateways Costs (LPGs)	20
3.3.2 Costs per Connection	21
3.3.3 Potential Costs at the Position Level.....	22
3.4 Rough Order of Magnitude (ROM) Cost Estimates.....	23
3.4.1 ESInet/Network.....	23
3.4.2 NG-Core Functions/i3	24
3.4.3 Geographical Information System (GIS)	26
3.4.4 NMAC /Service and Support.....	26
3.4.5 Hosted Call Handling	27



3.4.6	Computer Aided Dispatch (CAD)	27
3.4.7	Radio Interoperability	28
3.5	ROM Operational costs.....	30
4.	Transition Timeline – Legacy 9-1-1 to NG9-1-1 System	32
4.1	NG9-1-1 Transition Estimate	32
5.	Cost Analysis Summary	34
5.1	Costs that will be Replaced by NG9-1-1 Costs	34
5.2	Costs that can be Impacted by NG9-1-1 Costs.....	35

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1. Methodology

Based on the general 9-1-1 environment in the State of North Carolina, **FE** used a high level concept of operations to develop the ROM costs presented in this analysis. The costs presented are the result of data collection from similar projects around the country and relate to the services sought by the NC 911 Board. While these costs supply a basis, the use of state contracts, bulk purchasing, competitive procurements and other situations available to the state may directly impact costs.

The basis for the conceptual design will be a statewide NG9-1-1 system that would pave the way for a fully functioning NG9-1-1 solution in North Carolina. The NG9-1-1 system would enhance capabilities for all PSAPs and create a platform designed to meet the requirements of current communications applications, devices and resources. Lastly, the NG9-1-1 system aligns with national standards and serves to meet the objectives outlined in the Concept of Operations document.

The methodology for the effort to this point includes:

- Review of relevant 9-1-1 data and current costs
- Categorization of 9-1-1 costs to be impacted or not-impacted by NG9-1-1
- Identify and analyze new NG9-1-1 costs relative to the Concept of Operations
- Estimate Rough Order of Magnitude (ROM) costs of NG9-1-1

1.1 Data Collection

Data used for this study included information about the NC 911 Board fund for a 5-year period ending in 2014 as well as information about call volume and PSAP data.

The sources of the data used here include:

- ECaTS data from call detail reports
- Board reports on the operational and technical operation of 9-1-1 in the State
- The Board website and documents available to document the strategic goals of NG9-1-1

Tables in the following section provide relevant information resulting from our analysis. This information is common to all subsequent tables, calculations and costs presented throughout this analysis.

1.2 Data and Information Utilized

1.2.1 PSAPs, Positions and Trunks (as of 2014)

The quantity of PSAPs, dispatch positions, and trunks will impact all costs. The cost analysis refers to these figures frequently and they serve as a basis for comparisons between legacy costs and NG9-1-1. Throughout the cost analysis, we adjusted the baseline number of PSAPs, positions and trunks where necessary to represent the locations that would connect to the NG9-1-1 system. Tables 2 through 4 provide statistics on existing system capacity

Table 2 – PSAP's and Call centers

Primary PSAP's	119
Other Call centers	6
TOTAL	125

Table 3 – PSAP positions and trunk quantity

9-1-1 positions total	840
9-1-1 Trunks	880

1.2.2 Population and Call Volume (as of 2014)

The population assessment in North Carolina versus the total 9-1-1 calls in 2014 reflects an population and call volume consistent with national averages for other states. This factor could identify a potential cost per call.

Table 4 – Population and Call Volume

NC Population	9,943,964
Total 9-1-1 calls	7,294,803

1.2.3 Call Type (as of 2014)

Another factor within the ROM that can shape the strategy is the total percentage of 9-1-1 calls from a device. Table 5 shows that calls received are primarily from wireless devices used to contact 9-1-1 within the State. In fact, 76% of the 7,294,803 calls received per year are from wireless devices.



Table 5 – Breakdown of call type

% wireless 911	76%	5,544,050
% Landline	17%	1,240,117
% VoIP	7%	510,636

1.2.4 PSAP NG9-1-1 Readiness and High Level Breakdown

Drawing from the 2012-2013 survey, Table 6 loosely defines existing PSAPs as NG ready, partially NG ready and not NG ready to set the depth and breadth of the project. Our approach is a conservative assessment as to whether or not a PSAP is ready for NG. These numbers provide a baseline that may change during the refinement of the conceptual design. The intent is to utilize the numbers to ensure that the ROM costs capture the potential costs for all PSAPs to join the NG9-1-1 system.

Table 6 – PSAP readiness

Primary PSAP's	119
<i>NG ready</i>	12
<i>Partial NG</i>	78
<i>Not NG Ready</i>	29
Other Call centers	6
TOTAL	125

1.3 Data Analysis

During our work on the Concept of Operations document and through our initial conceptual design work, developing a strategy for NG9-1-1 focused on the following common drivers:

- Population
- Connections and connectivity
- Call Volume and existing usage
- System and network capacities
- Functionality and capabilities desired
- Quantity of expected end points
- Number of existing call taking positions
- Number of PSAPs



- Expected number of licenses required for technical components
- Estimated users of the system

1.4 Assumptions

The Cost Analysis follows a set of assumptions aligned with those in the Concept of Operations document. These include:

- Basis of 119 Primary PSAPs and 6 Secondary PSAPs (125 total) with no change in the size and makeup of the current PSAPs
- Statewide NG9-1-1 system
- Leased system
- Payment for ESInet costs will commence only after the first PSAP joins the network
- Data centers based on the available floor space at state of North Carolina data centers in Raleigh and Rutherfordton
- Software maintenance based on 15 percent of initial purchase prices per year; in the case of large purchases, negotiating a lower maintenance contract is possible
- Any use of existing state infrastructure (e.g., networks installed that may have available bandwidth and appropriate levels of availability/reliability) that meets system requirements for transport may also reduce system costs
- Estimated costs based on available information and considered an ROM (defined below)
- Includes costs related to security equipment (e.g., firewalls, border control functions, etc.)
- Comparison to current costs based on information provided by the NC 911 Board in a disbursement tracking spreadsheet and not a detailed assessment of the current costs of 9-1-1
- Network costs based on retail pricing with the potential to obtain a better price the RFP process



- Excludes costs related to the execution of the *planning* phases of the *NG9-1-1 Roadmap*
- Excludes training costs
- Pricing based on the purchase of the systems outlined in the Concept of Operations and to be detailed in the conceptual design
- Various procurement processes available to the NC 911 Board, such as existing state contracts, new state contracts (e.g., ITS contract), bulk purchasing power, or competitive procurements to reduce costs

This cost analysis presents costs as a Rough Order of Magnitude (ROM). A ROM Estimate is defined as follows:

- When a project commences, requirements specifications lack detail definition; making the exact project Budget impossible to calculate without more information.
- Regarding estimates in this stage as concrete numbers may lead to ineffectual results. To avoid the possibility of such an ineffectual results, we provide the ROM estimates for planning purposes only.
- The common costs of equipment, services and systems are the basis for ROM estimates.
- Comparisons of costs from other similar implementations used as a guide included:
 - The state of Indiana
 - The state of Maine
 - The state of Vermont

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2. Analysis of Recent Board Funding of 911

2.1 *Recent Expenditures*

Our team's analysis of NC 911 Board funding reports from 2009-2014 show that the Board pays for or reimburses PSAPs for costs in the following broad categories. These categories have been expanded from the entire eligibility list to supply a high level baseline of costs. We based the analysis presented here and the figures shown below on known, historical and publicly reported figures.

- 911 trunks and connectivity
- 911 software, Customer Premises Equipment (CPE) and annual maintenance
- CAD software, CAD equipment and annual maintenance
- Recording software and equipment
- Backup centers – software and equipment and annual maintenance
- Admin Lines – connections and services and annual maintenance
- ECaTS – MIS and reporting

Options put forth in the Concept of Operations and the manner in which the Board chooses to provide certain services to PSAPs via the NC NG9-1-1 system will affect, or have the potential to affect many of the costs paid by the Board.

2.1.1 *Legacy 9-1-1 Costs will not Stop Immediately*

Costs to procure and implement the NG9-1-1 system will be funds specifically assigned to NG9-1-1; however, legacy 9-1-1 network costs funded by the NC 911 Board will continue.

- Installation and implementation of the NG9-1-1 network services, and replacement of the current 9-1-1 network provided services to all of the PSAPs in North Carolina could take at least three years to procure. These costs are in addition to current eligible costs paid by the NC 911 Board.
- Migration of legacy PSAPs to the NG9-1-1 system may result in reduced costs as each PSAP joins the NG9-1-1 network.
- Contract options can help manage any potential costs required during build out and transition to a new service provider. For example, upon removal of connections currently paid in favor of new connections implemented at PSAPs,



the service cost begins for the new service and stops for the legacy service. (cost replacement)

2.1.2 Legacy 9-1-1 Costs Impacted by NG9-1-1

Analyzing costs from 2009 – 2014, we can place recent 911 costs into the following cost categories:

- Impacted by NG9-1-1
- Not Impacted by NG9-1-1.

Impacted is defined as having the potential to change resulting in an increase or decrease in costs currently paid. The effect results from the ability to utilize the ESInet and NG9-1-1 services to enhance capabilities or increase options.

The cost areas listed below have been identified costs that may be or will be impacted by the implementation of NG9-1-1 in North Carolina. These costs have a very high likelihood of transitioning into the NG9-1-1 system.

In general, most of the costs captured in this Section 2 analysis of recent Board funding of 9-1-1 should decrease as an overall expense to the Board due to economies of scale within the ESInet. For example, sharing of services among PSAPs across the ESInet can reduce these costs. Furthermore the ability to use the statewide system can offer a method of group purchasing power and competitively managed services contracts.

While many of these costs will decrease, the rate at which they decline is dependent upon the capabilities provided by the NG9-1-1 system and the services desired by the individual PSAPs. Table 7 lists costs that NG9-1-1 may impact.

Table 7 – Costs that NG9-1-1 implementation may impact

Analysis of costs that NG9-1-1 may impact		
	2009-2014 Total	5 year average per annum
Software Maintenance	\$24,952,697	\$ 4,990,539
Telephone equipment (CPE etc.)	\$22,689,220	\$ 4,537,844
Equipment Maintenance	\$19,767,070	\$ 3,953,414
Computer Aided Dispatch	\$ 9,308,166	\$ 1,861,633
Computer Workstations	\$ 7,849,286	\$ 1,569,857
CAD Server	\$ 7,675,345	\$ 1,535,069



Analysis of costs that NG9-1-1 may impact		
	2009-2014 Total	5 year average per annum
9-1-1 Phone System Server	\$ 7,397,468	\$ 1,479,494
Voice Logging Server	\$ 3,836,472	\$ 767,294
Voice Logging Recorder	\$ 2,630,176	\$ 526,035
GIS	\$ 1,979,382	\$ 395,876
Software Licensing	\$ 1,707,512	\$ 341,502
GIS Server	\$ 620,744	\$ 124,149
MIS for 9-1-1 phone system	\$ 361,818	\$ 72,364
Totals	\$ 110,775,357	\$22,155,071

Historically, NC pays on average \$22,155,071 per year in costs that may be impacted by the implementation of a NC NG9-1-1 system and service.

2.1.3 9-1-1 Costs Not Impacted by NG9-1-1

Based upon our analysis, the following costs **will NOT be impacted** by NG9-1-1 and will continue to represent costs to the Board and to PSAPs, shown in Table 8.

Not Impacted is defined as costs that will remain as they are within the fund regardless of the ESInet and NG9-1-1 services. These costs will continue without any reduction or shift due to sharing.

Table 8 – Costs that will NOT be impacted by NG9-1-1 implementation

Analysis of current costs that NG9-1-1 will NOT Impact		
Costs will or may continue regardless of NG9-1-1	2009-2014 Total	5 year average per annum
Furniture	\$ 6,814,991	\$ 1,362,998
Radio Dispatch Workstations	\$ 5,347,858	\$ 1,069,572
Radio Network Switching Equipment	\$ 4,601,953	\$ 920,391
Language Interpretation Services	\$ 2,008,086	\$ 401,617
UPS	\$ 1,706,933	\$ 341,387



Analysis of current costs that NG9-1-1 will NOT Impact		
Costs will or may continue regardless of NG9-1-1	2009-2014 Total	5 year average per annum
Radio Console	\$ 1,654,349	\$ 330,870
Generator	\$ 1,639,559	\$ 327,912
Automatic Call Distribution	\$ 1,619,317	\$ 323,863
Radio Console Access Router	\$ 1,281,138	\$ 256,228
Time Synchronization (hardware and software)	\$ 615,367	\$ 123,073
Radio Console Software	\$ 585,003	\$ 117,001
Mobile Message Switch	\$ 167,581	\$ 33,516
Message Switch (voiceless dispatch)	\$ 148,606	\$ 29,721
Radio Console Ethernet Switch	\$ 126,714	\$ 25,343
Handheld GPS	\$ 64,478	\$ 12,896
Activity Monitor	\$ 18,237	\$ 3,647
TOTAL	\$ 28,400,170	\$ 5,680,035

NC will continue to pay these costs with or without NG9-1-1 network services. \$5,680,035 per year on average will continue to be spent on items represented in the table above.

2.1.4 9-1-1 Costs Replaced by NG9-1-1:

Table 9 shows an analysis of costs specific to 9-1-1 call delivery over a five year period (2009 – 2014). Costs represented in Table 9 will be replaced or will become part of NG9-1-1 costs going forward.

Replaced is defined as costs that will shift from the legacy 9-1-1 fund into services provided by the ESInet and NG9-1-1 system. These costs will remain, but be migrated into the NG9-1-1 platform which offers enhancements over the legacy system.



Table 9 – Costs replaced by NG9-1-1 Implementation

Analysis of current network costs that will be replaced by NG9-1-1		
Phone Systems	5 year Total	5 year average per annum
9-1-1 trunks	\$42,635,511	\$8,527,102
Selective Routing	\$23,845,321	\$4,769,064
Admin lines	\$1,840,183	\$368,037
TDD/TTY	\$99,533	\$19,907
TOTAL	\$68,420,548	\$13,684,110

Historically, NC paid \$13,684,110 per year on average for 9-1-1 network and 9-1-1 network services.

The costs captured in Table 9 should also decrease as an overall expense to the Board due to economies of scale, group purchasing power and competitive managed services contracts possible with a statewide NG9-1-1 system.

2.1.5 Summary of Recent 9-1-1 Costs

Summarizing Tables 7 through 9 above provides the following costs for use in sizing, context and comparison to new costs presented in Section 3.

These figures represent the total expenditures of the NC 911 Board today in a legacy 9-1-1 funding model compared to the effect on the fund following implementation of NG9-1-1. Many existing costs may be replaced or shifted into the NG9-1-1 system over time.

- Approximately \$13,684,110 can be shifted into the NG9-1-1 system
- Approximately \$22,155,071 may also be impacted over time as services and applications are introduced.

Considerations:

The estimated costs in the NG9-1-1 system will primarily replace the costs for legacy 9-1-1 systems. Costs for technology in the NG9-1-1 environment often reduce barriers (both technically and operationally) that exist in the legacy 9-1-1 environment. Analysis of the current fund indicates that the NG9-1-1 model will entirely replace (or at least affect)



up to \$110,775,357 of the currently distributed funds. Table 10 demonstrates that an NG9-1-1 system will have a significant effect on the NC 911 Board financial model.

Table 10 – Current 5 year analysis of 9-1-1 funds

Totals and Percentages 5 year analysis		
Total Current 9-1-1 expenditures (2009-2014)	\$ 135,548,125	
Current 9-1-1 costs replaced	\$ 89,442,225	66%
Current 9-1-1 costs impacted by NG9-1-1	\$ 110,775,357	82%

Table 11 provides deeper insight into the effect on the annual fund distribution using the five year working average to calculate an annual cost for all legacy 9-1-1 costs. Table 11 also identifies the costs according to the breakout of Replaced, Impact, and No impact from NG9-1-1.

Table 11 – Impact on funding by NG9-1-1 implementation

5 year average – replaced by NG9-1-1	\$ 13,684,110
5 year average - NG9-1-1 impact	\$ 22,155,071

This understanding of the current distribution of funds combined with the strategy to replace legacy 9-1-1 technology with NG9-1-1 capable solutions demonstrates that the fund has the ability to remain sustainable through the transition to NG9-1-1. As mentioned previously, this is largely dependent on the manner in which the Board transitions the PSAPs to NG9-1-1 and provides services.

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3. New Costs from NG9-1-1

The Concept of Operations document provided the strategic basis for NG9-1-1 implementation in North Carolina. The individual components that comprise the NG9-1-1 system discussed in that document are presented as New Costs from NG9-1-1 and drive the cost components described in the Cost Analysis. Together, the Concept of Operations and Cost Analysis reveal a strategic approach to NG9-1-1 to maintain financial efficiency and increase technical and operational effectiveness for all PSAPs.

We based New NG9-1-1 costs, presented in this section, upon assumptions and data specific to the State of North Carolina. Operational assumptions articulated in the NC NG9-1-1 Concept of Operations document drive these New NG9-1-1 costs.

3.1 Future 9-1-1 Costs

Table 12 reiterates future 9-1-1 costs previously identified in the Concept of Operations report.

Table 12 – ConOps NG9-1-1 cost areas

NG9-1-1 cost centers identified in the Concept of Operations for North Carolina	
ESInet	Implementation of an ESInet
NG9-1-1 Core Services	Implementation of the NG9-1-1 core services functional elements and functions (Border Control, Emergency Services Routing Proxy, Policy Routing Function, Emergency Call Routing Function)
NMAC	Implementation of a service management solution that includes a Network Operations Center (NOC), a Security Operation Center (SOC), and a Help Desk responsible for monitoring, management and maintenance of the ESInet and hosted call solution and providing technical support for PSAPs
GIS Core Services	Implementation of GIS and Geo-based call routing services and data to support NG9-1-1 call routing
Hosted Call Handling	Implementation of a Hosted Call handling platform with Legacy Network Gateway, Legacy PSAP Gateway and/or Legacy Selective Router Gateway
CAD to CAD function	Establishment of an interoperable CAD solution that allows the PSAPs to share records in a more efficient manner through a common CAD platform
Radio Interoperability	Establishment and implementation of an interoperable radio solution that utilizes the NG9-1-1 system as appropriate



The following subsections explore each of these areas in further detail along with a ROM cost for fulfilling the goals of each functional component.

3.2 NG9-1-1 Cost drivers

Because the cost components of an IP-based NG9-1-1 infrastructure are more extensive than those used in a typical legacy 9-1-1 network, identification and review of NG9-1-1 cost drivers is necessary. Table 13 provides examples of NG9-1-1 cost drivers:

Table 13 – Drivers of NG9-1-1 costs

Items/areas that drive costs in NG9-1-1 services	
Network connections	Requires equipment, security and active management of each connection on a 24x7 basis
Internal and external interconnections	Requires legal agreements, equipment, security, monitoring and active management of the interconnections on a 24 x7 basis, including backup or redundant systems
End points and demarcation points	Marks a change of responsibility or accountability for services or support
PSAPs	Generally means the physical location, can also impact capacities when combined with positions, applications, volumes, etc.
Positions and workstations	Can equate to users or licenses, can also impact capacities, bandwidth etc.
Population	State, local, and jurisdictional impacts to bandwidth, capacities, volumes, etc.
Volumes	Call loads, capacities, bandwidth
Counties	Political boundary and local authority
Users/Licenses	Applications, functions, positions
Distances	Will impact network pricing and availability
Capacity/Bandwidth	Min., max., throughput, sustained, burst, scale
Standalone and Hosted services	Core services, cloud-based applications, reduction of unit costs per PSAP
Capabilities	Text to 9-1-1, pictures, video, other applications that can utilize the IP bandwidth of the system

3.3 PSAP Readiness will Impact Costs

Inventory conducted by the 911 Board in 2014 form the basis of these assessments and do not reflect recent upgrades and equipment replacements.



PSAPs in the State of North Carolina operate at various levels of NG9-1-1 readiness from a network and CPE perspective. Table 14 provides the breakdown of NC PSAPs and an estimation of their NG911 readiness.

Table 14 – PSAP analysis

Primary PSAP Analysis		Cost Impact
PSAP fully NG capable CPE and Network	12	The move into the NG9-1-1 system will yield a minimal overall impact from a cost perspective. The state ESInet and NG9-1-1 core functions should not require a large increase in costs.
PSAP CPE or Network Capable (some form of upgrade or change is required or NG9-1-1)	78	<p>The move into the NG9-1-1 system will yield a marginal increase in costs depending on model of individual PSAP CPE.</p> <p>Many of these sites will require a Legacy PSAP gateway (LPG) to connect to the NG9-1-1 system. The cost model includes these costs.</p>
PSAP does not have NG CPE or Network access. LPG and other costs may be necessary	29	Higher cost impact than others associated with transition to NG9-1-1. LPG connections required as well as NG9-1-1 ready CPE and broadband IP networking.

PSAP information used in this analysis was provided from a survey conducted in 2014. Some PSAP information may move into another category depending upon their current status. The Board will update the survey in 2016.

From the PSAP readiness information we can draw the following logical conclusions:

1. **12 PSAPs - Little to no costs within models** – these PSAPs are capable from a network and CPE standpoint and will require little if any cost to integrate with a NC NG9-1-1 system.
2. **78 PSAPs - Marginal costs within models** – these PSAPs will require some degree of upgrade or replacement of equipment and services that will have costs associated with them.



- a. These PSAPs can be broken into categories. The conceptual design of the NG9-1-1 system will provide further detail of the costs affected for the 78 PSAPs:
 - i. PSAPs that have NG capable CPE and network available but not operational
 - ii. PSAPs that have network operational but require NG CPE
- b. We adopted the following methodology related to these 78 PSAPs:
 - i. **39 PSAPs - Lowest of the Marginal costs** - 50% will require little change or upgrade in order to achieve full NG9-1-1 capability and integration.
 - ii. **39 PSAPs – Moderate costs of the Marginal costs** - 50% will require moderate change or upgrade in order to achieve full NG9-1-1 capability and integration.
3. **29 PSAPs - Highest potential costs within models** – these PSAPs will require considerable changes and will incur higher costs to achieve full NG9-1-1 capability.

3.3.1 Legacy PSAP Gateways Costs (LPGs)

Legacy PSAP Gateways (LPGs) are equipment that will allow a non-NG compliant PSAP to connect to the ESInet. They are controlled and managed points of interface at the PSAP, which interfaces to existing legacy PSAP equipment. This allows PSAPS to migrate into NG9-1-1 call taking equipment as budgets permit.

LPGs will be necessary in North Carolina as shown Table 14 above and will add initial costs during transition and migration of legacy PSAPs into the NG9-1-1 system. While initially a required NG9-1-1 cost, the LPG costs will begin to reduce over time as PSAPs upgrade to a fully functioning NG9-1-1 capable system. This may include the replacement of their CPE system with the hosted call handling platform described in the Concept of Operations. The state can safely and diligently move forward with a migration away from the legacy 911 network and deploy NG9-1-1 ESInet and NG Core Services to all PSAPs in North Carolina using LPGs.

This function requires equipment located at each PSAP that does not have NG CPE. The equipment used for an LPG generally consists of the following:

- Network switch



- Interface cards
- Timesource
- Firewall/security appliance
- Alarms and remote monitoring components
- Electrical connection
- UPS connection

\$10,000 per LPG per year is a good estimate for equipment and support for each piece of equipment.

The costs required for an LPG will reduce year over year as NG capable equipment replaces legacy analog CPE at the PSAP level, and as PSAPs begin to utilize the hosted call handling solution offered within the system.

3.3.2 Costs per Connection

We identified the potential for NG9-1-1 costs per connection and provide a comparison of potential costs to current costs paid in Table 15. Providing public safety services and 9-1-1 communications in a NG environment requires a physical connection to the network, whether via IP, or through an LPG. Each method represents a specific cost basis for consideration.

At the most rudimentary level, 125 PSAPs in the system today would require 125 end-point connections to any new NG9-1-1 network in North Carolina. The end points, bandwidth and cost associated with the connection will be solidified during procurement of the network. Costs presented here are those from similarly sized, and common NG9-1-1 implementations.

Table 15 supplies the potential new costs of the NG9-1-1 solution on a 5 year basis. This amount is the summary of NG9-1-1 expenditures determined from this Cost Analysis.

Table 15 – Cost per PSAP connection

Cost per connection analysis	Monthly per PSAP	Annually per PSAP	Annual 125 PSAPs
PSAP connection costs	\$13,976	\$1,747,000	\$20,964,000



3.3.3 Potential Costs at the Position Level

There are 840 call taking positions in North Carolina. The costs of upgrading the position level can influence the costs of the CPE and hosted call handling equipment within NG9-1-1. Utilizing experience from other similar implementations a general rule of thumb for a stand-alone NG9-1-1 CPE cost per position is \$75k/position. This is an average over high and low figures calculated from areas already upgraded to NG9-1-1 and can be higher or lower depending upon the area of the country, vendor, special discounts and contract vehicle used for pricing.

For planning purposes at PSAPs we utilize the \$75k/position to establish a boundary for costs. A lower amount would be possible if the State takes advantage of group purchase or cooperative purchase agreements, negotiates state qualification contracts or explores hosted solutions.

$$**840 positions \times \$75,000 per position (stand-alone PSAP) = \$63,000,000**$$

Note that at a strategic level, the average cost per position for a hosted solution is approximately half of a stand-alone system. This is because sharing systems and services is more efficient and operationally less expensive. The cost is in the range of \$35k/position for planning purposes. Therefore the potential cost would be significantly lower based upon hosted positions:

$$**840 positions \times \$35,000 per position (hosted solution) = \$29,400,000**$$

The difference between stand-alone and hosted represents a potential reduction of **\$33,600,000** by eliminating the potential of CPE located at each individual PSAP.

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3.4 Rough Order of Magnitude (ROM) Cost Estimates

The ROM cost estimates presented in this section complement the Concept of Operations and are scaled to meet the strategy. We derived these costs from similar implementations as a basis for transition into NG9-1-1.

3.4.1 ESInet/Network

The costs of the ESInet and network relate to the hardware required to build the ESInet core and network infrastructure. The costs in Table 16 and Table 17 represent similar installations around the country based on a leased service model for equipment and infrastructure services.

Together the two tables represent the costs to implement an ESInet with the required bandwidth, service level and connections to the proposed data centers. These costs include all hardware to supply the network services and supply the service itself. Table 16 includes the necessary hardware (equipment, routers, switches, etc.) to create the capabilities of the ESInet. Table 17 provides cost assumptions for the IP connections to the hardware provided in Table 16.

The costs represent:

- 125 PSAP connections
- 2 Data Centers within North Carolina
- 4 core routers, and 1 edge router per PSAP
 - The costs assume a Cisco ASR 1002X at the core and Cisco 1921s at the edge.

Table 16 – ESInet hardware lease costs

Network Hardware and Equipment	
Equipment located at 2 Data Centers and 125 end point locations	\$ 1,892,800
Maintenance	\$ 283,920
5 year total	\$ 2,176,720

Network recurring costs are also presented in addition to the network hardware. The costs are also represented as a leased service and reflect a typical ESInet cost for a state the size of North Carolina. As shown below the assumptions to meet the goals of the Concept of Operations are included.



The costs represent:

- 2 Data Centers
- Diverse and redundant 1 Gbps connection between data centers
- Diverse and redundant connections to each PSAP
- The costs assume a Cisco ASR 1002X at the core and Cisco 1921's at the edge
- SOC-2 compliant equipment and racks at the data centers.

Table 17 – ESInet network lease costs

Annual Network Recurring - Voice and Video			
	Monthly	Annually	5-year total
Data Centers to PSAP	\$ 1,737,000	\$ 20,844,000	\$ 104,220,000
Data Center to Data Center	\$ 8,000	\$ 96,000	\$ 480,000
Data Center	\$ 2,000	\$ 24,000	\$ 120,000
Total	\$ 1,747,000	\$ 20,964,000	\$ 104,820,000

Table 17 above summarizes the costs associated with creating the backbone infrastructure and connectivity by the PSAPs into the NG9-1-1 system. Availability of contract vehicles, bulk purchase agreements and other potentially available solutions directly impact these costs. We estimated these costs as a worst case scenario. The procurement process may provide a reduction of these costs.

Additionally, once the network is operational, the capabilities provided by the ESInet will replace the costs presently funded in a legacy environment.

3.4.2 NG-Core Functions/i3

The NG core services are implemented to configure the NG9-1-1 across the ESInet. These functional elements and service components are necessary for transition into a fully functional NG9-1-1 network.

The lease costs presented in Table 18 are for the hardware and equipment installed to operate the NG9-1-1 core services and deliver the NENA i3 standard call delivery functionality to all PSAPs. Table 19 lists the services that use the hardware and equipment, leased as a service. Together, these two tables are the NG9-1-1 core services costs for all hardware, equipment and maintenance.



The servers required (which will be leased) include:

- ESRP / PRF – Policy routing functions to ensure the ability to route traffic
- LIS – Location Information Server
- SBC – Session Border Controllers
- ECRF / LVF – Emergency Call Routing Function – Location Validation Function

Table 18 – NG9-1-1 Core services hardware lease costs

NG9-1-1 core service hardware and equipment	
Data center hosting costs	\$ 616,000
Maintenance	\$ 369,600
5 year total	\$ 985,600

Table 18 represents a Monthly Recurring Charge (MRC) for the services of NG9-1-1 and NENA i3 standard compliance. This anticipates provision of these services by a vendor that also delivers the NG9-1-1 system.

The services provided by the vendor for a monthly recurring charge include the following with a core services cost summary provided in Table 19:

- ESRP
- PRF
- LIS / ALI and DB service
- ECRF
- LVF
- LSRG – Legacy Selective Router Gateway
- LNG – Legacy Network Gateway
- LPG – Legacy PSAP Gateway

Table 19 – NG9-1-1 Core services functionality lease costs

NG9-1-1 core services functionality	
NG9-1-1 services	\$ 5,306,000
Maintenance	\$ 3,183,600
5 year total	\$ 8,489,600



3.4.3 Geographical Information System (GIS)

The size of the State of North Carolina, expected bandwidth and ECRF / LVF requirements for call routing govern the GIS / Geo-based routing estimate. The costs are typical of a similar sized state and are for implementing a third party to operate the ECRF and remediate the GIS data to ensure that it is correct and can route calls. In addition this cost includes a level of redundancy within the call routing framework to provide reliability.

Costs presented in the GIS managed services include the following with costs summarized in Table 20:

- Replication system to populate the ECRF
- ECRF operation
- GIS data error identification (not correction that remains a PSAP function)
- Linkage to the LIS / ALI and DB service

Table 20 – GIS and Geo-based call routing lease costs

GIS / Geo-based routing	Annual Geo-based operations	Annual Maintenance	Annual cost	Five year costs
Operations costs	\$2,437,771	\$11,200	\$2,448,971	\$12,244,855

The Geo-server operation contains functions that comprise the lease costs for the GIS and Geo-based call routing data services that link to the ECRF / LVF servers. The costs represent the creation and maintenance of the call routing system by a third party. These costs do not include Master Street Address Guide (MSAG) correction, ALI Database costs, GIS data remediation or Addressing. Those functions remain a PSAP responsibility to ensure their data meets the NENA GIS and Data standards and those employed by the GIS managed services vendor.

3.4.4 Network Monitoring and Assistance Center (NMAC) Service and Support

The basis for the cost estimate for the NMAC is rough costs for the operation of a third party that provides Network Operations Center (NOC) functionality, Security Operations Center (SOC) functions and acts as a help desk for technical issues in the PSAP. The basis for this estimate is similar operational components provided by vendors. Table 21 summarizes NMAC lease costs.



Table 21 – NMAC lease costs

Network Management and Assistance Center (NMAC)	
Lease Space	\$ 42,000
Staffing	\$ 1,050,000
NMON Software	\$ 168,000
HD Software	\$ 21,000
Hardware	\$ 56,000
5 year total	\$ 1,547,000

3.4.5 Hosted Call Handling

The hosted call handling estimate represents the costs of leasing a system to deliver calls to the correct PSAP through the NG9-1-1 system. Commonly referred to as Customer Premises Equipment (CPE), this approach places a CPE system inside the NG9-1-1 core rather than multiple single CPE systems at each PSAP.

This configuration is a common method for 9-1-1 service providers to rapidly transition into NG9-1-1. Vendors providing this type of solution often combine the ESInet capabilities, NG9-1-1 functions and Hosting into a single platform that offers the reliability, redundancy and diversity required by 9-1-1.

The expectation is that initially only a portion of the PSAPs will utilize the hosted call handling system. Therefore, the costs shown in Table 22 represent 33% of the current 840 positions.

Table 22 – Hosted Call Handling lease costs

Hosted Solution	
Host Controller	\$ 254,100
PSAPs Systems	\$ 4,478,208
Port Licensing	\$ 22,667
Maintenance	\$ 2,852,985
5 year total	\$ 7,607,959

3.4.6 Computer Aided Dispatch (CAD)

The costs for CAD-to-CAD interoperability are highly dependent upon the number of locations to be configured. At the present time, the exact number of PSAPs that will utilize



the service is unknown. Therefore, we present the costs of a hosted call handling lease service on a monthly recurring charge basis, as shown in Table 23.

Table 23 – Hosted Call Handling lease costs

CAD to CAD	
Networking	\$ 4,000
Client services	\$ 3,667
Application hosting	\$ 5,667
Testing environment	\$ 52,000
5 year price 42 PSAPs	\$ 17,860,000

Information recently obtained encouraged the NC 911 Board staff to seek another potential solution for CAD to CAD interoperability. There is much work yet to do on this new potential solution; therefore, for the purposes of this cost analysis we use the costs indicated by this more traditional commercial server-based solution.

3.4.7 Radio Interoperability

Meeting the NG9-1-1 requirement of “radio dispatch following 9-1-1 calls forwarded” represents a new function within the public safety community. The goal is to retain all radio dispatch functions, so that any PSAP can dispatch to another PSAP’s first responders. This includes not only voice, but paging, fire station alerting, and siren activation. This “radio dispatch following 9-1-1 call forwarded” function is not being currently performed within the State.

Two alternatives were investigated that would allow any PSAP to dispatch any other PSAP’s first responders. The solution most likely to provide the functions desired, and already has an established base, is North Carolina’s VIPER system.

This solution expands the VIPER system to accommodate radio dispatch to follow 9-1-1 calls forwarded to another PSAP. Currently, of the 100 counties in the State, 37 use VIPER as their operable communications system, and 21 PSAPs have Motorola MCC7500 consoles directly connected to the VIPER network (which is a requirement). Table 24 shows estimated costs to expand and upgrade the VIPER network to all PSAPs.



Table 24 – VIPER Radio Interoperability Solution Estimated Costs

VIPER Radio Interoperability Solution	
Item Description	Extended
New MCC7500 Consoles	\$ 8,320,000
New Zone Controller/Managers	\$ 5,000,000
Conventional gateways	\$ 780,000
Relocation of existing gateways	\$ 157,500
Network Equipment Total	\$14,257,500
New Console Connectivity to VIPER Core (annual)	\$ 249,000
Gateway connectivity to ESInet (annual)	\$ 1,500,000
Ongoing hardware and software maintenance (annual – years 2 through 5)	\$ 2,138,625
Operating Total	\$ 3,888,225
5 Year Total	\$ 31,560,000

Assumptions used for the VIPER radio interoperability solution include:

- New MCC7500 radio dispatch consoles – as only Motorola MCC7500 consoles are able to connect to the existing VIPER system, two new MCC7500 consoles have been included for each PSAP not currently using MCC7500 consoles (this total of 104 PSAPS is the sum of the 125 primary and secondary PSAPs less the 21 PSAPs that currently use MCC7500 consoles).
- The existing Zone Controllers (core equipment of the VIPER system) have technical resource limitations. When these Zone Controllers reach their resource limitations, additional Zone Controllers will be necessary. The two Zone Controllers already added to the overall network, eliminate the need to add Zone Controllers at the start of the project, which can be added as the Zone Controllers approach their resource limits.
- The NG9-1-1 network will require the addition of conventional gateways located at the radio sites (not the radio dispatch location) as PSAPs migrate to the new MCC7500 consoles. This analysis bases quantities on an average of five sites per PSAP, thus five gateways per PSAP. Each gateway is able to control four base stations/repeaters. This applies to the 104 PSAPs.
- Existing conventional gateways require relocation because most existing gateways are located in the respective PSAP (and the assumption used is that a



PSAP forwarding 9-1-1 calls will go completely dark). This applies to the 21 PSAPs that already have MCC7500 consoles.

- Each PSAP will need to be connected to the VIPER Zone Controller/core. Costs estimates assume a single 100Mbps IP circuit from each of the 104 PSAPs that do not have MCC7500 radio consoles. This connection may be the same as the PSAP to ESInet connection required for NG9-1-1 operations.
- Each radio site must have the gateways connected to the VIPER core network through the ESInet. Costs estimates use 125 PSAPs with an average of five sites per PSAP and use of a 100Mbps circuit connected to the ESInet.
- Maintenance for a five year period (years 2 through 5) have been estimated at 15% of the capital costs.
- Cost estimates for updates to governance, policies, procedures, training, or reprogramming of the VIPER network are undetermined.
- Costs for paging, fire station alerting, and siren activation systems are undetermined at this time. Specific technical requirements are under investigations with VIPER.
- We met with the State Highway Patrol of the North Carolina Department of Public Safety and discussions are in progress regarding the possibility of using their network for radio interoperability.

3.5 ROM Operational costs

Throughout Section 3 of this report, we presented costs for the technology components required to implement an operational NG9-1-1 system. Table 25 calculates the total costs from Table 24 above and represents a ROM cost for operating an NG9-1-1 system in the state of North Carolina.

Consistent with the assumptions above, the total operational costs assume:

- All 125 locations connected to the ESInet
- 33% of the positions utilizing the hosted call handling system
- 50% of the locations require LPG for connection
- All 125 locations utilizing an ECRF / LVF function for call routing
- All 125 locations using the NMAC for support



Table 25 – Total NG9-1-1 system lease costs

Network Hardware and Equipment	\$ 2,176,720
Annual Network Recurring - Voice and Video	\$ 104,820,000
NG9-1-1 core service hardware and equipment	\$ 985,600
NG9-1-1 core services functionality	\$ 8,489,600
GIS Managed Services	\$ 12,244,855
Network Management and Assistance Center (NMAC)	\$ 1,547,000
Hosted Solution	\$ 7,607,959
Total	\$ 137,871,734
Per Year	\$ 27,574,347
Per Month	\$ 2,297,862

During the development of the Concept of Operations, we identified several potential opportunities that may impact CAD and Radio interoperability. Each of these component areas can utilize the ESInet infrastructure as a transport system. However, they both have unique circumstances that cannot be overcome by simply attaching to the ESInet.

As the project proceeds, these two options will be the focus of additional effort to ensure a strategic method that enables greater sharing of the resources. Tables 26 and 27 summarize estimated costs for these two options.

Table 26– CAD to CAD costs

CAD to CAD (estimated at 42 PSAPs)	\$17,860,000
Per Year	\$3,572,000
Per Month	\$297,667

Table 27– Radio Interoperability costs

Radio Interoperability	\$31,560,000
Per Year	\$6,312,000
Per Month	\$526,000

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4. Transition Timeline – Legacy 9-1-1 to NG9-1-1 System

4.1 NG9-1-1 Transition Estimate

Transition to NG9-1-1 at the state level will not occur overnight. Table 28 provides an estimated timeline for the procurement, contracting, implementation and transition based on similar implementations around the country.

The length of the timeline is dependent upon several factors including the conceptual design, specification and NG9-1-1 system procured and the number of PSAPs considered early adopters.

The first step in the transition is implementation of the network and services to supply the bandwidth and infrastructure to serve the PSAPs. Following deployment of connectivity, the applications and services can transition onto the network.

The timeline in Table 28 highlights the coordination between the procurement, implementation and operation of the NG9-1-1 system and the funding plan achieved through HB730. The transition into fully functioning NG9-1-1 depends in large part on the availability of the funds accrued from the HB730 framework.

Based on this timeline, the Board may have up to 18 months of funds available from HB730 to apply to PSAP's when they begin to come online.



Table 28 – NG9-1-1 timeline

Phase	Duration	Calendar	Notes
ESInet, NG Core Services and NMAC RFPs	12 mo.	12/2015 – 11/2016	Define requirements, develop RFP, publish and award
H-730 takes effect		1/2016	NC NG911 statute goes into effect
Begin NC NG911 service implementation		1/2017	ESInet, NG Core Services and NMAC Contracts Awarded
ESInet Transition/build	18 – 24 mo.	1/2017 - 12/2018	Build and testing of core and PSAP mesh networks and implementation of required NG core services.
NG Core Services implemented			NMAC implemented
LNG and LSRG elements in operation			
PSAPs on new ESInet	8 – 24 mo.	8/2017 – 12/2018	Once core is built (8 - 10 months) PSAPs can begin migration onto the system with the deployment of LPGs and other core services.
NC NG911 Service costs begin			

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5. Cost Analysis Summary

The items identified throughout this Cost Analysis validate the planning steps undertaken in the Concept of Operations. The costs demonstrate that the strategy described may influence the funding in several ways.

Legacy 9-1-1 technology and the reliance on a circuit-based network can be a barrier to introducing new applications and services that rely on broadband connections and IP networks.

The NG9-1-1 platform is flexible and scalable to meet demand. As applications, services and solutions are introduced to support 9-1-1, the NG9-1-1 system can be modified to support the expectations of the general public. NG9-1-1 allows the State to establish a platform that can continue to grow and allow for greater efficiency over time.

Costs associated with the implementation of NG9-1-1 may initially increase pressure on the existing fund. However, over time the effectiveness of an NG9-1-1 system to expand and meet the demands of the public will offset the continual retrofit of legacy 9-1-1.

The assumptions of NG 9-1-1 specific costs presented will:

- Be consistent with costs of similar implementations
- Establish a statewide ESInet
- Assume the NG9-1-1 core services are available
- Enable the ability for PSAPs to connect to each other through the NG9-1-1 system.

Costs of the present legacy 9-1-1 system established a baseline for costs that may be either replaced or impacted by the implementation of an ESInet and NG9-1-1 core services.

NG9-1-1 replacement costs fall into two categories:

- Costs that will be replaced by NG9-1-1 Costs
- Costs that can be impacted by NG9-1-1 Costs

5.1 Costs that will be Replaced by NG9-1-1 Costs

Replaced is defined as costs that will shift from the legacy 9-1-1 fund into services provided by the ESInet and NG9-1-1 system. These costs will remain, but will migrate into the NG9-1-1 platform, which offers enhancements and greater reliability over the legacy system.



The cost analysis concludes that \$13,684,110 of the existing annual costs will shift onto the NG9-1-1 system once it is operational. Applications and services residing in the NG9-1-1 network will replace the current costs of the existing legacy services included in the calculation. These include items such as:

- 9-1-1 trunks – trunks will be decreased over time and replaced with IP bandwidth
- Selective Routing – an ECRF will replace call routing
- Telephone equipment (CPE etc.) – hosted call handling
- Administrative lines – administrative lines can be moved to the core served by a hosted call platform
- TDD/TTY – will move to the ESInet / NG9-1-1 core

The costs identified as “replaced by NG9-1-1” represent a migration of the same services onto the ESInet and/or NG9-1-1 system.

5.2 Costs that can be Impacted by NG9-1-1 Costs

Impacted is defined as having the potential to change resulting in an increase or decrease in costs currently paid. The impact results from the ability to utilize the ESInet and NG9-1-1 services to enhance capabilities and/or increase options.

- Software Maintenance – software maintenance may decrease with the positioning of applications inside the ESInet and sharing among multiple PSAPs
- Telephone equipment (CPE etc.) – administration and maintenance costs of CPE will decrease over time
- Equipment Maintenance – equipment located at the PSAPs will decline
- Computer Aided Dispatch – as the increased potential for CAD interoperability may affect CAD costs
- Software Licensing – certain software allows sharing across the ESInet
- MIS for 9-1-1 phone system – sharing of statistical information regarding the 9-1-1 phone system may offer a reduction in costs
- Hosting Services – offering shared CPE to all PSAPs will reduce the cost of buying stand-alone systems for every PSAP

As previously mentioned, we identified up to \$22,155,071 of the annual costs as “impacted by NG9-1-1” and portions that will shift to the NG9-1-1 system. A percentage



of these costs will transition onto the NG9-1-1 network over time. Table 29 quantifies the impact:

Table 29 – Annual Impacted and Replaced costs

Annual 9-1-1 costs today that will be replaced by NG9-1-1	\$ 13,684,110
Annual 9-1-1 costs today that can be impacted by NG9-1-1	\$ 22,155,071

The costs identified as “replaced by NG9-1-1” will shift at a more rapid pace than those identified as “impacted by NG9-1-1”.

Comparing the potential cost shifting with the estimated cost of an NG9-1-1 solution offers a snapshot of the potential effect. Based upon the estimates presented, Table 30 provides the estimated annual cost of configuring the solution described in the Concept of Operations:

Table 30 – Annual NG9-1-1 estimated costs

Annual NG9-1-1 costs	\$ 27,574,347
-----------------------------	----------------------

The line item in Table 30 represents the expected annual costs for the proposed NG9-1-1 system documented in the Concept of Operations and used for the Cost Analysis. The costs compare favorably with other NG9-1-1 implementations and statewide initiatives.

These costs represent the following components:

- ESInet
- NG9-1-1 i3 functional elements and service
- GIS and geo-based call routing
- NMAC
- Hosting

A comparison of the annual NG9-1-1 costs with the costs that may be influenced by NG9-1-1 provides the following conclusions:

- NG9-1-1 has a larger impact on the 9-1-1 fund than just technology and operations
- NG9-1-1 will offer savings over time
- NG9-1-1 will grow and offer additional application and service support that legacy 9-1-1 will not



- NG9-1-1 will allow for connectivity “Murphy to Manteo” over a common configuration

Table 31 provides a summary of NG9-1-1 cost implications when applied to the current expenses for 9-1-1. It is assumed that annual costs may increase with NG9-1-1, but several component costs as identified as *replaced* or *impacted* may be delivered through the NG9-1-1 system. For instance the infrastructure provided with NG9-1-1 will reduce the number of trunks, and increase the available capacity through the network. In addition, the hosted services may reduce the duplication at the PSAP allowing for a greater economy of scale across the state.

Beginning in 2016, 10% of the collected 9-1-1 fees will be directed to support NG9-1-1. HB730 provides the authority for the NC 911 Board to use the funds for establishing NG9-1-1 throughout the state of North Carolina.

Table 31 – Comparison of current costs and potential costs of NG9-1-1 over time

Fund breakdown:	2016	2017	2018	2019	2020
NG9-1-1 Fund	\$ 7,836,661	\$ 7,952,398	\$ 8,031,922	\$ 8,112,241	\$ 8,193,363
Admin Fund	\$ 705,299	\$ 715,716	\$ 722,873	\$ 730,102	\$ 737,403
CMRS Fund	\$ 8,099,659	\$ 8,219,280	\$ 8,301,473	\$ 8,384,488	\$ 8,468,333
PSAP Fund	\$56,724,990	\$57,636,583	\$ 58,262,949	\$ 58,895,578	\$ 59,534,534
Grant Fund	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000
Total	\$78,366,610	\$79,523,977	\$ 80,319,216	\$ 81,122,408	\$ 81,933,633

Expense Breakdown:	2016	2017	2018	2019	2020
Cumulative NG9-1-1 funds (HB730 10%) - includes 2015	\$11,827,306	\$19,779,703	\$ 25,164,488	\$ 16,511,525	\$ (2,869,459)
New NG NG9-1-1 costs	\$ -	\$ (2,647,137)	\$ (16,765,203)	\$ (27,574,348)	\$ (27,574,348)
a) Costs replaced with NG9-1-1	\$ -	\$ 1,313,675	\$ 6,677,846	\$ 13,684,110	\$ 13,684,110
b) Costs impacted by NG9-1-1	\$ -	\$ -	\$ -	\$ 2,126,887	\$ 4,431,014
Total	\$11,829,322	\$18,448,258	\$ 15,079,148	\$ 4,750,194	\$ (12,326,663)

Table 31 assumes a gradual implementation of PSAPs onto the NG9-1-1 system, with all 125 PSAPs online by 2020. Table 31 also shows the current costs of services that the NG9-1-1 system can replace, decline as the PSAP cut over occurs.



Table 31 shows costs that the NG9-1-1 system can impact decline at a rate of 10% during 2018 and 2020. This is a conservative estimate of how NG9-1-1 will impact these costs. In many cases costs have moved into the NG9-1-1 system at a faster pace. Figure 1 provides a visualization of the comparison of current and estimated future costs through year 2020.

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Update On Rules Review Commission

Richard Bradford

RRC STAFF OPINION

Please Note: This communication is either: 1) only the recommendation of an RRC staff attorney as to action that the attorney believes the Commission should take on the cited rule at its next meeting; or 2) an opinion of that attorney as to some matter concerning that rule. The agency and members of the public are invited to submit their own comments and recommendations (according to RRC rules) to the Commission.

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0111 - .0114

RECOMMENDED ACTION:

- ☐ Approve, but note staff's comment
- ☒ Object, based on:
 - ☐ Lack of statutory authority
 - ☐ Unclear or ambiguous
 - ☐ Unnecessary
- ☒ Failure to comply with the APA
- ☐ Extend the period of review

COMMENT:

Staff recommends objection to these Rules because they were not adopted in compliance with G.S. 150B, Article 2A. The text of these Rules were not published in the NC Register and the public did not have an opportunity to comment on them.

Staff notes that the 911 Board published one rule regarding declaratory rulings in the NC Register. The text stated:

09 NCAC 06C .0108 DECLARATORY RULINGS

(a) Any request for a determination regarding the application of a relevant rule, statute or rule established by the 911 Board to a specific factual situation must be directed to the Board Chair or Executive Director at the address in Rule .0102 of this Section. The request for a ruling will follow this Rule and Rules .0109 through .0112 of this Section. A declaratory ruling proceeding may include written submissions, an oral hearing, or other procedure determined by the Board as may be appropriate in the circumstances of the particular request.

(b) Declaratory rulings pursuant to G.S. 150B-4 shall be issued by the Board only on the validity or applicability of a relevant statute, rule or order of the Board to stipulated facts. A declaratory ruling shall not be issued on a matter requiring an evidentiary proceeding.

(c) As used in this Rule and Rules .0109 through .0112, "standard" shall refer to and include such standards, policies and procedures adopted by the Board pursuant to authority found in G.S. 62A, Article 3.

(d) A person aggrieved must possess such an interest in the question to be ruled on that the petitioner's need to have such a ruling in order to comply with statutory requirements, these Rules, or standards shall be apparent from the petition and shall be explained therein.

The Board adopted that Rule, with minor changes, as Rule 09 NCAC 06C .0110. However, all of the language in Rules 09 NCAC 06C .0111 through .0114 is new and details the procedure for requesting the ruling, the guidance the Board will use in determining whether to grant the request, the duration of the ruling, and that records will be kept. These Rules address details that were not published and that there was no notice would be considered by the Board.

Therefore, staff is recommending objection to these four rules for failure to comply with the APA.

RRC STAFF OPINION

Please Note: This communication is either: 1) only the recommendation of an RRC staff attorney as to action that the attorney believes the Commission should take on the cited rule at its next meeting; or 2) an opinion of that attorney as to some matter concerning that rule. The agency and members of the public are invited to submit their own comments and recommendations (according to RRC rules) to the Commission.

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0112

RECOMMENDED ACTION:

- ☐ Approve, but note staff's comment
- ☒ Object, based on:
 - ☒ Lack of statutory authority
 - ☐ Unclear or ambiguous
 - ☐ Unnecessary
 - ☐ Failure to comply with the APA
- ☐ Extend the period of review

COMMENT:

Staff recommends objecting to this Rule based upon a lack of statutory authority, in addition to a failure to comply with the APA as reflected in the earlier Staff Opinion.

In Paragraph (b), it appears that the Board is proposing to respond to persons aggrieved petitioning for a declaratory ruling under G.S. 150B-4 within 45 days. This timeline extends the timeframe set forth in the statute. The statute requires an agency to respond to such a request within 30 days to either grant or deny it. If the petition is granted, the agency has 45 days to issue the ruling after granting the petition. Here, the agency states that it will respond by granting the petition and issuing the ruling within 45 days, or it will deny the request within 45 days. Staff believes that the Board does not have statutory authority to extend the deadline to deny the petition from 30 days to 45 days.

G.S. 150B-4(a1) states:

(a1) An agency shall respond to a request for a declaratory ruling as follows:

- (1) Within 30 days of receipt of the request for a declaratory ruling, the agency shall make a written decision to grant or deny the request. If the agency fails to make a written decision to grant or deny the request within 30 days, the failure shall be deemed a decision to deny the request.

(2) If the agency denies the request, the decision is immediately subject to judicial review in accordance with Article 4 of this Chapter.

(3) If the agency grants the request, the agency shall issue a written ruling on the merits within 45 days of the decision to grant the request. A declaratory ruling is subject to judicial review in accordance with Article 4 of this Chapter.

(4) If the agency fails to issue a declaratory ruling within 45 days, the failure shall be deemed a denial on the merits, and the person aggrieved may seek judicial review pursuant to Article 4 of this Chapter. Upon review of an agency's failure to issue a declaratory ruling, the court shall not consider any basis for the denial that was not presented in writing to the person aggrieved.

RRC STAFF OPINION

Please Note: This communication is either: 1) only the recommendation of an RRC staff attorney as to action that the attorney believes the Commission should take on the cited rule at its next meeting; or 2) an opinion of that attorney as to some matter concerning that rule. The agency and members of the public are invited to submit their own comments and recommendations (according to RRC rules) to the Commission.

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0205

RECOMMENDED ACTION:

- Approve, but note staff's comment
- X Object, based on:
 - Lack of statutory authority
 - Unclear or ambiguous
 - Unnecessary
- X Failure to comply with the APA
- Extend the period of review

COMMENT:

Staff recommends objection to this Rule because Paragraph (b) was not adopted in compliance with G.S. 150B, Article 2A. It appears that the requirement for annual testing of the Comprehensive Emergency Management Plan (CEMP) contained in that Paragraph was not published in the NC Register and the public did not comment on them.

Staff notes that while this Rule was not published in the NC Register, all of the plan requirements set forth in Paragraph (a) and annual testing for each component plan set forth in Paragraph (b) of this Rule were contained in rules that the 911 Board published that mention or address the CEMP in the NC Register.

Those proposed rules were:

09 NCAC 06C .0208 (adopted by the Board as Rule 06C .0210):

(a) General.

- (1) Any Primary PSAP, Backup PSAP, and Secondary PSAP that receives 911 Funds from the NC 911 Board shall comply with all NC 911 Board Rules.
- (2) All equipment, software, and services used in the daily operation of the PSAP shall be kept in working order at all times.
- (3) The PSAP shall be provided with an alternate means of communication that is compatible with the alternate means of communication provided at the Emergency Response Facilities (ERFs).
 - (A) The alternate means of communication shall be readily available to the telecommunicator in the event of failure of the primary communications system.

Amanda J. Reeder
Commission Counsel

- (B) Telecommunicators shall be trained and capable of using the alternate means of communication in the event of failure of the primary communications system.
- (4) Each PSAP shall maintain a Backup PSAP or have an arrangement for backup provided by another PSAP. Agencies may also pool resources and create regional backup centers.
 - (A) The Backup PSAP shall be capable, when staffed, of performing the emergency functions performed at the primary PSAP.
 - (B) The Backup PSAP shall be separated geographically from the primary PSAP at a distance that ensures the survivability of the alternate center.
 - (C) Each PSAP shall develop a formal written plan to maintain and operate the Backup PSAP or if backup is provided by another PSAP a formal written plan that defines the duties and responsibilities of the alternate PSAP.
 - (i) The plan shall include the ability to reroute incoming emergency 911 call traffic to the backup center and to process and dispatch emergency 911 calls at that center.
 - (ii) The plan shall be included in the Comprehensive Emergency Management Plan (CEMP).
- (5) The PSAP shall be capable of continuous operation long enough to enable the transfer of operations to the Backup PSAP in the event of an emergency in the PSAP or in the building that houses the PSAP.
- (6) Systems that are essential to the operation of the PSAP shall be designed to accommodate peak workloads.
- (7) PSAPs shall be designed to accommodate the staffing level necessary to operate the center as required by the Rules set herein.
- (8) The design of the PSAP shall be based on the number of personnel needed to handle peak workloads as required by the Rules set herein.
- (9) Each PSAP shall have a written Comprehensive Emergency Management Plan (CEMP).
- (10) Emergency Fire Plan. There shall be a local management approved, written, dated, and annually tested emergency fire plan that is part of the CEMP.
- (11) Damage Control Plan. There shall be a local management approved, written, dated, and annually tested damage control plan that is part of the CEMP.
- (12) Backup Plan. There shall be a local management approved, written, dated, and annually tested backup PSAP plan that is part of the CEMP and approved by the NC 911 Board.
- (13) Penetrations into the PSAP shall be limited to those necessary for the operation of the center.

09 NCAC 06C .0209 (adopted by the Board as Rule 06C .0211):

(d) 911 Emergency Number Alternative Routing.

- (1) PSAPs shall maintain a written plan as part of the Comprehensive Emergency Management Plan (CEMP) for rerouting incoming calls on 911 emergency lines when the center is unable to accept such calls.
- (2) The PSAP shall practice this plan at least once annually.

The Board published other rules that addressed or required a CEMP. Those rules were:

09 NCAC 06C .0102 (Adopted by the Board as Rule 06C .0103):

(h) "Comprehensive Emergency Management Plan (CEMP)" means a disaster recovery plan that conforms to guidelines established by the Public Safety Answering Point and is designed to address natural, technological, and man-made disasters.

09 NCAC 06C .0207 (Adopted by the Board as Rule 06C .0209):

- (11) Standard operating procedures shall include but not be limited to the following:
 - (C) Procedures related to the CEMP
- (12) Every PSAP shall have a comprehensive regional emergency communications plan as part of the CEMP.

Staff recognizes that the concept of a CEMP was published and that the requirements in Paragraph (a) were published in Rule 09 NCAC 06C .0208(a)(9) through (12), highlighted above. In addition, the annual testing requirement for each component required by Paragraph (b) of this Rule was published in that Rule. It also appears that Rule 09 NCAC 06C .0209 required the annual testing of the back-up rerouting procedures. (Please note, that language was not adopted by the Board in the current version of Rule 09 NCAC 06C .0209, which is now .0211.)

Therefore, staff recommends objection to this Rule for failure to comply with the APA for the annual testing requirement for the CEMP in Paragraph (b) of the Rule, which was required without any public notice.

RRC STAFF OPINION

Please Note: This communication is either: 1) only the recommendation of an RRC staff attorney as to action that the attorney believes the Commission should take on the cited rule at its next meeting; or 2) an opinion of that attorney as to some matter concerning that rule. The agency and members of the public are invited to submit their own comments and recommendations (according to RRC rules) to the Commission.

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0216

RECOMMENDED ACTION:

- ☐ Approve, but note staff's comment
- ☒ Object, based on:
 - ☐ Lack of statutory authority
 - ☒ Unclear or ambiguous
 - ☐ Unnecessary
 - ☒ Failure to comply with the APA
 - ☐ Extend the period of review

COMMENT:

Staff recommends objecting to this Rule for failure to comply with the APA, as it was not published in the NC Register and the public was not given an opportunity to comment on the Rule. Staff is not aware that the agency published any notice that it would conduct these reviews in the rules published in the NC Register.

In addition, staff believes as written, the Rule is ambiguous. The Board will conduct reviews of PSAP operations, but it does not state when the reviews will occur, if notice will be given prior to that review, what will happen if the PSAP fails to correct the deficiency, or the timeframe the PSAP will have to do so.

RRC STAFF OPINION

Please Note: This communication is either: 1) only the recommendation of an RRC staff attorney as to action that the attorney believes the Commission should take on the cited rule at its next meeting; or 2) an opinion of that attorney as to some matter concerning that rule. The agency and members of the public are invited to submit their own comments and recommendations (according to RRC rules) to the Commission.

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0302 - .0304

RECOMMENDED ACTION:

- ☐ Approve, but note staff's comment
- ☒ Object, based on:
 - ☒ Lack of statutory authority
 - ☐ Unclear or ambiguous
 - ☐ Unnecessary
 - ☐ Failure to comply with the APA
- ☐ Extend the period of review

COMMENT:

Staff recommends objecting to these Rule because the agency lacks statutory authority to require that CMRS providers submit Cost Recovery Plans in order to qualify for any reimbursement from the Board.

In Rules 09 NCAC 06C .0302, .0303, and .0304, the Board is requiring CMRS providers who desire to seek reimbursement to submit Cost Recovery Plans that include estimates of the service charges the CMRS will be submitting on the date of the first sworn invoice. The language in these Rules appear to create a pre-approval process for CMRS providers in order for them to then seek reimbursement under the statute. Staff is not aware of any authority the Board has to require this of providers who are seeking reimbursement.

G.S. 62A-45 governs reimbursement to CMRS providers. That statute states:

§ 62A-45. Fund distribution to CMRS providers.

- (a) Distribution. - CMRS providers are eligible for reimbursement from the 911 Fund for the actual costs incurred by the CMRS providers in complying with the requirements of enhanced 911 service. Costs of complying include costs incurred for designing, upgrading, purchasing, leasing, programming, installing, testing, or maintaining all necessary data, hardware, and software required to provide service as well as the

recurring and nonrecurring costs of providing the service. To obtain reimbursement, a CMRS provider must comply with all of the following:

- (1) Invoices must be sworn.
- (2) All costs and expenses must be commercially reasonable.
- (3) All invoices for reimbursement must be related to compliance with the requirements of enhanced 911 service.
- (4) Prior approval must be obtained from the 911 Board for all invoices for payment of costs that exceed the lesser of:
 - a. One hundred percent (100%) of the eligible costs allowed under this section.
 - b. One hundred twenty-five percent (125%) of the service charges remitted to the 911 Board by the CMRS provider.

G.S. 62A-45 states that in order to seek reimbursement as a CMRS provider: 1) the provider must submit a sworn invoice; 2) that the costs must be commercially reasonable; and 3) the invoices must be related to the requirements for enhanced 911 services. The proposed Cost Recovery Plan does not require an invoice, because it is prospective, rather than a reimbursement of costs incurred.

Staff further notes that the only provision within the statute for prior approval is when the CMRS provider meets the requirements of (a)(4). However, these Rules are not limited to those exceptions, and instead appear to apply to all reimbursement requests, regardless of the cost.

Rule 09 NCAC 06C .0303(e) also limits all pre-approvals contained in the Plan to one year. After that time, a CMRS provider is required to submit the plan for re-approval. Again, this is all prospective approval for expenses that the statute contemplates as reimbursements.

Rule 09 NCAC 06C .0304 further states that only costs that are in the Cost Recovery Plan will be recoverable. Staff does not believe the Board has authority to abrogate the language of G.S. 62A-45(a)(1) through (3) to state this. Further, in Paragraph (a), the Board is requiring the retention of records to demonstrate the costs were incurred as invoiced. The statute only requires an invoice; staff is not aware of any authority for the Board to require additional documentation for reimbursement.

Therefore, staff recommends objection to Rules 09 NCAC 06C .0302, .0303, and .0304 for creating a prospective Cost Recovery Plan that exceeds the requirements of G.S. 62A-45.

§ 62A-45. Fund distribution to CMRS providers.

(a) Distribution. - CMRS providers are eligible for reimbursement from the 911 Fund for the actual costs incurred by the CMRS providers in complying with the requirements of enhanced 911 service. Costs of complying include costs incurred for designing, upgrading, purchasing, leasing, programming, installing, testing, or maintaining all necessary data, hardware, and software required to provide service as well as the recurring and nonrecurring costs of providing the service. To obtain reimbursement, a CMRS provider must comply with all of the following:

- (1) Invoices must be sworn.
- (2) All costs and expenses must be commercially reasonable.
- (3) All invoices for reimbursement must be related to compliance with the requirements of enhanced 911 service.
- (4) Prior approval must be obtained from the 911 Board for all invoices for payment of costs that exceed the lesser of:
 - a. One hundred percent (100%) of the eligible costs allowed under this section.
 - b. One hundred twenty-five percent (125%) of the service charges remitted to the 911 Board by the CMRS provider.

(b) Payment Carryforward. - If the total amount of invoices submitted to the 911 Board and approved for payment in a month exceeds the amount available from the 911 Fund for reimbursements to CMRS providers, the amount payable to each CMRS provider is reduced proportionately so that the amount paid does not exceed the amount available for payment. The balance of the payment is deferred to the following month. A deferred payment accrues interest at a rate equal to the rate earned by the 911 Fund until it is paid.

(c) Grant Reallocation. - If the amount of reimbursements to CMRS providers approved by the 911 Board for a fiscal year is less than the amount of funds allocated for reimbursements to CMRS providers for that fiscal year, the 911 Board may reallocate part of the excess amount to the PSAP Grant and Statewide 911 Projects Account established under G.S. 62A-47. The 911 Board may reallocate funds under this subsection only once each calendar year and may do so only within the three-month period that follows the end of the fiscal year. If the 911 Board reallocates more than a total of three million dollars (\$3,000,000) to the PSAP Grant and Statewide 911 Projects Account in a calendar year, it must consider reducing the amount of the service charge in G.S. 62A-44 to reflect more accurately the underlying costs of providing 911 system services.

The 911 Board must make the following findings before it reallocates funds to the PSAP Grant and Statewide 911 Projects Account:

- (1) There is a critical need for additional funding for PSAPs in rural or high-cost areas to ensure that enhanced 911 service is deployed throughout the State.

- (2) The reallocation will not impair cost recovery by CMRS providers.
- (3) The reallocation will not result in the insolvency of the 911 Fund. (2007-383, s. 1(a); 2010-158, s. 6.)

Information and Instructions for Making Technical Changes

This document is requesting technical changes from your agency for the rules pending Commission review.

If the technical corrections require you to rewrite and resubmit the rule, the rewritten rule is due on the date specified in this document.

In order to properly submit rewritten rules, please refer to the following rules in the NC Administrative Code:

- Rule 26 NCAC 02C .0108 – The Rule addresses general formatting.
- Rule 26 NCAC 02C .0404 – The Rule addresses changing the introductory statement.
- Rule 26 NCAC 02C .0405 – The Rule addresses properly formatting changes made after publication in the NC Register.

Note the following general instructions:

1. You must submit three hard copies of the rewritten rule and one copy via email. The electronic copy must be saved as the official rule name (XX NCAC XXXX) and sent to oah.rules@oah.nc.gov.
2. For rules longer than one page, insert a page number.
3. Use line numbers; if the rule spans more than one page, have the line numbers reset at one for each page.
4. Do not use track changes. Make all changes using manual strikethroughs, underlines and highlighting.
5. You cannot change just one part of a word. For example:
 - Wrong: “association”
 - Right: “~~association~~ Association”
6. Treat punctuation as part of a word. For example:
 - Wrong: “day;; and”
 - Right: “~~day,~~ day, and”
7. Formatting instructions and examples may be found at:
www.ncoah.com/rules/examples.html

If you have any questions regarding proper formatting of technical changes after reviewing the rules and examples, please contact the reviewing attorney.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C, All Rules Submitted

DEADLINE FOR RECEIPT: Friday, December 11, 2015

NOTE WELL: *This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.*

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

All of these Rules are adoptions. Therefore, you will not have any highlighting to reflect changes made to these Rules after publication. Please follow Rule 26 NCAC 02C .0405(b)(1) to reflect changes made after publication.

Further, please be sure next you are showing all changes made to if the Rules from the text that was published. There are changes that were made post-publication that are not reflected here. Some are pointed out in the text of the Request for Technical Change, but you need to be sure that you are comparing the current text to what was actually published for all Rules.

Please note, where you have adopted the Rule as a different Rule number, please state the deleted number, the new number and the name of the Rule as it currently is. Therefore, for Rule .0103, it's "09 NCAC ~~.0402~~ .0103 Definitions." I have noted this for many Rules in the Request for Technical Changes, but where I did not, please do still make this change.

Please confirm that you intend the Rules to become effective July 1, 2016.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0101

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Submission for Permanent Rule form, in box two, please put in the full name of the rule.

So that I understand, I take it the forms you are referring to will have the substantive requirements that are set forth in rule or law?

On line 9, to what policies are you referring?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0102

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In Paragraph (a), I am aware this information was published in other rules, so I do not think this is a substantial change. However, some you published a PO Box, not the physical address. Is this the mailing address of the Board, as well?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0103

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Throughout this Rule, do not underline and strike the same term.

On line 4, please state: "~~.0102~~ .0103 Definitions"

On lines 5-22, this is language from Rule .0103 that was published but not adopted. You do not need to show the "deletion" of this language. Just do not include it.

On line 25, who will assign those?

On line 28 up, please renumber this definition so that's in alphabetical order.

On line 30, this term is defined differently in G.S. 62A-40. Is the definition in rule intended to clarify the rules? And why is the term capitalized throughout, rather than "back-up"?

On line 31, this is not the correct way to remove "s" after PSAP.

On line 34, define or delete "normally" and "remote"

Page 2, lines 2 and 9, the highlighted language is not new language.

In Item (8), line 11, why are you spelling out "Public Safety Answering Point" rather than stating "PSAP" which you've already used?

On line 22, there is no need to insert the (12) you struck through.

In Item (12), lines 25-26, should it be PSAPs?

On line 26, the term "Emergency Response Unit" is capitalized; it is not on line 27. Please be consistent.

In Item (16), line 37, please insert commas after "decrees" and "rules"

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

Also in Item (16) to what “rules” are you referring? Regulations should address federal regulations. Does the term include rules by the 911 Board or other agencies? Is it needed here?

Are the Orders, regulations and decrees all found at the websites included in the Rule?

On Page 3, Item (17), define “commonly” and “usually”

Do you really want to delete Item (19)? Will it not help people reading your rules to know that “LEC” means “Local Exchange Carrier”?

In Item (19), line 13, define “normally”

In Item (20), does your regulated public know what “acknowledged” means?

In Items (22) and (23), you do not need to incorporate these standards again. And is the citation on line 23 “20 CFR 20.18” a typographical error – did you mean to refer to 47 CFR 20.18?

In former Item (aa), line 32, this is an agency decision, but do you not wish to keep the acknowledgment of the acronym that is used throughout the rules?

In Item (26), line 35, replace “which” with “that”

On Page 4, line 4, do not insert the (30).

In Item (28) line 8, define “routinely”

On line 9, this is not new language.

On lines 10, 12, 22, 25, 26, and 28, do not underline and strike the same language.

In Item (31), line 20, please define “substantially”

In Item (33), line 23, I believe “Service” should be capitalized. As it was published capitalized, you do not need to show that it was changed. Simply use a capital letter.

In Item (34), line 27, I believe “full-time” and “part-time” should be hyphenated.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0104

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Introductory Statement, please reflect that it was published as Paragraph (f) of the Rule

On line 4, please state "09 NCAC 06 ~~.0104~~ .0105"

In line 4, why is "Service Provider" capitalized?

On line 5, "Rules" should be capitalized.

You have deleted the "notice and hearing" provision. Isn't notice required under G.S. 62A-48?

§ 62A-48. Recovery of unauthorized use of funds.

The 911 Board must give written notice of violation to any voice communications service provider or PSAP found by the 911 Board to be using monies from the 911 Fund for purposes not authorized by this Article. Upon receipt of notice, the voice communications service provider or PSAP must cease making any unauthorized expenditures. The voice communications service provider or PSAP may petition the 911 Board for a hearing on the question of whether the expenditures were unauthorized, and the 911 Board must grant the request within a reasonable period of time. If, after the hearing, the 911 Board concludes the expenditures were in fact unauthorized, the 911 Board may require the voice communications service provider or PSAP to refund the monies improperly spent within 90 days. Money received under this section must be credited to the 911 Fund. If a voice communications service provider or PSAP does not cease making unauthorized expenditures or refuses to refund improperly spent money, the 911 Board must suspend funding to the provider or PSAP until corrective action is taken. (2007-383, s. 1(a).)

Also, G.S. 62A-48 only applies to PSAPs and Voice Communication Providers. What is the authority for this Rule to apply to CMRS?

In the History Note, please insert a semicolon after 62A-46.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0105

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Introductory Statement, please state that the Rule was published as Rule 09 NCAC .0104(a) through (e).

On line 4, please state "09 NCAC 06 ~~.0104~~ .0106"

In (a), line 7, (b), line 13, (c), line 18, and (d), line 21, "Rules" should be capitalized.

In (c), I understand the Board is reserving discretion to file a complaint. However, this Rule offers no guidance as to what factors will the Board consider. What will the Board use to determine this?

On line 16, replace "at" with "in"

On line 18, state "For the purposes of this Rule, a "reasonable solution" shall be..." (Assuming you are containing the definition to this Rule.)

On line 19, replace "thirty" with "30"

What is your authority for Paragraph (d)? G.S. 62A-48 does not apply to CMRS providers.

In Paragraph (e), line 24, to what rules are you referring? Rule .0106?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0106

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Introductory Statement, please state that the Rule was published as Rule 09 NCAC .0104(a) through (e).

On line 4, please state "09 NCAC 06 ~~.0104~~ .0106"

In (a), line 6, (b), line 11, (c), line 17, and (d), line 20, "Rules" needs to be capitalized.

In (a), line 8, please state "15"

In (b), should this language be the same as Paragraph (b) in Rule .0105?

In Paragraph (c), please note the inquiry about the Board's discretion for Rule .0105. In addition, please state make sure that "reasonable solution" is in quotation marks.

On line 17, please state "30"

In Paragraph (d), line 19, shouldn't "may" be "shall" per G.S. 62A-48?

On line 20, insert a comma after "rules"

In Paragraph (e), this is entirely new language that requires additional information and to be formatted as such. What action will the Board take? Investigation?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0107

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Introductory Statement, this Rule was published as Rule .0105.

On line 4, please state "09 NCAC 06C ~~.0105~~ .0107"

In (a), line 6, define "detailed"

On line 8, insert a comma after "reviews"

On line 9, is this formula being adopted as a Rule?

In Paragraph (c), what is your authority for CMRS? G.S. 62A-42(a)(5) relates only to PSAPs.

In Paragraph (c), I do not read G.S. 147-64.7 to require this.

§ 147-64.7. Authority.

(a) Access to Persons and Records. -

(1) The Auditor and the Auditor's authorized representatives shall have ready access to persons and may examine and copy all books, records, reports, vouchers, correspondence, files, personnel files, investments, and any other documentation of any State agency. The review of State tax returns shall be limited to matters of official business and the Auditor's report shall not violate the confidentiality provisions of tax laws. Notwithstanding confidentiality provisions of tax laws, the Auditor may use and disclose information related to overdue tax debts in support of the Auditor's statutory mission.

(2) The Auditor and the Auditor's duly authorized representatives shall have such access to persons, records, papers, reports, vouchers, correspondence, books, and any other documentation which is in the possession of any individual, private corporation, institution, association, board, or other organization which pertain to:

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

a. Amounts received pursuant to a grant or contract from the federal government, the State, or its political subdivisions.

b. Amounts received, disbursed, or otherwise handled on behalf of the federal government or the State. In order to determine that payments to providers of social and medical services are legal and proper, the providers of such services will give the Auditor, or the Auditor's authorized representatives, access to the records of recipients who receive such services.

(3) The Auditor shall, for the purpose of examination and audit authorized by this act, have the authority, and will be provided ready access, to examine and inspect all property, equipment, and facilities in the possession of any State agency or any individual, private corporation, institution, association, board, or other organization which were furnished or otherwise provided through grant, contract, or any other type of funding by the State of North Carolina, or the federal government.

(4) All contracts or grants entered into by State agencies or political subdivisions shall include, as a necessary part, a clause providing access as intended by this section.

(5) The Auditor and his authorized agents are authorized to examine all books and accounts of any individual, firm, or corporation only insofar as they relate to transactions with any agency of the State.

(b) Experts; Contracted Audits. -

(1) The Auditor may obtain the services of independent public accountants, qualified management consultants, or other professional persons and experts as he deems necessary or desirable to carry out the duties and functions assigned under the act.

(2) No State agency may enter into any contract for auditing services which may impact on the State's comprehensive annual financial report without consultation with, and the prior written approval of, the Auditor, except in instances where audits are called for by the Governor under G.S. 143C-2-1 and he shall so notify the Auditor. The Auditor shall prescribe policy and establish guidelines containing appropriate criteria for selection and use of independent public accountants, qualified management consultants, or other professional persons by State agencies and governing bodies to perform all or part of the audit function.

(c) Authority to Administer Oaths, Subpoena Witnesses and Records, and Take Depositions. -

(1) For the purposes of this Article the Auditor or his authorized representative shall have the power to subpoena witnesses, to take testimony under oath, to cause the deposition of witnesses (residing within or without the State) to be taken in a manner prescribed by law, and to assemble records and documents, by subpoena or otherwise. The subpoena power granted by this section may be exercised only at the specific written direction of the Auditor or his chief deputy.

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

(2) In case any person shall refuse to obey a subpoena, the Auditor shall invoke the aid of any North Carolina court within the jurisdiction of which the investigation is carried on or where such person may be, in requiring the attendance and testimony of witnesses and the production of books, papers, correspondence, memoranda, contracts, agreements, and other records. Such court may issue an order requiring such person to appear before the Auditor or officers designated by the Auditor, there to produce records, if so ordered, or to give testimony touching the matter under investigation or in question; and any failure to obey such order of the court may be punished by such court as a contempt thereof. (1983, c. 913, s. 2; 1999-188, s. 1; 2006-203, s. 116; 2007-484, s. 34.5.)

What portion of the statute are you referring to?

On lines 17 and 18, what are "generally accepted accounting principles"? Does your regulated public know?

On line 18, state "five" (See Rule 26 NCAC 02C .0108(9))

On line 20, delete or define "fully"

This Rule is missing a lot of language that was published. In Paragraph (c), line 20, you are eliminating a notice requirement for the inspection and that it will occur during normal business hours. Assuming this was an unintentional deletion, it needs to be restored.

On line 24, what is "without delay"?

In the History Note, please use semicolons to separate the authority, not commas.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0108

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0106~~ .0108"

On lines 5-6, will the Board now waive the rule of its own volition? There is no method for petition for waiver by an outside individual/ agency/ provider?

Why are you removing the ability of individuals to comment on waiver requests? Is this intentional? Are (d) and (i) still applicable, since you are no longer setting forth a procedure for petition or allowing public comment?

In Item (b), what do you mean by "modified"? Amended?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0109

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0107~~ .0109"

In (a), you are now restricting this to grievances under G.S. 62A-48? Are there processes for other grievances, or is the change to reinforce the requirement in (b) that this is for 911 funds?

Does this Rule set forth an appeal process from actions the Board takes under Rule .0106?

In (b), lines 9-10, do you need "Requests filed after the 30 calendar day period shall not be considered"?

The statement in (b)(5) does not follow where it is placed. I suggest you go back to the way the Rule was published, with the text all the way to the left margin.

In (c), is the intent that the Board will review the request sent under (b) to determine if it needs additional information? If so, I believe the Rule should state that.

In (c), line 23, how are the time limits established? Is the 60 days in the Rule? If so, state that. If not, how are they established?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0110

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (a), line 4, define "relevant"

On lines 5 and 6, the highlighted language was published. You do not need to show that it is a change.

In (b), is the purpose of this Paragraph to establish the times the Board will issue a declaratory ruling? If not, then when will the Board take this action (or decline to do so)?

In (b), line 10, insert a comma after "rule"?

In (c), you define "standard" but you only use it in Rule .0111(b)(4). Why do you need it here?

Also, G.S. 15B-4 speaks to declaratory rulings for rules, law, and orders. Why are you establishing a procedure for policies? What is the authority to do so?

What is the purpose of Paragraph (d)? Are you trying to establish the "person aggrieved" for standing to request the declaratory ruling?

In (d), line 16, "Rules" should be capitalized, as it was when published.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0111

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (b)(1), line 6, insert a comma after "address"

In (b)(2), line 7, insert a comma after "rule" and delete the "or" before "statute"

In (b)(4), delete or define "concise"

In (c), line 11, when may the Board ask for this information?

In (c)(1), line 12, I suggest stating "... authorities that support the interpretation..." And I assume that is if there are any?

In (c)(2) and (c)(3), what is the Board's authority to request these, especially in light of G.S. 150B-19.1?

End (c)(2), line 15, with a semicolon.

Please remove the extra line space on line 19.

Is (d) necessary? It recites Rule .0110.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0112

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Subparagraphs (a)(1) and (3) are very similar. Why do you need them both?

Isn't the circumstance in (a)(2) included in (a)(5)?

In (a)(4), what is "specificity"? And will the Board not request additional information under Rule .0111 to address this?

In (b), this is not the correct timeframe under G.S. 150B-4.

On line 25, since the Board "may" take this action, when will it not? Some guidance needs to be contained in this Rule.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0113

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

The name of the Rule is not subject to RRC review, so this is only a suggestion – wouldn't a better name be "Duration of a Declaratory Ruling"?

In Item (1), do you mean to include order?

In Item (2), when will this happen? When there's another petition that affects it, or just of their volition?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0114

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Just so I understand – these will not be on the website?

On line 5, does your regulated public know what “business hours” are?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0201

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Again, please make sure you are reflecting all changes made to the text from what was published, including capitalization and the movement of punctuation.

I recommend making the language on lines 6-7 (a), and then (a) and (b) (a)(1) and (a)(2). Then current (c) would become (d) and (d) would become (c).

On line 6, what exactly is required by this certification?

In (d), line 17, please state "The PSAP shall provide..."

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0202

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 6, I recommend making the language beginning "Eligible lease, purchase, and maintenance..." Paragraph (b).

Please underline (1), (2), etc. in current (a).

Are the requirements in (a)(3) and (4) to address database provisioning per G.S. 62A-46(c)(1)a? I thought it might be addressing, but that would not make sense under the definition of "addressing" in Rule .0103(1).

In current (b), I recommend inserting the first sentence into (a) after the first sentence there. It makes it clearer from the outset how the requests are sent in.

In Paragraph (b), line 23, will the Board be revising this Rule to publish the eligible standards? If not, then how does the Board have authority to set these requirements outside of rulemaking?

Please end (a)(1) through (6) and (c)(1) through (7) the same. Either make them a list, ending with semicolons, or use periods. Either way is fine, but please be consistent.

In (c)(2), do you believe this allowance for building and remodeling for if the expenditures are directly related to providing the user access for the PSAP comports with G.S. 62A-46(c)?

(c) Use of Funds. - A PSAP that receives a distribution from the 911 Fund may not use the amount received to pay for the lease or purchase of real estate, cosmetic remodeling of emergency dispatch centers, hiring or compensating telecommunicators, or the purchase of mobile communications vehicles, ambulances, fire engines, or other emergency vehicles.

In (c)(7), who determines that the equipment is "not necessary"? Is it the Board in determining whether the cost is ineligible for reimbursement?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0203

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Again, the name of the Rule is not subject to RRC review and this is just a suggestion, but it seems a better name would be "Effect of 911 Fund Distribution Terminations and Suspensions" since this is the effect of the termination or suspension, rather than how it will occur.

In Paragraph (c), line 9, "Rules" should be capitalized.

Also in Paragraph (c), lines 9-10, are the references to "standards, policies, and procedures" to reflect the language of G.S. 62A-46(e)(5)? If not, then what are these and where are they found?

In (d), line 12, is there a timeframe for the PSAPs to provide this notice to the Board?

In (d), line 12-13, you are deleting this language. However, that language stated that the distributions would be reallocated to the consolidated PSAP upon the Board's approval. Now what will happen to the funds? Will they go back into the fund for determination under the formula in G.S. 62A-46(a)(3)?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0204

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

When is this report due? The Rule no longer has a due date. Therefore, it appears the Board will accept a report whenever the PSAP wishes to send it. Is that the intent of removing the date certain from the Rule?

In (a), you deleted the opening line "Any PSAP receiving or requesting 911 Fund Distributions..." Is this because as a practical matter, all PSAPs do this?

On line 5 and elsewhere in the Rule, please do not underline and strike through the same language.

In (a), line 9, how will the Board determine what is necessary? And how will the PSAP know that information has been deemed necessary? Does the Board send notice?

In (b), line 10, please insert a comma after "expenditures"

In (c), line 16, please begin the sentence "After 60 days..."

In (d), what is the authority to require this?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0205

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Please amend the Submission for Permanent Rule form and Introductory Statement to reflect that portions of the Rule was published as .0208(a)(9) – (12) and .0209(d).

Please end (a)(1) and (2) with semicolons, not commas.

In (b), are the “component” plans the plans in (a)(1) through (3)? Is the term “component plan” known to your regulated public? If not, I recommend stating “The PSAP shall test the plans in Paragraph (a) and the CEMP...”

Also, on line 9, generally “at least” is not favored in rules, as rules set the minimum standard. Do you need to retain it here?

In the History Note, why are you citing to G.S. 62A-49?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0206

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Is the intent in the change of (a) to comply with G.S. 62A-46(e)(4a) and SL 2014-66?

(e) Compliance. - A PSAP, or the governing entity of a PSAP, must comply with all of the following in order to receive a distribution under this section:

(4a) A PSAP must have a plan and means for 911 call-taking in the event 911 calls cannot be received and processed in the primary PSAP. The plan must identify the alternative capability of taking the redirected 911 calls. This subdivision does not require a PSAP to construct an alternative facility to serve as a back-up PSAP.

SECTION 1.1. G.S. 62A-40 is amended by adding a new subdivision to read:

"(4a) Back-up PSAP. – The capability to operate as part of the 911 System and all other features of its associated primary PSAP. The term includes a back-up PSAP that receives 911 calls only when they are transferred from the primary PSAP or on an alternate routing basis when calls cannot be completed to the primary PSAP."

In (b), was there any notice that an annual testing would be required?

In (d), line 24, and (g), line 33, I believe "back-up plan" should be lowercase to be consistent with other language.

In (e), line 26, how can this be ensured?

In (f)(2), was there any notice published that this would be required in the CEMP?

In (g), define "continuous" on line 33.

On line 35, this should not be a note. (See Rule 26 NCAC 02C .0110). Part of this language closely resembles Paragraph (a) and can be moved up there.

On line 36, please insert a "the" between "entail" and "use"

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

On line 36, please replace “which” with “that”

On line 36, define “temporarily”

On Page 2, line 1, what is “appropriate”? Does your regulated public know?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0207

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (a)(2), line 10, define "complete"

Also on line 10, please insert a comma after "PSAP"

On line 11, what is the "responsible employee"? (Especially in light of the deletion of the term in (a)(1).)

In (a)(3), on line 21, what is "access controls"? Does the regulated public know? And should it be "controls" or "control"?

In (a)(5)(A), line 28, define "appropriate" Is this determined by the telecommunicator in his or her professional training and experience?

I think (a)(5)(A) should end with a period, because if the repair is made, that's the end, right? And then (a)(5)(B) is the contingency, and it could be written, "If the telecommunicator determines repair is not possible, isolate..."

On Page 2, I see that you took out (d) on Page 3, but it needs to be in order and here before (e).

In (b)(1), line 26, is this the 911 system for the state or for each PSAP?

Please end (c)(1)(A) and (B) with semicolons, not periods. And insert an "and" after (c)(1)(B).

On Page 4, Subparagraph (d)(1), line 28, does your regulated public know what you mean by "consistency and effectiveness"?

In (d)(2), does your regulated public know what is required in this analysis?

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

Please confirm that the cross-reference on line 32 to Rule .0215 is correct. And if it is, please state "Rule .0215 of this Section."

In the History Note, please separate the citations with semicolons.

Also in the History Note, what is the reference to G.S. 62A-46(3) meant to be, as this is not a correct citation?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0208

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Please reflect in the Introductory Statement that the Rule was published as .0207(c)

You do not need to include the struck though language for Paragraph (b) here. Since this Rule is "new" with other language, you only need to include the language you've chosen to adopt.

In (a), I take it the sufficiency of staff shall be determined by the PSAP?

On line 22, the term "911" is not new language – you published it with this.

In (c), line 31, "above" is new language.

In (d), line 34, does the PSAP create and provide them? I take it the answer is "yes" due to the language in Rule .0209?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0209

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In the Introductory Statement, please state this was published as .0207(d)

In (a), please go back to the way this was published. Begin the sentence "Ninety" but make all other numbers numerals.

In (a), line 8, the sentence said, "Compliance with this Paragraph." Please use that in striking the language.

In (b), line 19, should "it is" be "he or she is"? I assume that the intent is for the telecommunicator to be sure of the transfer, correct?

In (d)(1) on Page 2, line 10, this is not a complete sentence. Do you mean "The procedures shall specify..."?

In (d)(2), line 13, I take it your regulated public knows what "fail-over operation" means?

On line 14, please state either "Rule 09 NCAC 06C .0206" or "Rule .0206 of this Section"

In (d)(3), please note that if the RRC objects to Rule .0205, this statement cannot be included in the approved Rule.

In (d)(4), what are these? Does your regulated public know?

In (d)(6), what is this? I have not seen this plan mentioned before. Does your regulated public know what this is?

In (d)(9), lines 21-22, is this supposed to be one sentence? If not, what is the sentence on line 22 supposed to say?

In (d)(12), line 25, please do not underline and strike the same language

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0210

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0208~~ .0210 Public Safety Answering Point (PSAP) Facilities."

In (a), line 10, what is "times implemented"?

In (b) in a few places, you refer to "at least" and "minimum" As explained earlier, these phrases are generally not found in rules, as the rules set the minimum standards. However, I take it you need to retain these phrases in the Rule?

In (b)(1), line 15, please delete "of which"

Also on line 15, who determines whether this is adequate? The PSAP? Or is a practical matter determined by the electrician or installer?

In (b), line 18, why are you deleting "Primary Power Source"? Given the structure of the rest of the Rule, it would read better to retain it. If you wish to delete it, then consider amending (b)(2) to state "Primary power sources shall be..."

In (b)(2)(C), line 23, was "is" intended to be struck?

In (b)(3)(A), the additional language on lines 27-28 now requires a staffer to be available or on-duty at all times to operate the secondary power source. Was this intended to clarify the requirement set forth for primary power sources?

In (b)(4)(A), line 34, please state "two" as the term was published in the NC Register.

In (b)(5), line 7, who determines this? The PSAP? The Board?

In (b)(5)(A), please note that if the Commission objects to Rule .0205, this will impact this requirement in the Rule.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

In (b)(7), who are authorized personnel? The workers at the PSAP? The hired electricians?

In (b)(8) and (9), who will determine what is essential to the operation of the PSAP?

In (b)(10), what are the "State and federal safety regulations" you are referring to? Does your regulated public know? Also, I believe "federal" should be lowercase here.

On line 24, who determines sufficiency?

For (b)(10)(B)(i) through (iii), please note that Rule 26 NCAC 02C .0206(b) states that Rules can have a maximum of three subdivisions. If this Rule is approved, you will need a waiver from the Codifier to keep this subdivision.

In (b)(10)(C), I take it as a practical matter, the sufficiency is determined by electricity?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0211

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0209~~ .0211 Telephones"

In (a)(1)(A), line 10, I take it you need to retain "minimum" here? And "at least" on line 12?

In (a)(1)(A), what does the second sentence mean? Isn't this addressed by the first sentence?

In (a)(1)(B) and (C), I take it the PSAP determines this?

In (a)(3), I assume the PSAP will be monitoring these for integrity?

In (a)(4), do you mean to change "hunt" to "route" like you did for (a)(3), line 21?

In (a)(5), line 25, I believe the correct cross-reference is "Rule .0209(b) of this Section"

In (a)(5), you are now requiring call data to be transferred at all times, rather than "when possible." Is this due to technological advances?

On line 27, I do not see that you published "data" here

On line 29, this was not published as (A). Please delete it as a solid block of text in the Subparagraph.

In (a)(6), line 32, did you mean to delete "emergency" as you have elsewhere?

In (b)(3), Page 2, line 4, the "%" was published as "percent" Please state that instead.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0212

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0210~~ .0212 Dispatching Systems"

In (b), I take it your regulated public knows what is required for "redundant means"?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0213

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0214~~ .0213 Computer Aided Dispatching (CAD) Systems"

In (a)(1), line 13, later analysis by whom? The PSAP? The Board?

In (a)(2), line 17, who will determine whether this is needed?

In (a)(3)(D) and (E), lines 25 and 28, "systems" should be lowercase to be consistent with the rest of the Rule.

In (a)(3)(E), line 30, define "continually"

In (a)(4), line 34, define "continuously"

Also in (a)(4), I take it your regulated public knows what "time-outs" means?

In (a)(4), Page 2, line 2, what are "appropriate" messages? Those that detail the fault or failure in the system?

On line 5, the log must be maintained for how long?

Please delete the blank line space on line 8.

In (b), line 10, the PSAPs must maintain a secondary what? I think you meant to retain "CAD method" or insert something else here.

In (e), lines 28 - 29, isn't the language "and between the CAD system and other systems" redundant with what was on lines 27-28?

In (f), Page 3, line 8, since you've already stated that CAD is Computer Aided Dispatch, why not just state "CAD configurations shall include:"

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

So that I understand, the CAD shall: 1) recommend units; 2) detect and report errors; and 3) include power-fail recovery.

If so, then why not state in (f)(1) "Recommending... calls by:" And then end (f)(1)(A) and (B) with semicolons and ending (f)(2) with an "and" (assuming you mean all three). Then begin (f)(1)(C) with "having the ability..."

Isn't (f)(2) addressed in (a)(4) on Page 2?

So that I understand – (f)(3) is not addressed in (a)(3)?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0214

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0212~~ .0214."

In (a), on line 8, why are you citing to Rule .0208?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0215

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0213~~ .0215"

In (a), line 7, do you need to retain "at least" here?

Also on line 7, you did not publish (5). Just state "five" as you published.

In (b), line 8, what are "acceptance tests"? I take it your regulated public knows?

So that I am clear, (b)(2) refers to the manuals required by Rule .0214?

In (c), line 15, please be sure to correctly show changes and underline new language.

In (d), what is the difference between call and dispatch "statistics" (line 22), "performance measurement" (line 23) and "signals" (line 29)?

On line 22, please do not underline and strike the same language.

In (e)(2), this was published as one Subparagraph and needs to remain as one. Please go back to the language as published for formatting purposes.

In (e)(2), line 36, what is meant by "affiliation"?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0216

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (a), line 5, and (b), line 7, "Rules" should be capitalized.

When will this review take place? In response to a complaint, on a schedule, or whenever the Board determines to do it? Will there be notice?

So that I understand, this assessment will only occur for ensuring compliance with the rules in Section .0200?

What will the report include? Deficiencies and the remedy? If so, why not combine (b) and (c)?

In the History Note, please correct the citation to "62A-46(a)(4); 62A-46(a)(5)"

In the History Note, why are you citing to G.S. 62A-42(a)(5)? That part of the statute states:

§ 62A-42. Powers and duties of the 911 Board.

(a) Duties. - The 911 Board has the following powers and duties:

(5) To investigate the revenues and expenditures associated with the operation of a PSAP to ensure compliance with restrictions on the use of amounts distributed from the 911 Fund.

Is this to address the financial report required by Rule .0204?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0301

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (a), line 6, why are you spelling out "commercial mobile radio service" rather than stating "CMRS"? Also, consider stating, "CMRS service providers or resellers of any CMRS that receive authority..."

Just so I understand, who gives the authority referred to here? The Utilities Commission? Someone other than the 911 Board?

In (a), line 7, and (c), lines 18 and 19, you published "30" Therefore, you are not making any changes by saying "30" here.

On line 7, please state "shall Register with the Board within..."

On line 8, is it 30 days from whichever is later?

In (b)(1) and (3), please begin the phrases with "The"

In Paragraph (c), line 18, replace "above-listed information" with "information required by Paragraph (b) of this Rule"

On line 19, you published the sentence with "providing notice"

In the History Note, to what in G.S. 62A-42 are you citing? Subsection (a)(9)?

Why are you citing to G.S. 62A-45? Because the CMRS must register to be eligible for the fund distribution?

To what CFRs within 47 are you referring? Did you mean to cite to the FCC Order instead?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0302

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (a), line 5, what is the "detailed cost recovery plan"? Is it the "Cost Recovery Plan" in (b), line 15? If so, why isn't it called the same thing? Is this the same as the "implementation plan" in (a)(1), line 9? Is the "Plan" in (a)(2) the same thing? Please be consistent with phrasing and capitalization if you are referring to the same thing.

In (a), lines 6-7, do you need to retain "To provide the Board... decision,"?

In (a)(1), the changes on line 9 and 10 are not changes to the published language in the Register. Please use what you published in the Register, (including saying "Paragraph (b) of this Rule") and do not show it as changed.

On line 6, I believe you deleted the phrase "Confidential information shall not be publicly disclosed." because you were relying upon G.S. 62A-52. Do you need to retain the "excluding confidential information" language in (a)(2), line 12?

In (b)(1), I take it your regulated public is familiar with the terms "SS7 solutions, LEC solution, and third party service bureau?"

In (b)(3) and (4), please capitalize "State" on line 22 and 25.

In (c), Page 2, line 1, please revert to the published language and state "15"

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0303

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

Please capitalize the name of the Rule on line 3.

Please insert page numbers.

Throughout this Rule, should "cost recovery plan" be capitalized?

In (a), do you mean "shall" instead of "may"? If not, then won't the Board do this?

What is the name of this committee? In (a), it's "committee"; in (b)(1), it's "Cost Recovery committee"; and in (e), it's "Cost Recovery subcommittee." Assuming this is the same thing, please call it the same term. (Please also note (b)(3), lines 14 and 17.)

In (b), line 5, should "Chairperson" be capitalized?

In (b)(1), will the Board be creating and revising the list in rule? If not, then what is your authority to do this outside of rulemaking?

In (b)(3), line 15, I recommend stating "If the recommendation is to reject the plan, ..."

In (c), given the deletions to Rule .0302, do you need to retain the language on lines 20-21 regarding confidential information?

In (c), line 23, you published "five" and please revert to that. In addition, please change "working" to "business"

In (c), line 24, will the documented reasons be in writing? Should the language here parallel the language in (b)(3)?

In (e), Page 2, line 5, since the Board "may" require this, when will it do so? In response to a complaint?

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

On line 7, when will the Board or committee require this? What will be factors in this decision?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0304

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In this Rule, please be sure to show all changes made after publication, including making capitalized terms lower case.

In (a), line 6, what is the "approved rate per subscriber... count"? I note you are not adopting the language in Rule .0303(d)(1), so what is this? How does your regulated public know?

On line 8, I take it your regulated public knows what "true up" means?

On line 8, how long must the records be retained? And what is the authority to require this, when the statute only requires submission of invoices?

On line 10, define "reasonable"

In (b), line 12, what is an "Enhanced 911 solution"?

On line 13, here you refer to the "Board Chair" and in Rule .0303(b), it was "chairperson." Which is correct? Please be consistent with the term.

On line 15, please capitalize "Board"

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0305

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0306~~ .0305 Remittance of Service Charges"

In (b), are the transaction processing requirements set by someone other than the Board (i.e. a financial institution)? And your regulated public will know it?

So that I am clear, you intend to exclude prepaid wireless providers from this Rule, correct? Those providers are addressed by Rule .0306 of the Section?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0306

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0307~~ .0306 Prepaid Wireless Service"

Do you need (a)? Isn't the law clear that the Department of Revenue will remit the funds to the 911 Fund?

In (b), you are excluding the sellers from reimbursement for CMRS providers. Is this because the provider is not a CMRS? And because it shouldn't be incurring reimbursable costs under G.S. 62A-45?

In (c), line 17, state "Rules .0109 through .0114 of this Chapter" and please note, if the Commission objects to Rules .0111 through .0114, this will be impacted.

Also, I assume the language in Paragraph (c) is because the 911 Board would not be the proper authority, and DOR will be?

In (d), when you refer to "non-public information" are you contemplating G.S. 62A-51?

In the History Note, why are you citing to G.S. 62A-44 here? Why not in other Rules?

Please cite to G.S. 62A-52 in the History Note.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0401

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

My reading of G.S. 62A-47 says that the Board is required to give grants to rural and high cost PSAPs and funding projects for statewide benefits. However, the Rule makes it sound as if the Board will advertise the use of grants for specific purposes. How is this comporting with the statute?

In (a), the Board doesn't establish "Grant Accounts" – G.S. 62A-47(a) established this. Do you mean when there are funds available, it will be advertised? Are you referring to the notices of availability required by G.S. 62A-47(c)? If so, please state that.

On line 6, please give a cross-reference to Rule .0101 or .0102, both of which contain your website address.

In (a) and (b), you are allowing PSAPs or governing entities to apply, but G.S. 62A-47(b) states that PSAPs may apply. How will this work with governing entities applying instead of the PSAP?

In (c), what are the contents of the application? Are they set forth in another Rule or law?

So that I am clear – the applicant can get the application from the Board's website or from the physical office?

In (c), line 10, replace "which" with "that"

In (d), when will the Board exercise this discretion? When the funds are available and the application satisfies the statute? Are these the only times?

On line 17, why is "Grant" capitalized?

I assume the purpose of Paragraph (e) is to ensure compliance with G.S. 62A-47(b)(1) and (2)?

Amanda J. Reeder
Commission Counsel

Date submitted to agency: November 30, 2015

In (e), line 20, please capitalize "State"

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0402

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

What is the purpose of (a)? If you need to retain it, I believe that it can be simplified and combined. (a)(2) substantially repeats (a)(1).

On line 7, should "be" be "meets"?

In (a)(2), line 8, do you mean "Section" or do you mean "Rule"? I think you mean Rule.

In (a)(2), if you wish to keep the title "Grants for Construction" does it need to be updated to reflect renovations?

In (b)(2), I take it this is to ensure that if the PSAP shares a building, it uses the funds only for the PSAP?

In (b)(5), line 21, who determines if the equipment is essential? The PSAP?

In (c)(3), what are "notification appliances"?

In (d)(2), isn't this requirement addressed by Rule 06C .0209(a)(10)?

In (d)(3), please ensure you are making changes to the language as it was published in the NC Register.

Also in (d)(3), Page 2, line 1, please define "continuous"

In (d)(5), I assume you need to retain "minimum" here?

In (d)(5)(B), please incorporate this standard by reference as set forth in G.S. 150B-21.6. I found the standard at this website: <http://ulstandards.ul.com/standard/?id=752>, and you may wish to use it in the Rule.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

Please combine (d)(6) and (7). You could state (d)(6) and then “Alternatively, unauthorized vehicles...”

In (e)(2), will this not be addressed by the requirement for a backup power source in Rule 06C .0210(b)?

In (e)(3), who will determine if this is sufficient? The PSAP?

In (h), Page 3, line 12, I take it your regulated public knows how to protect the cables and wires?

In (i)(1) and (3), lines 15 and 18, please insert “Wiring at” at the beginning of the sentence.

In (i)(4)(B), accessible to whom?

In (j)(1), line 26, accessible to whom?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0403

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

In (b), what will be the determination because of the grant application? That the project cannot be completed in one year?

In (c), I take it you are including a reference to the specific laws within the The Local Government Budget and Fiscal Control Act due to the definition of "public authority" within G.S. 159-7 and the requirements of G.S. 62A-46?

§ 62A-46. Fund distribution to PSAPs.

(e) Compliance. - A PSAP, or the governing entity of a PSAP, must comply with all of the following in order to receive a distribution under this section:

(3) A PSAP must be included in its governing entity's annual audit required under the Local Government Budget and Fiscal Control Act. The Local Government Commission must provide a copy of each audit of a local government entity with a participating PSAP to the 911 Board.

In the History Note, should the reference to G.S. 143-6-22 and 23 be deleted?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Amanda J. Reeder
Commission Counsel
Date submitted to agency: November 30, 2015

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0404

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0405~~ .0404 Grant Fund"

You do not need to show the language on lines 5-7. The agency decided to not adopt the Rule published as Rule .0404, so it doesn't need to be part of it.

In (a), line 8, who will deposit the funds? The grantee or the Board?

On line 8, please do not underline and strike the same language.

On line 11, should "a" after "unless" be "the"?

In (b), line 15, what is meant by "pro-rata" basis? The amount due back because of depreciation? Or is this the repayment term?

In the History Note, please correct the year of the effective date.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

REQUEST FOR TECHNICAL CHANGE

AGENCY: 911 Board

RULE CITATION: 09 NCAC 06C .0405

DEADLINE FOR RECEIPT: Friday, December 11, 2015

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made:

On line 4, please state "09 NCAC 06C ~~.0406~~ .0405"

In (b), why is "Grant Agreement" capitalized? It is not in Rule .0403.

In (b), why not just state "... reports are due 15 days after September 30, December 31..."?

In the History Note, should the reference to G.S. 143-6-22 and 23 be deleted?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Approval of 2016 Goals

- a) Committee Appointments
(vote required)

Richard Taylor
Jason Barbour

2016

911 Board Committees

911 Funding Committee-~~Standing~~

*Jason Barbour - Chair
*Dave Bone – vice chair
*Andrew Grant
*Len Hagaman
*Laura Sykora
Randy Beeman (Cumberland Co 911)
Del Hall (Stokes Co 911)
Tonya Pearce (Durham 911)
Wesley Reid (Guilford Metro 911)
Stephanie Wiseman (Mitchell Co 911)
*(Secondary PSAP Funding subcommittee
Of Funding Committee)*
Tom Adkins (Hickory Police Chief)
Mike Yaniero (Jacksonville Police Chief)

Grant Committee-~~Standing~~

*Darryl Bottoms
*Jeff Shipp
*
*Rick Isherwood - Chair
*Slayton Stewart

911 Standards Committee

*Len Hageman – Vice Chair
*Dinah Jeffries
*Jimmy Stewart
*Laura Sykora – Chair
*
Rodney Cates (Carteret Co 911)
Marty Cooke (Brunswick Co Commissioner)
Perry Davis (Cleveland Co Emergency Mgmt)
Greg Foster (Alexander Co 911)
Judy Jenkins (Cornelius PD)
Robert Merchant (Pineville Police Chief)
Dominick Nutter (Raleigh-Wake 911)
Christy Shearin (Franklin Co 911)

Jim Soukup (Durham 911)
*Candy Strezinski (Burke Co Emergency
Communications)*
*Donna Wright (Richmond Co Emergency
Management)*
*Terry Young (NC Office of State Fire
Marshall)*
Brandon Zuidema (Garner Police Chief)

(Standards Enforcement Committee)

Jeff Dulin (Charlotte Fire Dept)
Greg Foster (Alexander Co 911(EMS))
Judy Jenkins (Cornelius PD (NENA))
Robert Merchant (Pineville Police Chief)
Carson Smith (Sheriff, Pender Co)
Jim Soukup (Durham 911 (APCO))

NG-911 Committee

*Jason Barbour
*Eric Cramer
*Rick Edwards – Vice Chair
*Jeff Shipp - Chair
*

Terry Bledsoe (Catawba Co IT)
Randy Gullledge (Anson County IT)
Greg Hauser (Charlotte Fire)
Bence Hoyle (Cornelius Police Chief)
Chris Koltyk (City of Jacksonville IT)
Glenn Knox (NC FirstNet)
Allan Sadowski (NC FirstNet)
Joe Sewash (CGIA)
Frank Thomason (Rowan County EM)

911 Board Education Committee

*Ninnette Bowman
*Jeff Shipp
*Jimmy Stewart - Chair

*Laura Sykora

Judy Jenkins (Cornelius PD)

Heather Joyner (Halifax Co)

Lora Nock (Dare Co Communications)

Brian Short (Vance-Henderson)

Rick Thomas (Apex PD)

(Education Training Sub-Committee)

Dinah Jeffries – Board Member

Judy Jenkins (Cornelius PD)

Crystal McDuffie (APCO)

Lora Nock – Chair (Dare Co)

Tonya Pearce (Durham 911)

*Donna Wright (Richmond Co Emergency
Management)*

Draft Letter Regarding Back Up PSAP

Richard Taylor

(vote required)

In 2014 the NC Legislature passed House Bill 797 that stated **"A PSAP must have a plan and means to serve as a back-up PSAP and must maintain the plan and means for 911 call taking in the event 911 calls cannot be received and processed in the primary PSAP."** It gave PSAPs until July 1, 2016 to submit a back-up plan to the 911 Board, receive approval, and implement the plan.

The 911 Board ~~would like to~~ remind^s you of House Bill 512 passed this year. It states that you may receive an extension to July 1, 2017 to implement a backup plan if by July 1, 2016 you have submitted a backup plan to the 911 Board and are preparing to put it into effect. As of this date no back up plan has been submitted.

SECTION 1. G.S. 62A-46(e)(4a) reads as rewritten:

"(4a) A By July 1, 2016, a PSAP must have a plan and means for 911 call-taking in the event 911 calls cannot be received and processed in the primary PSAP. If a PSAP has made substantial progress toward implementation of the plan and means, the 911 Board may grant the PSAP an extension until July 1, 2017, to complete implementation of the plan and means. The plan must identify the alternative capability of taking the redirected 911 calls. This subdivision does not require a PSAP to construct an alternative facility to serve as a back-up PSAP."

~~Please take this legislative mandate seriously.~~ The 911 Board would like to avoid § 62A-46. Fund distribution to PSAPs which states:

"The Board may reduce, suspend, or terminate distributions under this subsection if a PSAP does not comply with the requirements of this Article."

The 911 Board Staff stand ready to assist you in preparing a back-up plan.
^s

Response date by January 15

Other Items

Adjourn

Next 911 Board Meeting

**January 29, 2016
911 State Office
3514A Bush Street
Raleigh, NC**

NG911-GIS Subcommittee

Tuesday, December 15, 2015

2:30 pm

Banner Elk Room

3514A Bush Street

Raleigh, NC

Standards Committee

Thursday, December 17, 2015

10:00 am

Banner Elk Room

3514A Bush Street

Raleigh, NC