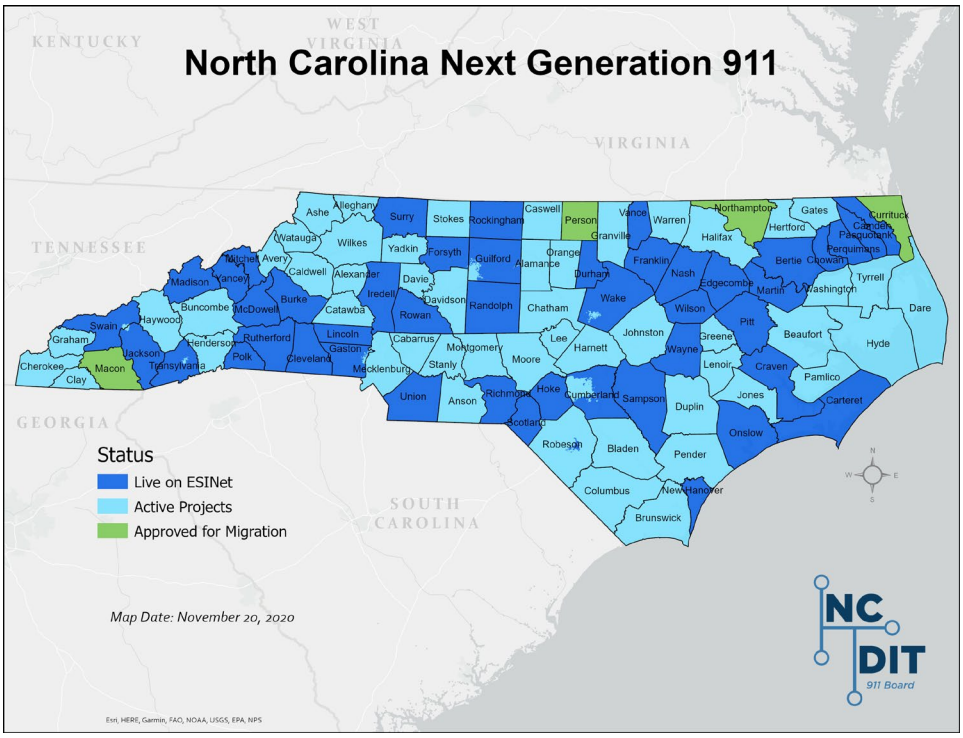
NORTH CAROLINA 911 BOARD MEETING
Friday, December 4, 2020
Via Simultaneous Communication
Join Microsoft Team Meeting
984-204-1487 Conference ID: 305594841#
9:00 AM – 12:30 PM



Call to Order

Donna Wright

Roll Call

Pokey Harris/Stephanie Conner

Tab 1

Vice Chair's Opening Remarks

Donna Wright

Tab 2
Ethics Awarness/Conflict of Interest Statement
Donna Wright

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.

Tab 3
Public Comment
Donna Wright

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.

Tab 4

Recognition of Former Board Members

Pokey Harris

Ms. Amy Ward
(June 2017 – February 2020)

Ms. Stacey Gonyer
(July 2019 – October 2020)

Tab 5

Consent Agenda

Pokey Harris

(Consent Roll Call Vote Required)

Tab 5 a)

Minutes of Meeting
October 23, 2020

North Carolina 911 Board Meeting
MINUTES
Via Simultaneous Communication
Microsoft Teams Meeting
Friday, October 23, 2020
10:00 AM – 12:00 PM

Call to Order - Chairman Boyette called the meeting to order at 10:02 AM and asked Ms. Harris to proceed with the roll call.

Roll Call - Ms. Harris advised Regional Coordinator Conner would call the roll of attendees and administer any roll call votes during the meeting. She would also monitor the chat for the online meeting. Regional Coordinator Newberry would serve as technical facilitator for today's virtual meeting.

NORTH CAROLINA 911 BOARD MEETING
ROLL CALL
Friday, October 23, 2020
Via Simultaneous Communication with Microsoft Teams Meeting
10:00 AM – 12:00 PM

NC 911 BOARD MEMBERS	IN PERSON	VIA MS TEAMS/ PHONE	NOT PRESENT
David Bone, County Manager, Martin County (NCACC)	N/A AT THIS TIME	X	
Secretary Eric Boyette, 911 Board Chair (NC DOT)		X	
Greg Coltrain, VP Business Development, Wilkes Communication/River Street (LEC)		X	
Brian Drew, CenturyLink/Lumen (LEC)		X	
Bo Ferguson, Deputy City Manager, City of Durham (NCLM)		X	
Greg Foster, Director of Communications, Alexander County (NC Association of Rescue EMS)		X	
Chuck Greene, Director of Government Affairs, AT&T (LEC)		X	
J.D. Hartman, Sheriff, Davie County (NC Sheriff's Association)		X	
Jeff Ledford, Chief, City of Shelby Police Department (NCACP)			X
Buddy Martinette, Fire Chief, City of Wilmington (NCSFA)		X	
John Moore, Regional Manager, Government and Education Sales, Spectrum Communications (VoIP)			X
Melanie Neal, Director, Guilford-Metro 911 (APCO)		X	
Jude O'Sullivan, Chief Customer Officer, Carolina West (CMRS)		X	
Jeff Shipp, Vice President of Operations, Star Telephone (LEC)		X	
Earl Struble, Sr. Manager Verizon Response, Verizon Wireless (CMRS)		X	
Donna Wright, Director (Retired), Richmond CO Emergency Services (NENA)		X	
NC 911 BOARD STAFF			
Rick Blumer, NMAC Technician	N/A AT THIS TIME		X
Richard Bradford, (DOJ) NC 911 Board Legal Council		X	
Chris Carlin, NMAC Technician		X	
Stephanie Conner, Western Regional Coordinator		X	
James Covington, NMAC Technician		X	
Kristen Falco, Financial Review Specialist		X	
Tina Gardner, North Central Regional Coordinator		X	
Saman Gharib, NMAC Technician			X
Pokey Harris, Executive Director		X	
Jesus Lopez, (NC DIT) NC 911 Board PM			X
Gerry Means, Network Engineer/NG 911 Project Manager		X	
Stanley Meeks, NMAC Manager		X	
David Newberry, South Central Regional Coordinator		X	
Marsha Tapler, Financial Analyst		X	
Angie Turbeville, Eastern Regional Coordinator		X	

NORTH CAROLINA 911 BOARD MEETING
ROLL CALL
Friday October 23, 2020
Via Simultaneous Communication with Microsoft Teams Meeting
10:00 AM – 12:00 PM

GUESTS	IN PERSON	VIA MS TEAMS/PHONE	ORGANIZATION
Josh Briggs	N/A AT THIS TIME	X	AT&T
Allen Cress		X	Rowan County
Jason Compton		X	Wake County/NC NENA
Darren (No Last Name Identified)		X	Did Not Identify
Samantha Dutch		X	Scotland County
Marie Evitt		X	Did Not Identify
Jackie Ezell		X	Pender County
Ellis Frazier		X	High Point 911
Brian Greer		X	Ashe County
Grayson Gusa		X	Davie County/NC APCO
Del Hall		X	Stokes County
Henry Hedgepath		X	Halifax County
Johnny Horn		X	Charlotte Fire
Emily Hughes		X	NC DIT
Stephanie Isbell		X	City of Concord Police
Jen Johnson		X	NC DIT
Phillip Loftis		X	Martin County
Christie McCorquodale		X	Randolph County
Stori McIntyre		X	Cleveland County
Asha Mede		X	End to End Computing
Esteve Mede		X	End to End Computing
Mark Newsome		X	NC DIT, CFO
Joanna Prentice		X	Charlotte-Mecklenburg
Diane Raynor		X	Harnett County
Mike Reitz		X	Chatham County
Corrine Rust		X	Charlotte Medic
Shane Sligh		X	Scotland County
Kendra Smith		X	Harnett County
Amy Snider		X	Watauga County
Chris Spainhour		X	Surry County
Jason Steward		X	Martin County
Sarah Templeton		X	Town of Holly Springs
Maria Thompson		X	NC DIT – State Chief Risk Officer
Kayla Trivette		X	Town of Boone
Jennifer Velez		X	ECaTS
Shawn Vaughns		X	End to End Computing

PHONE NUMBERS		VIA MS TEAMS/PHONE	ORGANIZATION
984-227-7218 – Josh Briggs	N/A AT THIS TIME	X	AT&T
704-479-2211 – Did Not Identify		X	Did Not Identify
910-443-4991 – Buddy Martinette		X	City of Wilmington Fire
704-943-6242 – Corrine Rust		X	Charlotte Medic
704-526-7789 – Johnny Horn		X	Charlotte Fire
910-331-5004 – Donna Wright		X	Richmond CO/NENA
704-432-6296 – Joanna Prentice		X	Charlotte-Mecklenburg
561-310-0866 – Jennifer Velez		X	ECaTS
336-469-7452 – Did Not Identify		X	Did Not Identify

1. Chair's Opening Remarks – Chairman Boyette thanked everyone for attending, and thanked the Board, staff, first responders and telecommunicators for their hard work and for continuing to accomplish their goals during the pandemic. He then proceeded with the agenda.

2. Ethics Awareness/Conflict of Interest Statement – Chairman Boyette read the Ethics Awareness/Conflict of Interest statement as published in the agenda.

3. Public Comment – Chairman Boyette read the invitation for public comment as published in the agenda. No one had preregistered to speak, and no one virtually present had comments.

4. Ceremonial Swearing-In of Brian Drew – Ms. Harris welcomed Brian Drew to the Board, who stepped in to fill the seat Amy Ward recently vacated. She mentioned he had been officially sworn in a few weeks ago. He has worked for CenturyLink for over 27 years in various roles including Business Service Manager

where he worked with techs who managed local 911 offices, and as Implementation Manager helping customers manage their 911 services in a hosted environment. His current title is Manager of Customer Design and Implementation. Mr. Drew was then sworn in by Ms. Harris.

5. Recognition of the Third Graduating Class, PSAP Executive Management Program – Chairman Boyette and Ms. Harris joined Ms. Gardner in recognizing the third graduating class of the PSAP Executive Management Program, honoring them with a certificate of completion for the course. This class includes the following individuals:

Stephanie	**Allen**	**Onslow County 911**
Kristin	**Byrd**	**Holly Springs Police Department**
Lareina	**Carpenter**	**Kings Mountain Police Department**
Scottie	**Carpenter**	**Lincoln County Communications**
Roy	**Davis**	**Roanoke County Emergency Communications (VA)**
Samantha	**Dutch**	**Scotland County Emergency Communications**
Jackie	**Ezzell**	**Pender County Sheriff's Office**
Deeana	**Fairley**	**Harnett County Sheriff's Office**
Bradley	**Fraser**	**Shelby Police Department**
Harlee	**Gentry**	**Caswell County Communications**
Joseph	**Gregory**	**Rowan County Communications**
Melissa	**Hand**	**Bertie County Sheriff**
David	**Hill**	**Appalachian State Police Department**
Stephanie	**Isbell**	**City of Concord Communications**
Bethany	**Ledwell**	**City of Concord Communications**
Jonathan	**Lemmond**	**Scotland County Emergency Services**
Adam	**Lentz**	**Watauga County Emergency Services**
Christie	**McCorquodale**	**Randolph County Emergency Services**
Jaclyn	**McElwee**	**Halifax County 911 Communications**
Miranda	**Miller**	**Kings Mountain Police Department**
Joanna	**Prentice**	**Charlotte-Mecklenburg Police**
Michael	**Reitz**	**Chatham County Communications**
Amber	**Rigby**	**Holly Springs Police Department**
Sharon	**Rowell**	**Pender County Sheriff's Office**
Kendra	**Smith**	**Harnett County Sheriff's Office**
Amy	**Snider**	**Watauga County Emergency Services**
Christopher	**Spainhour**	**Surry County 911**
James	**Stanberry**	**Holly Springs Police Department**
Darren	**Steadman**	**Fort Bragg 911**
Kayla	**Trivette**	**Watauga County Emergency Services**
Riley	**Wallace**	**Kings Mountain Police Department**

6. Telecommunicator Recognition – Phillip Loftus, Shift Leader, Martin County Regional Communications – On May 25, 2020 at approximately 9:30 PM, Phillip Loftus received a 911 call from a whispering, panicked subject who advised there was a man with a rifle in the kitchen of her apartment in the Robersonville Community of Martin County. Shift Leader Loftus determined that there were seven people in the apartment when an argument broke out. The subject left and returned with a rifle. The suspect advised everyone inside they were not allowed to leave. The caller was able to slip away to her bedroom, close the door and make the call to 911. Phillip Loftus and his shift partner telecommunicator, Tobin Wright were the only two working inside of the PSAP that night. Shift Leader Loftus kept the caller on the phone to capture information as it developed, checking in every minute or so to assure the caller

that help was on the way. Phillip Loftus engaged active listening skills to relay information to responders about the situation inside of the apartment. He kept the caller on the phone for approximately 30 minutes while responders approached the scene and developed a plan. The call ended when the subject noticed police and decided to release the hostages. He was arrested without incident. Phillip Loftus' active listening skills provided valuable information to law enforcement and kept the caller calm during this high stress and lengthy call. On behalf of the Board, Chairman Boyette thanked him for his hard work and dedication to the citizens in his community. Mr. Loftus was presented with a plaque, which was followed by a round of applause.

7. **Consent Agenda –** Chairman Boyette asked Ms. Harris to proceed with the consent agenda.
   - **a)** Minutes of Previous Meeting – September 25, 2020
   - **b)** NG 911 Reserve Fund
     - September 2020 Account Balance $81,257,153
     - September 2020 Disbursement $1[illegible],925
   - **c)** CMRS Account
     - September 2020 Account Balance $5,581,880
     - September 2020 Disbursement [illegible]
   - **d)** PSAP Account
     - September 2020 Account Balance $825,536
     - September 2020 Disbursement $3,993,019
   - **e)** PSAP Grant/Statewide Projects Account
     - September 2020 Account Balance $13,990,765
     - Grant/Projects Funds Committed $22,499,407
   - **f)** Grant Project Updates per Reports

Chairman Boyette entertained a motion to accept the consent agenda as presented. Stephanie Conner conducted the roll-call consent agenda vote. All attending Board members voted, and the motion carried unanimously. *Roster of roll call votes for all action items for this meeting included below as part of these minutes.*

8. **Executive Director Report**
   - **a)** 911 Board Appointments Status – Ms. Harris is awaiting notification from T-Mobile regarding the candidate selected to fill the vacant CMRS seat on the Board.
   - **b)** COVID-19 Update – Staff continues to telework, which will continue through at least the end of this year, then investigate post-COVID planning. This item will be dropped from the agenda, however Regional Coordinators will continue their outreach work with PSAPs on an as-needed basis.
   - **c)** Staffing Update
     - i. Introduction of new FRS (10/30 Start Date), Sarah Templeton – Ms. Harris was happy to announce that Sarah Templeton will start work on October 30th as the new Financial Review Specialist and welcomed her to the 911 staff.
     - ii. Administrative Support Position – Ms. Harris has been working with HR to reclassify the position to combine it with some of the roles and responsibilities covered by the former User Support position recently vacated by Ronnie Cashwell.
   - **d)** Legislative NC911 Report – The NC911 report on Joint Legislative Commission on Governmental Operations has been presented to DIT's Legislative Liaison Nate Denny, who will review it prior to release. The Board will be provided the report.
   - **e)** Backup PSAP Data Analysis – The Regional Coordinators will continue analysis on the data to maximize the capabilities already in place for backups and alt-routing.
   - **f)** PSAP Fund Balance Analysis – The Funding Committee will hear recommendations next month about fund balances and spend plans presented by PSAPs. In December, the Board will have an action item on this item.
   - **g)** December Work Session and Board Meeting – The work session and meeting have been scheduled to be held virtually on Friday, December 4, 2020. There will be a morning work session, a break for lunch, followed by the Board meeting that afternoon.
     - i. Committee Goal Setting – Ms. Harris has met with committee chairs to discuss goal setting, which they have rolled out to their members. At the work session each committee will be presenting their goals for the year.

h) 2020 PSAP Managers Virtual Continuity Workshop Series – There will be 3 workshops series offered on December 8, 9, and 10 which will cover continuity planning, benefits of the ESInet and radio component, and partnerships and relationships with other PSAPs. The agenda will be sent out once it has been finalized.

i) 2021 Master Calendar Development Underway – Ms. Harris plans to present the Master Calendar at the work session on December 4, which is currently still in development.

j) NextGen 911 Migration Status – Live Status Map

- Pasquotank County 911 (09/01/2020) – Bringing in the month of September as PSAP #48 and physical location # 76, was Pasquotank County 911 which also includes Camden County. Their migration to the ESInet occurred at 1033 hours EST, with their first live 911 call being received at 1114 hours. As a note, their backup capabilities located at Martin County 911 were subsequently migrated on September 17, 2020.
- Burke County 911 (09/21/2020) – Burke County 911 successfully cutover over to the NC 911 AT&T managed service ESInet on September 21, 2020. They received their first live i3 call at 1128 Hours EST.
- Rowan County 911 (09/23/2020) – Rowan County Telecommunications moved to North Carolina's state ESInet 9-1-1 system on Wednesday, September 23rd, 2020. Rowan County is the 53rd 9-1-1 system in the state to be migrated to the ESInet.
- Franklin County 911 (10/14/2020) – Franklin County 911 became the 54th PSAP cutting over to the AT&T ESInet on October 14, 2020. They did so as i3 on the NC hosted Viper platform. Their first live call was received at 1052 Hours.

k) NextGen 911 GIS Status – Live Status Map – All 100 counties are engaged in uploading their GIS data to DataHub.

l) NextGen 911 PSAP Cybersecurity Assessments – A special presentation by End to End Computing will be given during the Technology Committee report. Ms. Harris also advised Maria Thompson, NC DIT State Chief Risk Officer, would be joining the meeting later to speak about Cybersecurity Awareness month.

9. Education Committee Report – The Committee is reviewing eligibility for a training class to be brought before the Board for consideration at the December meeting. An update was given by the ad-hoc committee working on policy regarding telecommunicator training and EMD certification. They have prepared a draft policy on both issues, which has been reviewed by Mr. Bradford. The ad-hoc committee will discuss his recommendations at their next meeting. The Committee plans to work on a one-page informational aid titled "An Introduction to NextGen 911." Mr. Means has already completed a rough draft and submitted it to the Committee for their review. The results of the survey that gathered input for updates to the 911 Board website were discussed by the Committee. Those results will be given to DIT Communications, who is also working on an audit of the current website. Once all the information is obtained, they will work on the redesign. The Committee has prepared a draft of their goals for the next year, which they hope to approve at their next meeting so that it can be presented at the Board work session.

10. Funding Committee Report – The Committee reviewed two PSAP eligibility requests at their last meeting, one of which will be presented to the Board at the next meeting. They also discussed their goals for the upcoming year and will continue to develop them at their next meeting. Staff continues efforts to review higher-than-average PSAP fund balances and how they relate to their 5-year technology replacement plans. This will also be presented at the December Board meeting.

Chairman Boyette noted that Maria Thompson had joined the meeting at this time.

11. Finance Team Report – Since the last Board meeting Ms. Tapler has been working with PSAPs regarding eligibility and continued work with PSAPs that submitted reconsiderations, which she hopes to have to the Funding Committee by their next meeting in November. She also completed work pertaining to the Board's financial operations. Next month she will be trying to get financial statements completed so they can be reviewed by DIT for the upcoming audit at the first of the year. She will also be working on the estimated funding distribution for the Board approval in December.

Ms. Falco has been meeting with the Regional Coordinators and PSAPs in PAT meetings to discuss their revenue expenditure reports and eligibility requests. She and Ms. Tapler also submitted documentation to

Mr. Bradford for the CRM financial module. She gave an update on 2018/2019 revenue expenditure reports status. For FY 2018, 102 are finalized, 21 awaiting the signed revised report, and 3 are in clarification process. For FY2019 there are 47 finalized, 41 in the clarification process and 26 awaiting review. For FY2020 they have received 100 reports, with 1 finalized, 4 in the clarification process, and 94 awaiting review.

12. Grant Committee Report – Mr. Shipp reported the Committee plans to meet next week to review and discuss grant priorities as well as set the grant cycle calendar for next year. They also plan to review the grant policy. Staff has been working with the grant awardees. Ms. Harris added that the agreements had been sent and staff is processing them as they are being returned. She commended the Regional Coordinators who worked with PSAPs during the process, as well as the Grant Committee on the smooth grant process this year.

13. Standards Committee Report

a) Peer Reviewer Approvals – Ms. Wright and Ms. Gardner presented the names below of those who applied to be Peer Reviewers. The Committee voted unanimously to approve them and brings their approval forward to the Board as a motion. Ms. Conner conducted the roll call, all attending Board members voted, and the motion carried unanimously.

- Tom Brubaker, New Bern Police Department
- Brian Greer, Ashe County Sheriff's Office
- Jason Stewart, Martin County Communications

Roster of roll call votes for all action items for this meeting included below as part of these minutes.

b) General Report – The Committee continues to work on establishing their goals for next year and are working with the ad-hoc group from the Education Committee on training standards. Ms. Wright and Ms. Gardner said additional peer reviewers are needed and they welcome applications.

14. Technology Committee Report

a) Cybersecurity Awareness Month – Held every October, National Cybersecurity Awareness Month (NCSAM) is a collaborative effort between government and industry to raise awareness about the importance of cybersecurity and to ensure all Americans have the resources they need to be safer and more secure online. Maria Thompson, State Chief Risk Officer, spoke about cybersecurity and the symposium that occurred on October 5 and 6. The theme for this year is **Do Your Part. #BeCyberSmart.** Topics of the symposium included cybersecurity from a first responder's perspective and NC 211. NC 211 is an information and referral service provided by United Way of North Carolina where families and individuals can dial 2-1-1 or 1-888-892-1162 or visit nc211.org to obtain free and confidential information on health and human services and resources within their community. NC 211 and Cybercrime Support Network are working together to help those impacted by cybercrime. Their goal is to connect North Carolina residents with the vital resources they need to report, recover, and reinforce after a cybercrime has occurred. Ms. Thompson also spoke on the evolution of ransomware, cybersecurity insurance, avoiding phishing attacks and cybersecurity while working remotely.

b) NextGen 911 PSAP Cybersecurity Assessments

i. End to End Computing Status Presentation – Esteve Mede and Asha Mede gave a presentation on the assessments of the physical security element of PSAP installations.

c) General NG911 Project Report – Currently the number of PSAPs migrated is 58. There are around 16 more that should be completed by the end of the year. The migration goal for the year was 73 PSAPs. The final cutovers for the year are scheduled for the week of December 16. The first quarter of 2021 has 18 migrations scheduled. For GIS capability there are 36 PSAPs in production with AT&T in the routing database. All their data is above 98% with zero critical errors. As they are migrating sites to ESInet as i3 they also are trying to go back and pick up additional sites that are RFAI and convert them to i3. The cybersecurity assessments are still underway with around 60 in progress. The Committee will be formalizing those reports in the next 30 days. Major issues found will be subjects for goal setting for next year. AT&T is in the process of building out the SIP admin lines. They expect to have that process completed in November. Their renewed contract with DIT has resulted in lower pricing, which should be a cost savings as they begin to move admin lines from the existing analog basis to SIP. The Committee will be meeting to discuss continuity planning and developing a document to capture the capabilities of the network.

d) NMAC Report – Mr. Meeks shared the NMAC dashboard and covered trends found in the information. They have found most issues are reported during daytime hours and are moving forward with hiring additional techs to work during the busy times. A breakdown of tickets indicates most cases involve software and connectivity issues. Connectivity is a priority for the NMAC. They intend to take the analytics to a deeper level to get predictive information to provide to PSAPs and the Board.

15. 911 Regional Coordinator Reports — The Regional Coordinators gave brief reports. Mr. Newberry had several conversations with PSAPs about abandonment and alternate route options. He also participated on calls about ESInet status and high fund balances. Ms. Turbeville reported she also has been meeting with PSAPs to discuss planning and configuring for alt routing. She continues to work with PSAPs on their technology plans, fund balances and ESInet transitions. She also attended some of the cybersecurity workshops and found the information provided valuable. Ms. Conner had been working with PSAPs in her region on their backup plans and is working to schedule the next group of cybersecurity assessment meetings. She participated in several PAT calls with Ms. Falco and Ms. Tapler and continues to work with Frontier and PSAPs in her region that were affected by maintenance issues. She is also working with Greg Hauser, NC Statewide Interoperability Coordinator, to update the Field Operations Guide. Ms. Gardner has been working with PSAPs on their technology plans, high fund balances, backup planning and alt routing. She is also assisting with setting up the cybersecurity kick-off meeting and participated in the ESInet migrations in her region.

16. Fall 2020 Staff Selfie Scavenger Hunt – Staff participated in a selfie scavenger hunt competition in recognition of State Employee Appreciation Week. A presentation of their photos was provided for the Board, with Ms. Falco being announced as the winner.

17. Other – No other items were reported.

The next Board meeting will be held on Friday, December 4, using simultaneous communication via Microsoft Teams Meeting.

Adjourn – Chairman Boyette adjourned the meeting at 12:18 PM.

NORTH CAROLINA 911 BOARD MEETING
ROLL CALL
Friday, October 23, 2020
Via Simultaneous Communication with Microsoft Teams Meeting
10:00 AM – 12:00 PM

NC 911 Board Members	7. Consent Agenda	13. a.) Peer Review Approvals
David Bone, County Manager, Martin County (NCACC)	Y	Y
Secretary Eric Boyette, 911 Board Chair (NC DOT)	Y	Y
Greg Coltrain, VP Business Development, Wilkes Communication/River Street (LEC)	Y	Y
Brian Drew, CenturyLink (LEC)	Y	Y
Bo Ferguson, Deputy City Manager, City of Durham (NCLM)	Y	Y
Greg Foster, Director of Communications, Alexander County (NC Association of Rescue EMS)	Y	Y
Chuck Greene, Director of Government Affairs, AT&T (LEC)	Y	Y
J.D. Hartman, Sheriff, Davie County (NC Sheriff's Association)	Y	Y
Jeff Ledford, Chief, City of Shelby Police Department (NCACP)	Not Present	Not Present
Buddy Martinette, Fire Chief, City of Wilmington (NCSFA)	Y	No Answer
John Moore, Regional Manager, Government and Education Sales, Spectrum Communications (VoIP)	Not Present	Not Present
Melanie Neal, Director, Guilford-Metro 911 (APCO)	Y	Y
Jude O'Sullivan, Chief Customer Officer, Carolina West (CMRS)	Y	Y
Jeff Shipp, Vice President of Operations, Star Telephone (LEC)	Y	Y
Earl Struble, Sr. Manager Verizon Response, Verizon Wireless (CMRS)	Y	Y
Donna Wright, Director (Retired), Richmond CO Emergency Services (NENA)	Y	Y

Tab 5 b – e)

b) **NG 911 Fund**

October 2020 Fund Balance	**$ 80,821,454**
October 2020 Disbursement	**$ 2,797,496**

c) **CMRS Fund**

October 2020 Fund Balance	**$ 5,494,254**
October 2020 Disbursement	**$ 90,502**

d) **PSAP Fund**

October 2020 Fund Balance	**$ 1,931,475**
October 2020 Disbursement	**$ 3,954,416**

e) **Grant Fund**

October 2020 Fund Balance	**$ 14,875,910**
October 2020 Encumbered	**$ 21,975,155**

NG 911 Reserve Fund

FY2020 beginning Fund Balance: $65,426,679.57

	July 2020	August 2020	September 2020	October 2020
Service Fee Collection	$1,395,092.02	$2,085,230.33	$2,230,932.17	$2,319,928.70
Interest allocation	$64,893.33	$57,000.91	$48,171.13	$41,868.24
PSAP Grant/Statewide Project Allocation (In)			$14,000,000.00	
NG 911 Reserve Fund Disbursement	-$2,615,169.69	-$210,751.08	-$1,224,925.34	-$2,797,496.25
NG 911 Reserve Fund Balance	$64,271,495.23	$66,202,975.39	$81,257,153.35	$80,821,454.04

CMRS Account

FY2020 beginning Account Balance: $5,964,801.21

	July 2020	August 2020	September 2020	October 2020
CMRS Service Fee Collection	$0.00	$0.00	$0.00	$0.00
Interest allocation	$5,916.18	$4,942.46	$4,058.58	$2,876.10
CMRS Allocation (out)	$0.00	$0.00	$0.00	$0.00
CMRS Disbursement	-$397,838.09	$0.00	$0.00	-$90,502.16
CMRS Account Balance	$5,572,879.30	$5,577,821.76	$5,581,880.34	$5,494,254.28

PSAP Account

FY2020 beginning Account Balance: $16,064,101.34

	July 2020	August 2020	September 2020	October 2020
Service Fee Collection	$3,703,957.11	$3,037,143.02	$2,887,243.71	$3,161,764.33
Wireline Service Fee Collection	$614,662.16	$499,831.63	$465,005.38	$392,418.16
VOIP Service Fee Collection	$1,000,935.69	$787,998.26	$733,878.84	$688,776.70
Prepaid Wireless Service Fee Collection	$1,499,829.23	$1,020,790.25	$779,694.47	$816,971.03
Interest allocation	$15,933.15	$16,542.96	$14,575.60	$425.36
Subtotal	$6,835,317.34	$5,362,306.12	$4,880,398.00	$5,060,355.58
PSAP Allocation (out)			-$20,093,503.00	
PSAP Distribution	-$4,246,371.10	-$3,983,693.48	-$3,993,019.11	-$3,954,415.97
PSAP Account Balance	$18,653,047.58	$20,031,660.22	$825,536.11	$1,931,475.72

OSC Uncertified
Cash Basis

PSAP Grant-Statewide 911 Projects Account

		Total Disbursed YTD	Jul-20	Aug-20	Sep-20	Oct-20	Remaining Expenditures
			$29,744,439.97	$29,346,605.94	$30,103,477.33	$36,490,172.45	
FY2017	**Award Amount**						
Martin G2017-7 (048)	5,196,315.00	-4,724,784.53	-118,276.34				353,254.13
Mitchell G2017-9 (049)	3,163,000.00	-2,909,389.86	-105,095.10			-110,718.43	0.00
Pasquotank G2017-11 (051)	1,010,779.00	-990,194.27					20,584.73
FY2018	**Award Amount**						
Iredell G2018B-3 (063)	2,361,230.00	-2,211,577.73					0.00
FY2019	**Award Amount**						
Pender G2019-02 (068)	361,760.00	0.00					361,760.00
Greene G2019-03 (069)	841,964.00	0.00					841,964.00
Wayne G2019-04 (070)	1,530,693.00	-300,000.00					1,230,693.00
Rutherford G2019-05 (071)	1,161,548.00	-624,506.15					537,041.85
FY2020							
Davie G2020-01 (074)	232,767.00	0.00					232,767.00
NC State Highway Patrol G2020-02 (075)	1,102,933.00	0.00					1,102,933.00
Pender G2020-03 (076)	45,873.00	0.00					45,873.00
Currituck G2020-04 (077)	583,655.00	0.00					583,655.00
Franklin G2020-05 (078)	3,958,873.00	0.00					3,958,873.00
Cumberland G2020-06 (079)	2,251,387.00	0.00					2,251,387.00
Chatham G2020-07 (080)	2,339,608.00	0.00					2,339,608.00
FY2021							
Lumberton PD (City of) G2021-03	99,241.52	0.00					99,241.52
STATEWIDE PROJECTS:	**Award Amount**						
E-CATS II (012)	2,688,500.00	-361,640.00	-535,017.38			-166,443.18	1,625,399.44
Interpretive Services (042)	323,873.94	0.00	-23,979.75			-73,711.50	226,182.69
Ortho Project III Image 20 (073)	4,108,739.00	-1,756,468.06	-80,199.60		-525,464.40	-134,187.60	1,612,419.34
CRM Statewide One-time Development	700,000.00	130,473.30	-734.10	-725.00	-9.10	-9.10	828,996.00
Ortho Project III Image 21 (081)	3,723,908.00	0.00				-1,386.00	3,722,522.00
	Approved Allocation from PSAP & CMRS Transfer out to NG 911 Fund			0.00	6,093,503.00		
	Interest		29,501.97	26,026.83	21,904.13	18,801.78	
	Revenue 5%		435,966.27	731,569.56	796,761.49	828,545.97	
	Total Ending Fund Balance	$ 29,744,439.97	$29,346,605.94	$30,103,477.33	$36,490,172.45	$36,851,064.39	

Committed:	$ 21,975,154.70
Grant Account Total	**$14,875,909.69**

CASH BASIS REPORTING
OSC Certified

Tab 5 f)

Grant Project Updates per Reports

PHONE (252)232-2216
FAX (252) 232-2750

Mary Beth Newns
Director

Liz Hodgis
Supervisor

Currituck County

COMMUNICATIONS

147 Courthouse Rd,
Currituck, North Carolina 27929

Date: October 31, 2020

To: NC 911 Board

From: Mary Beth Newns

RE: 2020 Grant Progress Report

Please see the following highlights from progress notes regarding the Currituck County Public Safety Building construction.

Continuing to work on metal stud framing of interior and exterior walls. Upper roof framing and decking as well as elevator shaft canopy and hoist beam. Starting to prepare for laying duct work as well as setting up the generator.

No grant funds expended at this time, however, will be looking at contractor draws to determine if grant funds can be applied.

Franklin County, NC
Grant Report – October 2020

Activities – October 2020

- Continued conceptual design work
- Conducted programming meeting – October 6
- Conducted virtual programming meeting – October 15
- Presented conceptual design to County Commissioners (Schrader Group Architecture) – October 19
- Conducted geotechnical at proposed site – week of October 26

Anticipated Activities – November 2020

- Continue conceptual design work
- Conduct programming meeting – November 5
- U.S. Army Corps of Engineers delineation site visit – November 10
- Conduct programming / design meeting – November 17
- Begin technology needs discussions
- Communicate regularly with project team (ongoing)

The tasks listed below will be tracked throughout the project duration and will be updated monthly. New additions are shown in the salmon highlighted rows. At this time, the project remains on schedule.

Work Plan

Task	Projected Timeframe[1]	Actual	Completed
Contract for project oversight	Months 1-2	November 2019	x
Issue RFQ for architectural services	Months 2-3	December 2019	x
Select architect and contract for services	Months 4-5 (February – March 2020	Selection: February 2020	x
Negotiate fee with architect	Months 5-6 (March – April 2020)	March 2020	x
Receive Commissioners' approval to proceed with contract for architectural services	Month 6 (April 2020)	May 4, 2020	x
Enter into contract for architectural services	Month 6 (April 2020) Revised: Month 8 / June 2020	June 5, 2020	x

[1] As the grant agreement was signed in late October 2019, month 1 is considered November 2019.

Task	Projected Timeframe[1]	Actual	Completed
Define technology needs in conjunction with building design	Months 9-19 (July 2020 – April 2021) Revised: Months 13-19 / November 2020 – April 2021		
Facility design and construction document process	Months 9-19 (July 2020 – April 2021)[2]	July 30 – Began	
Establish lead times for major technology systems, including NG911			
Bid and award construction project	Months 17-19[3] (March 2021 – May 2021)		
Proceed with construction, including coordination with migration to the State ESInet NG911 network	Months 20-32 (June 2021 – June 2022)		
Procure new technology and furnishings	Months 26-30[4]		
Substantial completion of construction, address any facility punch list issues	Month 30 (April 2022)		
Install, test, and accept new technology: existing equipment and the CAD system will be relocated to the new site prior to and during go-live to ensure that the old and new center remain operational until the transition is complete	Months 30-34 (April – July 2022)		

[2] Follow on dates will be adjusted once the timeframes are more clearly defined.
[3] Ibid.
[4] Ibid.

Task	Projected Timeframe[1]	Actual	Completed
Go-live / Physically transition the Franklin County primary PSAP to the new facility and the State ESInet NG911 system	Months 34-36 (July – September 2022)		
Monitor systems post cutover	Months 32-36 (May – September 2022)		

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Greene County, NC

911 Facility Relocation

MCP Project Number 18-128

Monthly Progress Report – October, 2020

Activity	This Period	Next Period
1. Design	• Continue coordination with the general contractor • Further define scheduling and budgets	• Finalize coordination with general contractor • Prepare for construction to begin
2. Permits	• None in this period	• Initial permits needed
3. Construction	• None in this period	• Construction kickoff
4. Communications Systems	• Begin routine meetings with AT&T on call handling needs • Further refine technology needs, working with radio, recording, CAD, dispatch workstation vendors • Work with telecommunications vendors on pathways	• Continue meetings with AT&T • Define budget for technology procurements • Begin migration strategy planning
5. Other Activity	• Routine project meetings to coordinate design and technology needs.	• Continue to hold project meetings to discuss next steps and coordinate project needs.

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Martin County Communications
1528 Prison Camp Rd
Williamston, NC 27892

Final Grant Report

In the 2017 grant cycle, Martin County was awarded a $4,315,437 grant from the North Carolina 911 Board for the construction of a primary public safety answering point (PSAP) that would also serve as a regional backup 911 center for Bertie and Pasquotank counties. The grant agreement was signed by Martin County and the State on November 16, 2016, and December 5, 2016, respectively.

A revised budget was submitted to the State on February 2017, denoting use of the grant funds towards construction of an approximate 5,000 square foot facility, in addition to the contribution from Pasquotank County of $157,500 to be used towards construction. The total project cost was anticipated to be $4,472,937. Costs at the time were estimated at roughly $390 per square foot. Schrader Group Architecture (SGA) was selected as our architectural firm and designed a 5,170 square foot facility. The construction project was bid three times. The lowest bid was $3,219,865. The County subsequently requested additional funding from the 911 Board. On April 20, 2018, the 911 Board approved an allocation of additional grant funds in the amount of $880,878. The amendment was signed by both parties on May 9, 2018.

There were six goals and related objectives identified for the grant.[1]

1. Construction and upfitting of a new PSAP facility to accommodate the Martin County PSAP. Upfitting the new PSAP facility with six positions: four as Martin County's Primary and two as Bertie County's Back-up PSAP, to ensure continuity of PSAP operations. Ensure continuity of operations during relocation and upfitting activities for all response agencies currently served.

    - Martin County constructed a new 5,170 square foot facility on County land. Construction began in June 2018, with substantial completion in July 2019. A certificate of occupancy was received on July 1, 2019. Cutover to the new facility occurred on October 2, 2019.
    - The new facility provides redundant circuitry, proper grounding, generator annunciation, as well as other equipment and technology warnings.

[1] Goals and objectives are as noted in the grant contract.

- Design and construction adhered to NC Board Rules, as applicable, presented in 09 NCAC 06C, Section .0402 Grants for Construction or Renovation.
- In the grant application, Martin County requested slightly over $5.753 million to bring the project to fruition. The initial programming for a new PSAP facility estimated the square footage at roughly 7,284 square feet. As the project was not fully funded, the size of the facility was reduced—by about 30%—and other cost-saving measures were undertaken.
- The new communications center has four console workstations to support Martin County, two for Bertie County, and three for Pasquotank County.
- The current positions are sufficient to support all three counties simultaneously, should the need arise.
- Detailed planning with responder agencies was conducted to ensure continuity of operations during the cutover.
- MCP coordinated the cutover effort with major vendors, including AT&T, Carolina Recording Systems, and Motorola, which all had representatives present for the cutover. MCP was also onsite.
- The then current 911 facility remained operational for several hours following cutover.

2. Enhance facilities used for 911 communications and dispatch; increasing the number of telecommunicator workstations and additional space for anticipated growth. Equipment shall meet Next Generation 911 needs, and shall be consistent with the specifications for such equipment as detailed by the 911 Board's RFPs.

- Martin County constructed a new 5,170 square foot facility, cutting over to the new facility on October 2, 2019. The new facility provides redundant circuitry, proper grounding, generator annunciation, as well as other equipment and technology warnings.
- The 911 center had been housed in the County administration building, sharing space with the Sheriff's Office holding cell. There was no room for expansion.
- The new facility was designed for future capacity, allowing for new technology and equipment replacement efficiencies.

3. CPE and other equipment shall be compatible with the needs of Martin and Bertie Counties. CAD shall be implemented as a multi-jurisdictional system with interfaces, as may be necessary or proper, for the participating jurisdictions' operations.

- Each console position has call-handling equipment, CAD and mapping, and radio capabilities.
- Martin County migrated its Southern Software CAD and mapping system to the new facility, expanding the position count by one.
- Bertie County also utilizes Southern Software CAD.
- The new Eventide logging recorder supports telephony and radio recording and is NG911-compliant.
- Martin County went live on the State's managed service Emergency Services Internet Protocol (IP) network and hosted VIPER call handling solution in September 2019.

4. Establishing interlocal agreements with Bertie and additional neighboring counties for using a portion of the new Martin PSAP facility as a Back-up PSAP …

- Bertie County signed a resolution supporting the application for a grant from the 911 Board for this project. The resolution was submitted with the grant application.
- Martin and Bertie counties entered into an interlocal agreement (ILA) on May 23, 2016.

5. Acquiring, installing and successful testing 911 System equipment including but not limited to, telecommunications systems, radio consoles, CAD, administrative telephony equipment, furniture for telecommunicators and workstations, IP networking, and microwave communications equipment.

   - Martin County procured new workstations, logging recorder, and radio consoles, as well as network infrastructure. Some procurements were sole source due to interoperability requirements with current equipment, and others were competitive procurements.
   - Each technology was tested prior to final acceptance.

6. Work to establish additional interlocal agreements, or other necessary or proper relationships, with other jurisdictions enabling use of the regional Back-up capabilities.

   - Pasquotank County entered into an ILA with Martin County for use of the facility as a regional backup on May 23, 2016.

Each goal has been met for this project.

The table below outlines the grant funds for this project. Respective invoices were provided with each grant reimbursement request. The project came in well under budget as several funding categories, such as telephony and CAD, ended up with no outlay. In addition, limited technology contingency funds were expended.

Original Grant Award	**$4,315,437**
Additional Construction Funds	**$880,878**
Total Grant Award	**$5,196,315**
Grant Funds Expended	**$4,879,490.37**
Underage	**$316,824.63**

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Martin County PSAP and Regional Backup Facility, NC

PSAP Consolidation Project – Phase II – Grant Project MCP Project Number 16-184

Monthly Progress Report – October, 2020

Activity	This Period	Next Period
1. Design	• No action required	• No action expected
2. Permits	• No additional permits required	• No additional permits required
3. Construction	• No additional actions required	• No additional actions required
4. Communications Systems	• Final testing for Bertie County • Final testing and coordination with Pasquotank County • Finalize action items and acceptance testing	• Prepare for final grant reporting
5. Other Activity	• MCP participated in meetings to coordinate final action items, testing and final reviews	• Prepare for grant close-out

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Pasquotank County PSAP, NC

PSAP Consolidation Project | MCP Project Number 16-185

Monthly Progress Report – October, 2020

Activity	This Period	Next Period
1. Design	• No action required	• No action expected
2. Permits	• No action	• No action
3. Construction	• No actions required	• No action expected
4. Communications Systems	• Work through action items post-cutover • Finalize action items and acceptance testing	• Final testing • Prepare for final grant reporting
5. Other Activity	• MCP conducted periodic project communications with the stakeholders	• MCP will conduct periodic communications with the stakeholders • Prepare for grant closeout

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Rutherford 911

Monthly Progress Report

Current Activity — November 2020

Rutherford PSAP Relocation / Enhancement

- **Construction is complete!!!!!**
- Temporary *Certificate of Occupancy* has been issued.
- Moving has begun!
- C.O. punch down items completed.
- Consoles are now in place and grounded.
- Russ Bassett Console Counter "tops" should be installed Friday the 13th.
- Monitors have been installed at each CAD and radio position.
- HVAC manufacturer will officially "turn on" individually controlled units that are placed at each console position in the PSAP 11-10-2020.
- Pangea Fiber (*county fiber routes*) should be connected and live by Friday the 13th.
- TechWorks (cabling) crews are waiting for Pangea fiber to complete their install so they can make all access control point connections, install the entry-way intercoms and Audio/Video System.
- AT&T has approved a design for copper circuits (POTS lines). Work expected this period.
- Continue to meet with AT&T ESInet team and Mobile Communications (MCA) for the Vesta911 transition to the new building.
- Radio Tower installation begins 11-11-2020. Gentry GeoTechnical completed and approved concrete pad study.
- Perimeter security installation expected later this month.
- Generator is active. Nixon Power has initiated, tested, and trained county staff.
- Vertiv UPS Battery BackUp system is now active.
- Simplex Fire system is active and county staff have been trained.
- Avtec radio system installation begins the week of 11-16-2020.

Next Month's Activity — December 2020

Rutherford PSAP Relocation / Enhancement

- Comprehensive testing of equipment to continue this month.
- If all systems are GO --- we plan to GO LIVE December 3rd, 2020.
- Director will begin grant final report this period.

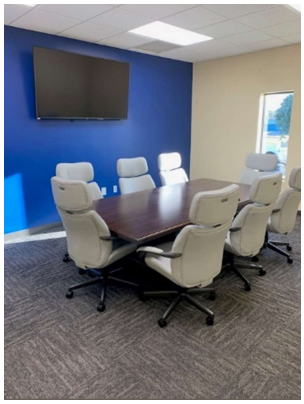
Rutherford County SO 911 - 240. North Washington St, Rutherfordton, NC 28139
Capt. Greg Dotson - greg.dotson@rutherfordcountync.gov Direct:828-287-6095

Rutherford 911

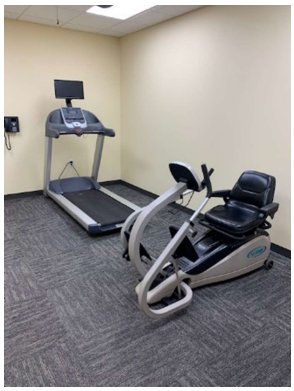
Front Entry

EOC/Training Room

Commons Area



Board Room



Health and Wellness

To be continued…

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Wayne County, NC

911 New Facility

MCP Project Number 18-117

Monthly Progress Report – October 2020

Activity	This Period	Next Period
1. Design	• Final punch list for building construction	• Follow-up on action items from final punch list
2. Permits	• No actions required	• No actions expected
3. Construction	• Finished electrical work • Completed grounding • Installed overhead busway in server room • Installed overhead cable management • Began punch list • Finalized inspections	• Continue punch list items
4. Communications Systems	• Finalized dispatch furniture consoles • Continued structured cabling install • Issued procurement of recording system quotes • Continued coordination with AT&T • Continued installation of data center racks • Began receipt of IT equipment • Continued installation of fiber • Installed wireless networking • Duplin issued order for dispatch furniture	• Prepare for technology migration • Finalize security and cameras • Install wireless networking • Finish install of data center cabinets • Begin installation of data center elements • Finalize structured cabling • Coordinate with AT&T on installation
5. Other Activity	• MCP held routine meetings with the County for project coordination	• Continue monthly meetings with design team and general contractor.

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October 23, 2020

L.V. Pokey Harris
Executive Director
North Carolina 911 Board

This status report is for Cycle 3, Phase 1 of the Statewide Orthoimagery Program, funded by the NC 911 Board. The project is referred to as the Coastal 2020 Orthoimagery Project. This report summarizes the project status for the third quarter of 2020: July 1 through September 30, 2020.

Accomplishments
The accomplishments by the project team during the period include the following items organized by team member:

CGIA

- Coordinated outreach with 28 PSAPs in project area and 27 local county government organizations to provide project updates and facilitate early review of the products.
- Purchased hardware necessary for processing final imagery deliverables and drives for distributing the imagery to all PSAPs in the project area.
- Coordinated end-user review and resolved any issues with access to online application or with imagery quality.
- Performed quality review using the online VOICE tool for all 27 counties beginning in July and running through September.
- Screened all submitted issues for contract compliance and submitted to contractors for resolution.
- Held quality review check-in meeting with contractors in late July to finalize requirements for remainder of review and start of final deliveries.
- As issues are resolved and updated imagery is loaded into VOICE, began confirmation process to ensure that the issues have been resolved prior to final deliveries.
- Received final delivery of imagery from contractors starting in September. The last group of deliveries finish on October 1.
- Began validation and processing of received final deliveries to identify any issues with final products and to begin creating compressed SID-format products for delivery to PSAPs.
- Coordinated with the Marine Corps to finalize requirements and resolve any issues with the redactions necessary for outlying parcels of land owned by the military. This greatly reduced the amount of redactions needed in publicly available imagery products.
- Initiated interim performance evaluations for contractors.
- Other tasks included regular team meetings and ongoing outreach to federal, state and local partners.

NC Department of Transportation (NCDOT)

- Performed quality review for 30% of the project area using the online VOICE tool for all 27 counties beginning in July and running through September.
- Assisted in confirming resolution of issues in the imagery that resulted from the online VOICE review.
- Provided guidance on any technical issues resulting from the review of compliance documentation.
- Attended the quality review check-in meeting with contractors in late July.
- Provided technical support for project planning.

NC Department of Public Safety: NC Geodetic Survey (NCGS)

- Attended team strategy meetings.
- Utilized the VOICE imagery to initiate review of horizontal quality control locations that will be used on the final imagery to verify compliance with project quality standards.
- Received copies of the final imagery products to begin horizontal quality control process.

Acquisition Contractors

This section summarizes the accomplishments of the five prime acquisition contractors selected through the Qualifications-Based Selection (QBS) process. The selected contractors are Atlas Geographic Data, Quantum Spatial, Sanborn Map Company, Spatial Data Consultants, and Surdex Corporation. The fully executed contracts were awarded on December 30, 2019. Each of the contracts consists of six primary tasks as follows:

- Task 1 – Flight Planning
- Task 2 – Imagery Acquisition
- Task 3 – Aerotriangulation and Ortho Generation
- Task 4 – Product Delivery and Data Acceptance
- Task 5 – Quality Review and Resolutions Reporting
- Task 6 – Closeout

For the 3rd Quarter 2020 reporting period, the status of all tasks is listed below:

Task	**Reported Percent Complete (as of latest invoice)**				
	Atlas Geographic Data	Quantum Spatial	Sanborn Map Company	Spatial Data Consultants	Surdex Corporation
Task 1: Flight Planning	100%	100%	100%	100%	100%
Task 2: Acquisition	100%	100%	100%	100%	100%
Task 3: Aerotriangulation and Ortho Generation	100%	91%	100%	100%	100%

Task 4: Product Delivery and Data Acceptance	100%	35%	100%	100%	100%
Task 5: Quality Review Resolutions	90%	0%	0%	96%	100%
Task 6: Closeout	0%	0%	0%	60%	0%

[Acquisition of imagery for all 27 counties was completed on March 9, 2020.]

Schedule

The following represents the project's core deliverables milestones for plan and actual status:

Task	Item	Planned Start	Planned Finish	Actual Finish/Percent Complete
1	**Project Initiation**	**7/1/2019**	**12/31/2019**	**2/7/2020**
	Issue RFQ for Orthoimagery QBS	7/31/2019	7/31/2019	7/31/2019
	Closing date for RFQ responses	8/26/2019	8/26/2019	8/26/2019
	Contract NCGS and NCDOT	8/1/2019	8/1/2019	10/21/2019
	Host workshop for selected applicants	9/24/2019	9/24/2019	9/24/2019
	Technical and cost proposals due	10/8/2019	10/8/2019	10/8/2019
	Negotiate with selected applicants	10/28/2019	10/28/2019	10/28/2019
	Issue Purchase Orders	11/22/2019	11/22/2019	12/30/2019
	Conduct Kickoff Meeting	12/12/2019	12/12/2019	12/12/2019
	Contract QC Service Provider	1/1/2020	1/1/2020	2/7/2020
2	**Planning and Design**	**10/15/2019**	**4/30/2020**	**4/2/2020**
	CORS Upgrades	10/15/2019	3/1/2020	1/16/2020
	Validation Range	10/15/2019	1/14/2020	1/14/2020
	RTN Maintenance	10/15/2019	Ongoing	
	Control Surveys and Attachment C-1: Control Surveys Report	12/12/2019	4/2/2020	4/2/2020
3A	**Acquisition**	**1/20/2020**	**4/27/2020**	**4/27/2020**
	Acquire Imagery for 27 Counties	1/20/2020	3/15/2020	3/9/2020
	Attachment D: Imagery Acquisition Compliance Report	2/1/2020	4/27/2020	4/27/2020
3B	**Acquisition Post-Processing**	**2/1/2020**	**5/21/2020**	**6/16/2020**
	Attachment E: GNSS-IMU Post Processing & Aerotriangulation Report	3/1/2020	5/15/2020	6/16/2020
	Ortho Generation Workshop	3/24/2020	3/24/2020	3/31/2020
	Study Area Web Map Service	4/1/2020	5/21/2020	5/5/2020
4	**Quality Review Production and Product Delivery**	**5/21/2020**	**10/17/2020**	10/17/2020
	QC Production Cycle	5/21/2020	10/17/2020	10/17/2020
5	**Implementation**	**11/16/2020**	**1/29/2021**	
	Product Delivery	11/16/2020	11/20/2020	
	Implement the NC OneMap Geospatial Portal solution	12/1/2020	Ongoing	
	60 day End-User Evaluation	11/20/2020	1/29/2021	
6	**Project Closeout**	**12/1/2020**	**4/31/2021**	
	Final Data Packaging and Final Reports	12/1/2020	4/31/2021	
	Project Closeout	4/1/2021	4/31/2021	

Budget

The expenditures for the project are summarized below. Note the current reporting period represents July 1, 2020 – September 30, 2020. The total budget for the project is $4,108,739.

Item	This Reporting Period	Cumulative to Date	Percent Expended to Date
CGIA			
CGIA Labor	$24,108.00	$102,144.00	**29.2%**
ITS Hosting and Information Technology	$11,255.00	$11,255.00	**37.5%**
CGIA Travel	$0.00	$549.60	**13.7%**
CGIA Reimbursable Expenses	$0.00	$0.00	**0.0%**
CGIA Total	$35,363.00	$113,948.60	**27.9%**
Subcontractors			
NCDPS-NCGS	$1,496.64	$158,730.47	**77.4%**
NCDOT	$62,252.60	$102,937.10	**66.4%**
Atlas Geographic Data	$285,052.25	$620,046.00	**92.7%**
Quantum Spatial	$124,485.62	$286,698.12	**78.4%**
Surdex Corporation	$130,932.70	$567,700.04	**89.2%**
Sanborn Map Company	$121,719.01	$390,422.40	**90.6%**
Spatial Data Consultants	$235,049.00	$633,999.60	**93.6%**
VOICE	$30,900.00	$30,900.00	**44.5%**
Subcontractor Total	$991,887.82	$2,791,433.73	**87.0%**
Total (for Project)	$1,027,250.82	$2,905,382.33	**70.7%**

Major Tasks Identified for 4th Quarter of 2020

CGIA

- Receive the final group of imagery deliveries from contractors.
- Validate final imagery deliveries and create compressed SID products for end-user deliveries in November.
- Coordinate PSAP deliveries in November through certified mail.
- Hold virtual delivery meeting with PSAPs and County/Local governments to provide technical overview products being delivered.
- Follow up with PSAPs and end users on any issues with delivered products as part of 60-day review period following deliveries.
- Create streaming imagery services to be hosted on NC OneMap.
- Other tasks include regular team meetings and ongoing outreach to federal, state and local partners.

NCDOT

- Assist in development of final imagery SID products as needed.
- Continue technical support for project planning.

NCGS

- Continue horizontal quality control review to assess horizontal accuracy of delivered imagery products.
- Publish horizontal quality control reports on the NC Geodetic Survey website.

Project Issues
There are no financial or technical issues to prevent the team from completing the project on time and within budget.

Please contact me by phone at (919) 754-6588 or email at tim.johnson@nc.gov if you have questions about this report or about contractual or administrative aspects of the project. Contact Ben Shelton of CGIA at (919) 754-6377 or email at ben.shelton@nc.gov regarding technical matters related to the project.

Sincerely,

Tim Johnson, GISP
Director
Center for Geographic Information and Analysis

ACCOUNTS PAYABLE

								580,051.61								
FUND	CENTER	ACCOUNT	PAY ENTITY	CTRL NO	PAYMENT DATE	CHECK NO	INVOICE NO	AMOUNT PAID	VENDOR NO	VENDOR GROUP	VENDOR NAME	INVOICE DATE	LINE ITEM DESCRIPTION	PO NUMBER	PO LINE NO	Remit Message
7115	1082	532199	41PT	9190	7/16/2020	143065	AGD-C020-906	127,822.50	203251160	01	ATLAS GEOGRAPHIC DATA INC	6/2/2020	PLANNING, ACQUISITIO	NC10562917	1	#AGD-C020-906
7115	1082	532199	41PT	9192	7/23/2020	143119	AGD-C020-907	90,715.50	203251160	01	ATLAS GEOGRAPHIC DATA INC	7/6/2020	ORTHO GENERATION, PR	NC10562917	2	CGIA CONTRACT IMAGE20-04 6/1/20 - 6/30/20
7115	1082	532199	41PT	2081	7/30/2020	143313	90744382	5,088.75	566000967	A	NC DEPT OF TRANSPORTATION	7/14/2020	IMAGE20 - FY19-20	NC10546123	1	CUSTOMER # 67549
7115	1082	532199	41PT	9190	7/16/2020	214201	S-519	1,496.64	300712287	13	NC DPS GENERAL OPERATIONS	6/9/2020	IMAGE20 - FY19-20	NC10550604	1	#S-519
7115	1082	532199	41PT	9190	7/16/2020	143090	C020-06	94,517.40	561963091	02	SPATIAL DATA CONSULTANTS	6/2/2020	ORTHO GENERATION, PR	NC10562921	2	#C020-06
7115	1082	532199	41PT	9192	7/23/2020	143150	CO20-07	37,734.00	561963091	02	SPATIAL DATA CONSULTANTS	7/2/2020	PLANNING, ACQUISITIO	NC10562921	1	CGIA CONTRACT # IMAGE20-06
7115	1082	532199	41PT	9192	7/23/2020	143150	CO20-07	46,238.40	561963091	02	SPATIAL DATA CONSULTANTS	7/2/2020	ORTHO GENERATION, PR	NC10562921	2	CGIA CONTRACT # IMAGE20-06
7115	1082	532199	41PT	9190	7/23/2020	143132	4904	37,918.20	430690641	B	SURDEX CORPORATION	6/2/2020	ORTHO GENERATION, PR	NC10562920	2	4904
7115	1082	532199	41PT	9192	7/23/2020	143132	4933	8,723.16	430690641	B	SURDEX CORPORATION	7/5/2020	PLANNING, ACQUISITIO	NC10562920	1	CGIA CONTRACT NUMBER IMAGE20-03
7115	1082	532199	41PT	9192	7/23/2020	143132	4933	21,529.59	430690641	B	SURDEX CORPORATION	7/5/2020	ORTHO GENERATION, PR	NC10562920	2	CGIA CONTRACT NUMBER IMAGE20-03
7115	1082	532199	41PT	9192	7/23/2020	143109	COS00006942	32,892.45	133980333	03	THE SANBORN MAP COMPANY INC.	7/9/2020	PLANNING, ACQUISITIO	NC10562915	1	CGIA CONTRACT # IMAGE20-05
7115	1082	532199	41PT	9192	7/23/2020	143109	COS00006942	75,375.02	133980333	03	THE SANBORN MAP COMPANY INC.	7/9/2020	ORTHO GENERATION, PR	NC10562915	2	CGIA CONTRACT # IMAGE20-05

								129,145.83								
FUND	CENTER	ACCOUNT	PAY ENTITY	CTRL NO	PAYMENT DATE	CHECK NO	INVOICE NO	AMOUNT PAID	VENDOR NO	VENDOR GROUP	VENDOR NAME	INVOICE DATE	LINE ITEM DESCRIPTION	PO NUMBER	PO LINE NO	REMIT MESSAGE
7115	1082	532199	41PT	2083	8/6/2020	143363	90742557	4,660.21	566000967	Y	NC DEPT OF TRANSPORTATION	6/11/2020	IMAGE20 - FY19-20	NC10546123	1	CUST# 67549
7115	1082	532199	41PT	2083	8/6/2020	143344	03	14,760.62	391133181	01	QUANTUM SPATIAL INCORPORATED	7/10/2020	PLANNING, ACQUISITIO	NC10562919	1	IMAGE20-07
7115	1082	532199	41PT	2083	8/6/2020	143344	03	109,725.00	391133181	01	QUANTUM SPATIAL INCORPORATED	7/10/2020	ORTHO GENERATION, PR	NC10562919	2	IMAGE20-07

								$ 293,945.38								
FUND	CENTER	ACCOUNT	PAY EN	CTRL N	PAYMENT D	CHECK NO	INVOICE NO	AMOUNT PAID	VENDOR NO	VENDO	VENDOR NAME	INVOICE DAT	LINE ITEM DESCRIPTION	PO NUMBER	PO LINE NO	REMIT MESSAGE
7115	1082	532199	41PT	02096	44098	000000143811	AGD-CO20-908	$ 5,105.75	203251160	01	ATLAS GEOGRAPHIC DATA INC	44048	IMAGE20-04	EP4948429	00001	CGIA CONTRACT# IMAGE20-04
7115	1082	532199	41PT	02096	44098	000000143811	AGD-CO20-908	$ 54,454.50	203251160	01	ATLAS GEOGRAPHIC DATA INC	44048	IMAGE20-04	EP4948429	00002	CGIA CONTRACT# IMAGE20-04
7115	1082	532199	41PT	02096	44098	000000143811	AGD-CO20-909	$ 6,954.00	203251160	01	ATLAS GEOGRAPHIC DATA INC	44076	IMAGE20-04	EP4948429	00002	CGIA CONTRACT# IMAGE20-04
7115	1082	532199	41PT	02096	44098	000000143939	90746547	$ 29,557.26	566000967	Y	NC DEPT OF TRANSPORTATION	44094	IMAGE20 - FY20-21	EP4920803	00001	CUST# 67549
7115	1082	532199	41PT	02096	44098	000000143939	90748219	$ 22,946.38	566000967	Y	NC DEPT OF TRANSPORTATION	44089	IMAGE20 - FY20-21	EP4920803	00001	CUST# 67549
7115	1082	532199	41PT	02096	44098	000000143825	36248-001	$ 30,900.00	391133181	01	QUANTUM SPATIAL INCORPORATED	44067	FY20-21: PRODUCTION,	EP4920801	00001	CGIA CONTRACT# IMAGE20-08
7115	1082	532199	41PT	02096	44098	000000143849	CO20-08	$ 11,546.80	561963091	02	SPATIAL DATA CONSULTANTS	44046	IMAGE20-06	EP4948457	00001	CGIA CONTRACT# IMAGE20-06
7115	1082	532199	41PT	02096	44098	000000143849	CO20-08	$ 19,278.80	561963091	02	SPATIAL DATA CONSULTANTS	44046	IMAGE20-06	EP4948457	00002	CGIA CONTRACT# IMAGE20-06
7115	1082	532199	41PT	02096	44098	000000143849	CO20-09	$ 25,733.60	561963091	02	SPATIAL DATA CONSULTANTS	44075	IMAGE20-06	EP4948457	00001	CGIA CONTRACT# IMAGE20-06
7115	1082	532199	41PT	02096	44098	000000143826	4958	$ 31,540.95	430690641	B	SURDEX CORPORATION	44053	IMAGE20-03	EP4948434	00001	7/1/20 - 7/31/20 CGIA CONTRACT# IMAGE20-03
7115	1082	532199	41PT	02096	44098	000000143826	4982	$ 31,220.80	430690641	B	SURDEX CORPORATION	44083	IMAGE20-03	EP4948434	00001	CGIA CONTRACT# IMAGE20-03
7115	1082	532199	41PT	02096	44098	000000143799	COS00008026	$ 13,451.54	133980333	03	THE SANBORN MAP COMPANY INC.	44077	IMAGE20-05	EP4948422	00001	IMAGE20-05
7115	1082	533110	41PT	02096	44098	000000143823	ZXV7222	$ 2,970.00	364230110	B	CDW GOVERNMENT INC	44075	WD MY PASSPORT SSD W	EP4939192	00001	CUST# 5640050
7115	1082	533110	41PT	02096	44098	000000143823	ZXV7222	$ 3,575.00	364230110	B	CDW GOVERNMENT INC	44075	WD MY PASSPORT SSD W	EP4939192	00002	CUST# 5640050
7115	1082	533110	41PT	02096	44098	000000143823	ZXV7222	$ 160.00	364230110	B	CDW GOVERNMENT INC	44075	WD MY BOOK WDBBGB008	EP4939192	00003	CUST# 5640050
7115	1082	533110	41PT	02096	44098	000000143823	ZZG3311	$ 4,550.00	364230110	B	CDW GOVERNMENT INC	44077	WD MY PASSPORT SSD W	EP4939192	00002	CUST# 5640050

LABOR

DIT - CGIA

Staff Billing Report

Activity: July 2020

	Client	Date	Product/Service	Memo/Description	Rates	Duration	Billable	Amount
Anna Verrill								
Total for Anna Verrill						**0**		**$ -**
Ben Shelton								
	IMAGE20	07/01/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	07/01/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	1	Yes	84.00
	IMAGE20	07/02/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	1	Yes	84.00
	IMAGE20	07/02/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	07/07/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	07/08/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	07/09/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	1	Yes	84.00
	IMAGE20	07/09/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	07/10/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	07/13/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	07/14/2020	Services:55	Project Management	84.00	2	Yes	168.00
	IMAGE20	07/15/2020	Services:55	Project Management	84.00	1	Yes	84.00
	IMAGE20	07/16/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	07/17/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	07/20/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	07/21/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	07/22/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	07/23/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	07/24/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	07/27/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	07/28/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	07/29/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	07/29/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	1	Yes	84.00
	IMAGE20	07/30/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	2	Yes	168.00
	IMAGE20	07/30/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	07/31/2020	Services:55	Project Management	84.00	3	Yes	252.00
Total for Ben Shelton						**99**		**$ 8,316.00**
Matthew McLamb								
	IMAGE20	07/02/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	07/10/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	07/16/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	07/23/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	07/30/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
Total for Matthew McLamb						**2.5**		**$ 210.00**
Tim Johnson								
	IMAGE20	07/02/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	07/09/2020	Services:15	Consulting	84.00	2	Yes	168.00
	IMAGE20	07/10/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	07/14/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	07/16/2020	Services:15	Consulting	84.00	2	Yes	168.00
	IMAGE20	07/29/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	07/30/2020	Services:15	Consulting	84.00	1.5	Yes	126.00
Total for Tim Johnson						**9.5**		**$ 798.00**
Total						**111**		**$9,324.00**

DIT - CGIA

Staff Billing Report

Activity: August 2020

	Client	Activity Date	Product/Service	Memo/Description	Rates	Duration	Billable	Amount
Anna Verrill								
Total for Anna Verrill						**0**		**$ -**
Ben Shelton								
	IMAGE20	08/03/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	08/04/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	08/05/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	08/06/2020	Services:55	Project Management	84.00	8	Yes	672.00
	IMAGE20	08/07/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	08/10/2020	Services:55	Project Management	84.00	5.5	Yes	462.00
	IMAGE20	08/11/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	08/12/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	08/13/2020	Services:55	Project Management	84.00	6.5	Yes	546.00
	IMAGE20	08/13/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	0.5	Yes	42.00
	IMAGE20	08/14/2020	Services:55	Project Management	84.00	8	Yes	672.00
	IMAGE20	08/19/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	08/20/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	08/21/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	08/24/2020	Services:55	Project Management	84.00	4.5	Yes	378.00
	IMAGE20	08/25/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	08/26/2020	Services:55	Project Management	84.00	7.5	Yes	630.00
	IMAGE20	08/27/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	08/28/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	8/31/2020	Services:55	Project Management	84.00	4	Yes	336.00
Total for Ben Shelton						**109.5**		**$ 9,198.00**
Matthew McLamb								
	IMAGE20	08/06/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	08/13/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	08/20/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
	IMAGE20	08/27/2020	Services:15	Consulting	84.00	0.5	Yes	42.00
Total for Matthew McLamb						**2**		**$ 168.00**
Tim Johnson								
	IMAGE20	08/06/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	08/13/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	08/21/2020	Services:15	Consulting	84.00	1	Yes	84.00
	IMAGE20	08/27/2020	Services:15	Consulting	84.00	1	Yes	84.00
Total for Tim Johnson						**4**		**$ 336.00**
TOTAL						**115.5**		**$ 9,702.00**

DIT - CGIA

Staff Billing Report

Activity: September 2020

	Client	Date	Product/Service	Memo/Description	Rates	Duration	Billable	Amount
Anna Verrill								
Total for Anna Verrill						**134**		**$ 11,256.00**
Ben Shelton								
	IMAGE20	09/01/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	09/02/2020	Services:55	Project Management	84.00	7	Yes	588.00
	IMAGE20	09/03/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	09/04/2020	Services:55	Project Management	84.00	5	Yes	420.00
	IMAGE20	09/08/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	09/09/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	09/10/2020	Services:40	Presentations/Demonstrations/Meetings	84.00	0.5	Yes	42.00
	IMAGE20	09/11/2020	Services:55	Project Management	84.00	1	Yes	84.00
	IMAGE20	09/14/2020	Services:55	Project Management	84.00	1	Yes	84.00
	IMAGE20	09/15/2020	Services:55	Project Management	84.00	4	Yes	336.00
	IMAGE20	09/16/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	09/17/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	09/18/2020	Services:55	Project Management	84.00	6	Yes	504.00
	IMAGE20	09/21/2020	Services:55	Project Management	84.00	2	Yes	168.00
	IMAGE20	09/22/2020	Services:55	Project Management	84.00	2	Yes	168.00
	IMAGE20	09/23/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	09/24/2020	Services:55	Project Management	84.00	3	Yes	252.00
	IMAGE20	09/25/2020	Services:55	Project Management	84.00	3	Yes	252.00
Total for Ben Shelton						**59.5**		**$ 4,998.00**
Matthew McLamb								
	IMAGE20	09/03/2020	Services:15	Consulting	84.00	1	Yes	84.00
Total for Matthew McLamb						**1**		**$ 84.00**
Tim Johnson								
Total for Tim Johnson						**0**		**$ -**
TOTAL						**60.5**		**$ 5,082.00**

APPROVED INVOICES

Atlas Geographic Data, Inc

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	AGD-CO20-906
CGIA Contract Number	IMAGE20-04
Purchase Order Number	NC10562917
Invoice Amount	$127,822.50
Invoice Date	June 02 2020
Performance Period	May 1 thru May 31, 2020

Remit To
Issuing Vendor Firm: Atlas Geographic Data, Inc. Issuing Vendor Fiscal Division: A Issuing Vendor Address: 215 Racine Drive, Suite 201, Wilmington, NC 28403

Contact Information
Issuing Vendor Administrator: Larry Kirkpatrick Issuing Vendor Email: lkirkpatrick@atlasgeodata.com hlambert@atlasgeodata.com Issuing Vendor Phone: 910 256 9892 Issuing Vendor Fax: 910 256 9979

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3.	Aero-triangulation and Ortho Generation	$ 127,822.50
	Total	$ 127,822.50

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.09 16:59:49 -04'00'

RECEIVED
By Ben Shelton at 1:52 pm, Jun 11, 2020

Atlas
Geographic Data, Inc

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	AGD-CO20-907
CGIA Contract Number	IMAGE20-04
Purchase Order Number	NC10562917
Invoice Amount	$90,715.50
Invoice Date	July 06 2020
Performance Period	June 1 thru June 30, 2020

Remit To
Issuing Vendor Firm: Atlas Geographic Data, Inc. Issuing Vendor Fiscal Division: A Issuing Vendor Address: 215 Racine Drive, Suite 201, Wilmington, NC 28403

Contact Information
Issuing Vendor Administrator: Larry Kirkpatrick Issuing Vendor Email: lkirkpatrick@atlasgeodata.com hlambert@atlasgeodata.com Issuing Vendor Phone: 910 256 9892 Issuing Vendor Fax: 910 256 9979

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3.	Aero-triangulation and Ortho Generation	$ 71,050.50
4.	Product Delivery and Data Acceptance	$ 19,665.00
	Total	$ 90,715.50

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.09 17:07:20 -04'00'

RECEIVED
By Ben Shelton at 3:09 pm, Jul 08, 2020

Atlas Geographic Data, Inc

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	AGD-CO20-908
CGIA Contract Number	IMAGE20-04
Purchase Order Number	NC10562917
Invoice Amount	$59,560.25
Invoice Date	August 05 2020
Performance Period	July 1 thru July 31, 2020

Remit To
Issuing Vendor Firm: Atlas Geographic Data, Inc. Issuing Vendor Fiscal Division: A Issuing Vendor Address: 215 Racine Drive, Suite 201, Wilmington, NC 28403

Contact Information
Issuing Vendor Administrator: Larry Kirkpatrick Issuing Vendor Email: lkirkpatrick@atlasgeodata.com hlambert@atlasgeodata.com Issuing Vendor Phone: 910 256 9892 Issuing Vendor Fax: 910 256 9979

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3.	Aero-triangulation and Ortho Generation	$ 35,525.25
4.	Product Delivery and Data Acceptance	$ 24,035.00
	Total	$ 59,560.25

APPROVED

Digitally signed by Tim Johnson
Date: 2020.08.21 12:28:18 -04'00'

RECEIVED
By Ben Shelton at 1:33 pm, Aug 19, 2020

Atlas Geographic Data, Inc

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	AGD-CO20-909
CGIA Contract Number	IMAGE20-04
Purchase Order Number	NC10562917
Invoice Amount	$6,954.00
Invoice Date	September 02, 2020
Performance Period	August 1 thru August 31, 2020

Remit To
Issuing Vendor Firm: Atlas Geographic Data, Inc. Issuing Vendor Fiscal Division: A Issuing Vendor Address: 215 Racine Drive, Suite 201, Wilmington, NC 28403

Contact Information
Issuing Vendor Administrator: Larry Kirkpatrick Issuing Vendor Email: lkirkpatrick@atlasgeodata.com hlambert@atlasgeodata.com Issuing Vendor Phone: 910 256 9892 Issuing Vendor Fax: 910 256 9979

Invoice Summary (per Primary Task)

Task	Item Description	Amount
5.	Quality Review Resolutions	$ 6,954.00
	Total	$ 6,954.00

APPROVED

Digitally signed by Tim Johnson
Date: 2020.09.15 17:30:56 -04'00'

RECEIVED
By Ben Shelton at 9:49 am, Sep 10, 2020

Invoice

North Carolina Geodetic Survey
4298 Mail Service Center
Raleigh, NC 27699-4298
919-733-3836

Date	Invoice #
6/9/2020	S-519

Bill To
NC Department of Information Technology CGIA Attn: Tim Johnson 20322 Mail Service Center Raleigh, N.C. 27699-0322

P.O. No.	Terms	Project
NC10550604	Net 30	Coastal Orthoimagery 2020

Quantity	Description	Rate	Amount
	Coastal Orthoimagery 2020 Project		
29	Task 3.1 (plan horizontal quality control process) May 1 - May 29, 2020 WR	46.77	1,356.33
3	Task 2.1.2 (CORS maintenance) May 7, 2020 RS	46.77	140.31
		Total	$1,496.64

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.10 09:12:41 -04'00'

RECEIVED
By Ben Shelton at 8:00 am, Jun 18, 2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

Invoice

Bill To:

ITS-CGIA
ATTN: TIM JOHNSON
PO Box 17209
RALEIGH NC 27609-7209

Order Information

Customer Number:	67549
Invoice Number:	90744382
Purchase Order #:	006474-001_8188_0001
Purchase Order Date:	08/29/2019
Sales Order Number:	665590
Payment Terms:	Net due 30 days
Billing Date:	07/14/2020
Due Date:	08/13/2020

NC10546123

Remit To:
North Carolina Department of Transportation
Fiscal Section - Accounts Receivable Unit
1514 Mail Service Center
Raleigh, North Carolina 27699-1514

Contact Person: Stephanie Benson
Phone: (919)707-4208 Ext. 00
Fax: (919)715-8718
Internet: sbenson@ncdot.gov

Invoice Details

Item	Description	Quantity	Unit Price	Amount
0010	NC State Agency Participation Reim. INTERAGENCY REIMBURSEMENT AGREEMENT EXECUTED ON 8/29/19 WITH THE NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY CENTER FOR GEOGRAPHIC INFORMATION AND ANALYSIS CONSISTING OF PROVIDING ORTHOIMAGERY ADVISORY AND TECHNICAL SERVICES FOR THE DIGITAL COASTAL ORTHOIMAGERY 2020 PROJECT IN 27 COUNTIES OF NORTH CAROLINA, TOTALING APPROXIMATELY 15,678 SQUARE MILES AND 17,483 ORTHOIMAGERY TILES (THE STUDY AREA). COSTS INCURRED FOR THE MONTH OF JUNE 2020 TOTAL $5,088.75 PER ATTACHED EMAIL AND DOCUMENTATION RECEIVED FROM RANDY DILLARD OF NCDOT'S PHOTOGRAMMERY UNIT.	1 EA	5,088.75	5,088.75
	Total Amount Due			$ 5,088.75

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.16 13:52:26 -04'00'

Please return the attached copy of this invoice to ensure proper credit for your payment. Remittances should be made payable to N.C. Department of Transportation. According to State Cash Management G.S.25- 3-506, a $35.00 fee may be imposed for a check on which payment has been refused.

RECEIVED
By Ben Shelton at 12:36 pm, Jul 14, 2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

Invoice

Bill To:

ITS-CGIA
ATTN: TIM JOHNSON
PO Box 17209
RALEIGH NC 27609-7209

Order Information

Customer Number:	67549
Invoice Number:	90742557
Purchase Order #:	006474-001_8188_000
Purchase Order Date:	08/29/2019
Sales Order Number:	664020
Payment Terms:	Net due 30 days
Billing Date:	06/11/2020
Due Date:	07/11/2020

NC10546123

Remit To:
North Carolina Department of Transportation
Fiscal Section - Accounts Receivable Unit
1514 Mail Service Center
Raleigh, North Carolina 27699-1514

Contact Person: Stephanie Benson
Phone: (919)707-4208 Ext. 00
Fax: (919)715-8718
Internet: sbenson@ncdot.gov

Invoice Details

Item	Description	Quantity	Unit Price	Amount
0010	NC State Agency Participation Reim. INTERAGENCY REIMBURSEMENT AGREEMENT EXECUTED ON 8/29/19 WITH THE NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY CENTER FOR GEOGRAPHIC INFORMATION AND ANALYSIS CONSISTING OF PROVIDING ORTHOIMAGERY ADVISORY AND TECHNICAL SERVICES FOR THE DIGITAL COASTAL ORTHOIMAGERY 2020 PROJECT IN 27 COUNTIES OF NORTH CAROLINA, TOTALING APPROXIMATELY 15,678 SQUARE MILES AND 17,483 ORTHOIMAGERY TILES (THE STUDY AREA). COSTS INCURRED FOR THE MONTH OF MAY 2020 TOTAL $4,660.21 PER ATTACHED EMAIL AND DOCUMENTATION RECEIVED FROM RANDY DILLARD OF NCDOT'S PHOTOGRAMMERY UNIT.	1 EA	4,660.21	4,660.21
	Total Amount Due			$ 4,660.21

APPROVED
Digitally signed by Tim Johnson
Date: 2020.07.10 09:20:35 -04'00'

Please return the attached copy of this invoice to ensure proper credit for your payment. Remittances should be made payable to N.C. Department of Transportation. According to State Cash Management G.S.25- 3-506, a $35.00 fee may be imposed for a check on which payment has been refused.

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By Ben Shelton at 1:47 pm, Jun 11, 2020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

Invoice

Bill To:

ITS-CGIA
ATTN: TIM JOHNSON
PO Box 17209
RALEIGH NC 27609-7209

Order Information

Customer Number:	67549
Invoice Number:	90746547
Purchase Order #:	006474-001_8188_0001
Purchase Order Date:	08/29/2019
Sales Order Number:	667519
Payment Terms:	Net due 30 days
Billing Date:	08/20/2020
Due Date:	09/19/2020

EP4920803

Remit To:
North Carolina Department of Transportation
Fiscal Section - Accounts Receivable Unit
1514 Mail Service Center
Raleigh, North Carolina 27699-1514

Contact Person: Stephanie Benson
Phone: (919)707-4208 Ext. 00
Fax: (919)715-8718
Internet: sbenson@ncdot.gov

Invoice Details

Item	Description	Quantity	Unit Price	Amount
0010	NC State Agency Participation Reim. INTERAGENCY REIMBURSEMENT AGREEMENT EXECUTED ON 8/29/19 WITH THE NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY CENTER FOR GEOGRAPHIC INFORMATION AND ANALYSIS CONSISTING OF PROVIDING ORTHOIMAGERY ADVISORY AND TECHNICAL SERVICES FOR THE DIGITAL COASTAL ORTHOIMAGERY 2020 PROJECT IN 27 COUNTIES OF NORTH CAROLINA, TOTALING APPROXIMATELY 15,678 SQUARE MILES AND 17,483 ORTHOIMAGERY TILES (THE STUDY AREA). COSTS INCURRED FOR THE MONTH OF JULY 2020 TOTAL $29,557.26 PER ATTACHED EMAIL AND DOCUMENTATION RECEIVED FROM RANDY DILLARD OF NCDOT'S PHOTOGRAMMERY UNIT.	1 EA	29,557.26	29,557.26
	Total Amount Due			$ 29,557.26

Please return the attached copy of this invoice to ensure proper credit for your payment. Remittances should be made payable to N.C. Department of Transportation. According to State Cash Management G.S.25- 3-506, a $35.00 fee may be imposed for a check on which payment has been refused.

RECEIVED
By Ben Shelton at 9:39 am, Aug 27, 2020

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Date: 2020.09.15 17:58:50 -04'00'

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

Invoice

Bill To:

ITS-CGIA
ATTN: TIM JOHNSON
PO Box 17209
RALEIGH NC 27609-7209

Order Information

Customer Number:	67549
Invoice Number:	90748219
Purchase Order #:	006474-001_8188_0001
Purchase Order Date:	08/29/2019
Sales Order Number:	668709
Payment Terms:	Net due 30 days
Billing Date:	09/15/2020
Due Date:	10/15/2020

EP4920803

Remit To:
North Carolina Department of Transportation
Fiscal Section - Accounts Receivable Unit
1514 Mail Service Center
Raleigh, North Carolina 27699-1514

Contact Person: Stephanie Benson
Phone: (919)707-4208 Ext. 00
Fax: (919)715-8718
Internet: sbenson@ncdot.gov

Invoice Details

Item	Description	Quantity	Unit Price	Amount
0010	NC State Agency Participation Reim. . INTERAGENCY REIMBURSEMENT AGREEMENT EXECUTED ON 8/29/19 WITH THE NORTH CAROLINA DEPARTMENT OF INFORMATION TECHNOLOGY CENTER FOR GEOGRAPHIC INFORMATION AND ANALYSIS CONSISTING OF PROVIDING ORTHOIMAGERY ADVISORY AND TECHNICAL SERVICES FOR THE DIGITAL COASTAL ORTHOIMAGERY 2020 PROJECT IN 27 COUNTIES OF NORTH CAROLINA, TOTALING APPROXIMATELY 15,678 SQUARE MILES AND 17,483 ORTHOIMAGERY TILES (THE STUDY AREA). . COSTS INCURRED FOR THE MONTH OF AUGUST 2020 TOTAL $22,946.38 PER ATTACHED EMAIL AND DOCUMENTATION RECEIVED FROM RANDY DILLARD OF NCDOT'S PHOTOGRAMMERY UNIT.	1 EA	22,946.38	22,946.38
	Total Amount Due			$ 22,946.38

Please return the attached copy of this invoice to ensure proper credit for your payment. Remittances should be made payable to N.C. Department of Transportation. According to State Cash Management G.S.25- 3-506, a $35.00 fee may be imposed for a check on which payment has been refused.

RECEIVED
By Ben Shelton at 2:39 pm, Sep 15, 2020

APPROVED

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Date: 2020.09.15 18:14:35 -04'00'

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	03
CGIA Contract Number	IMAGE20-07
Purchase Order Number	NC10562919
Invoice Amount	$124,485.62
Invoice Date	07/10/2020
Performance Period	4/30/2020 – 6/30/2020

Remit To
Quantum Spatial Inc 75 Remittance Drive Dept 6868, Chicago, IL 60675-6868

Contact Information
Chase Thompson cthompson@quantumspatial.com 859-321-7777 859-277-8901 - Fax

Invoice Summary (per Primary Task)

Task	Item Description	Amount
2	Image Acquisition and Exploitation Image Post Processing	$8,312.50
3	GPS-IMU Post Processing, AT and Ortho Generation	$106,281.25
4	Product Delivery and Data Acceptance	$9,891.87

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.13 16:07:08 -04'00'

RECEIVED
By Ben Shelton at 11:49 am, Jul 10, 2020

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	4904
CGIA Contract Number	IMAGE20-03
Purchase Order Number	NC10562920
Invoice Amount	$37,918.20
Invoice Date	June 2, 2020
Performance Period	May 1, 2020 -May 31, 2020

Remit To
Surdex Corporation Accounts Receivable 520 Spirit of St. Louis Blvd. Chesterfield, MO 63005

Contact Information
Harold Feldman Haroldf@surdex.com 636-368-4400 636-368-4401

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3	**Aerotriangulation and Ortho Generation**	37,918.20
	Total	$37,918.20

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.09 17:53:42 -04'00'

RECEIVED
By Ben Shelton at 1:53 pm, Jun 11, 2020

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	4933
CGIA Contract Number	IMAGE20-03
Purchase Order Number	NC10562920
Invoice Amount	$30,252.75
Invoice Date	July 5, 2020
Performance Period	June 01, 2020 -June 30, 2020

Remit To
Surdex Corporation Accounts Receivable 520 Spirit of St. Louis Blvd. Chesterfield, MO 63005

Contact Information
Harold Feldman Haroldf@surdex.com 636-368-4400 636-368-4401

Invoice Summary (per Primary Task)

Task	Item Description	Amount
4	**Level 1 Review and Initial GeoTIFF Submittal**	30,252.75
	Total	$30,252.75

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.09 18:04:42 -04'00'

RECEIVED
By Ben Shelton at 3:09 pm, Jul 08, 2020

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	4958
CGIA Contract Number	IMAGE20-03
Purchase Order Number	NC10562920
Invoice Amount	$31,540.95
Invoice Date	August 10, 2020
Performance Period	July 01, 2020 -July 31, 2020

Remit To
Surdex Corporation Accounts Receivable 520 Spirit of St. Louis Blvd. Chesterfield, MO 63005

Contact Information
Harold Feldman Haroldf@surdex.com 636-368-4400 636-368-4401

Invoice Summary (per Primary Task)

Task	Item Description	Amount
4	**Level 1 Review and Initial GeoTIFF Submittal**	31,540.95
	Total	$31,540.95

APPROVED

Digitally signed by Tim Johnson
Date: 2020.08.21 12:43:52 -04'00'

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By Ben Shelton at 1:33 pm, Aug 19, 2020

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson 3700 Wake Forest Rd. Raleigh, NC 27609

Order Information	
Invoice Number	4982
CGIA Contract Number	IMAGE20-03
Purchase Order Number	NC10562920
Invoice Amount	$31,220.80
Invoice Date	September 9, 2020
Performance Period	August 01, 2020 - August 31, 2020

Remit To
Surdex Corporation Accounts Receivable 520 Spirit of St. Louis Blvd. Chesterfield, MO 63005

Contact Information
Harold Feldman Haroldf@surdex.com 636-368-4400 636-368-4401

Invoice Summary (per Primary Task)

Task	Item Description	Amount
4	**Level 1 Review and Initial GeoTIFF Submittal**	20,168.50
5	**Quality Review Resolutions**	11,052.30
	Total	$31,220.80

APPROVED

Digitally signed by Tim Johnson
Date: 2020.09.15 17:46:28 -04'00'

RECEIVED
By Ben Shelton at 9:49 am, Sep 10, 2020

Sanborn | Charlotte
6701 Carmel Road
Suite 301
Charlotte, NC 28226

Phone: 704.347.4552
Toll-Free: 1.866.726.2676
Fax: 704.347.4515
www.sanborn.com

INVOICE

Bill To
41PT ITS ACCOUNTS PAYABLE PO BOX 17209 Raleigh, NC 27619-7209 United States Phone: 1919-754-6314 Department of Information Technology

Order Information	
Invoice Number	COS00006942
CGIA Contract Number	IMAGE20-05
Purchase Order Number	NC10562915
Invoice Amount	$108,267.47
Invoice Date	July 9, 2020
Performance Period	May 1, 2020 through June 30, 2020

Remit To
Sanborn Map Company, Inc. Accounts Receivable 1935 Jamboree Dr., Ste 100 Colorado Springs, CO 80920

Contact Information
Maralyn Kuenstler mkuenstler@sanborn.com Phone: (719) 264.5564 Fax: (719) 623.0074

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3	Aerotriangulation and Ortho Generation	$81,414.66
4	Product Delivery and Data Acceptance	$26,852.81
	Total	$108,267.47

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By Ben Shelton at 11:27 am, Jul 10, 2020

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Digitally signed by Tim Johnson
Date: 2020.07.13 15:57:00 -04'00'

Sanborn | Charlotte
6701 Carmel Road
Suite 301
Charlotte, NC 28226

Phone: 704.347.4552
Toll-Free: 1.866.726.2676
Fax: 704.347.4515
www.sanborn.com

INVOICE

Bill To
41PT ITS ACCOUNTS PAYABLE PO BOX 17209 Raleigh, NC 27619-7209 United States Phone: 1919-754-6314 Department of Information Technology

Order Information	
Invoice Number	COS00008026
CGIA Contract Number	IMAGE20-05
Purchase Order Number	NC10562915
Invoice Amount	$13,451.54
Invoice Date	September 3, 2020
Performance Period	July 1, 2020 through August 31, 2020

Remit To
Sanborn Map Company, Inc. Accounts Receivable 1935 Jamboree Dr., Ste 100 Colorado Springs, CO 80920

Contact Information
Maralyn Kuenstler mkuenstler@sanborn.com Phone: (719) 264.5564 Fax: (719) 623.0074

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3	Aerotriangulation and Ortho GenerationProduct	$310.69
4	Delivery and Data Acceptance	$2,983.64
5	Quality Review Resolutions	$10,157.21
	Total	**$13,451.54**

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By Ben Shelton at 9:49 am, Sep 10, 2020

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Date: 2020.09.15 17:40:57 -04'00'

SPATIAL DATA
CONSULTANTS INC.

1008 Hutton Lane, Suite 109
High Point, NC 27262
Phone: (336) 841-1247
Fax: (336) 841-1248
www.spatialdc.com

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson, GISP 3700 Wake Forest Rd. Raleigh, NC 27609

Remit To
Spatial Data Consultants, Inc. 1008 Hutton Lane, Suite 109 High Point, NC 27262

Order Information	
Invoice Number	CO20-06
CGIA Contract Number	IMAGE20-06
Purchase Order Number	NC10562921
Invoice Amount	$94,517.40
Invoice Date	06/02/20
Performance Period	05/01/20 through 05/31/20

Contact Information
Susan L. Schall, President, CEO sschall@spatialdc.com (336) 841-1247 (office) (336) 906-3261 (cell) (336) 841-1248 (fax)

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3	**Aerotriangulation and Ortho Generation**	**$94,517.40**
	Invoice Total	**$94,517.40**

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Digitally signed by Tim Johnson
Date: 2020.07.09 17:28:33 -04'00'

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By Ben Shelton at 1:53 pm, Jun 11, 2020

SPATIAL DATA
CONSULTANTS INC.

1008 Hutton Lane, Suite 109
High Point, NC 27262
Phone: (336) 841-1247
Fax: (336) 841-1248
www.spatialdc.com

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson, GISP 3700 Wake Forest Rd. Raleigh, NC 27609

Remit To
Spatial Data Consultants, Inc. 1008 Hutton Lane, Suite 109 High Point, NC 27262

Order Information	
Invoice Number	CO20-07
CGIA Contract Number	IMAGE20-06
Purchase Order Number	NC10562921
Invoice Amount	$83,972.40
Invoice Date	07/02/20
Performance Period	06/01/20 through 06/30/20

Contact Information
Susan L. Schall, President, CEO sschall@spatialdc.com (336) 841-1247 (office) (336) 906-3261 (cell) (336) 841-1248 (fax)

Invoice Summary (per Primary Task)

Task	Item Description	Amount
3	**Aerotriangulation and Ortho Generation**	**$37,734.00**
4	**Product Delivery and Data Acceptance**	**$46,238.40**
	Invoice Total	**$83,972.40**

APPROVED

Digitally signed by Tim Johnson
Date: 2020.07.13 15:44:30 -04'00'

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By Ben Shelton at 11:24 am, Jul 10, 2020

SPATIAL DATA CONSULTANTS INC.

1008 Hutton Lane, Suite 109
High Point, NC 27262
Phone: (336) 841-1247
Fax: (336) 841-1248
www.spatialdc.com

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson, GISP 3700 Wake Forest Rd. Raleigh, NC 27609

Remit To
Spatial Data Consultants, Inc. 1008 Hutton Lane, Suite 109 High Point, NC 27262

Order Information	
Invoice Number	CO20-08
CGIA Contract Number	IMAGE20-06
Purchase Order Number	NC10562921
Invoice Amount	$30,825.60
Invoice Date	08/03/20
Performance Period	07/01/20 through 07/31/20

Contact Information
Susan L. Schall, President, CEO sschall@spatialdc.com (336) 841-1247 (office) (336) 906-3261 (cell) (336) 841-1248 (fax)

Invoice Summary (per Primary Task)

Task	Item Description	Amount
4	**Product Delivery and Data Acceptance**	**$30,825.60**
	Invoice Total	**$30,825.60**

APPROVED

Digitally signed by Tim Johnson
Date: 2020.08.21 12:34:59 -04'00'

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By Ben Shelton at 1:33 pm, Aug 19, 2020

SPATIAL DATA CONSULTANTS INC.

1008 Hutton Lane, Suite 109
High Point, NC 27262
Phone: (336) 841-1247
Fax: (336) 841-1248
www.spatialdc.com

INVOICE

Bill To
Center for Geographic Information and Analysis Attn: Tim Johnson, GISP 3700 Wake Forest Rd. Raleigh, NC 27609

Remit To
Spatial Data Consultants, Inc. 1008 Hutton Lane, Suite 109 High Point, NC 27262

Order Information	
Invoice Number	CO20-09
CGIA Contract Number	IMAGE20-06
Purchase Order Number	NC10562921
Invoice Amount	$25,733.60
Invoice Date	09/01/20
Performance Period	08/01/20 through 08/31/20

Contact Information
Susan L. Schall, President, CEO sschall@spatialdc.com (336) 841-1247 (office) (336) 906-3261 (cell) (336) 841-1248 (fax)

Invoice Summary (per Primary Task)

Task	Item Description	Amount
5	**Quality Review Resolutions**	**$25,733.60**
	Invoice Total	**$25,733.60**

APPROVED

Digitally signed by Tim Johnson
Date: 2020.09.15 09:03:31 -04'00'

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By Ben Shelton at 9:49 am, Sep 10, 2020

INVOICE

Bill To
41PT ITS ACCOUNTS PAYABLE POBOX17209 Raleigh,NC 27619-7209 UnitedStates Phone: 919-754-6314

Order Information	
Invoice Number	36248-001
CGIA Contract Number	IMAGE20-08
Purchase Order Number	EP4920801
Invoice Amount	$30,900
Invoice Date	August 24, 2020
Performance Period	02-25-20 to 07-31-20

Remit To
Updated Remittance info with Jason Pollard

Contact Information
Chris Holder cholder@quantumspatial.com Vendor Phone: (859) 277-8700 Vendor Fax: 859-277-8701

Invoice Summary (per Primary Task)

Task	Item Description	Amount
1	Requirement Workshop	$2,500.00
2	System Design Document	$3,000.00
3	Development	$8,000.00
4-5	Beta Testing and Production System	$8,000.00
6	Hosting and Project Close	$9,400.00
	TOTAL	$30,900.00

RECEIVED
By Ben Shelton at 9:35 am, Aug 27, 2020

APPROVED

Digitally signed by Tim Johnson
Date: 2020.09.15 17:52:48 -04'00'

Tab 6

Executive Director's Report

Pokey Harris

Tab 6 a)

911 Board Appointment Status

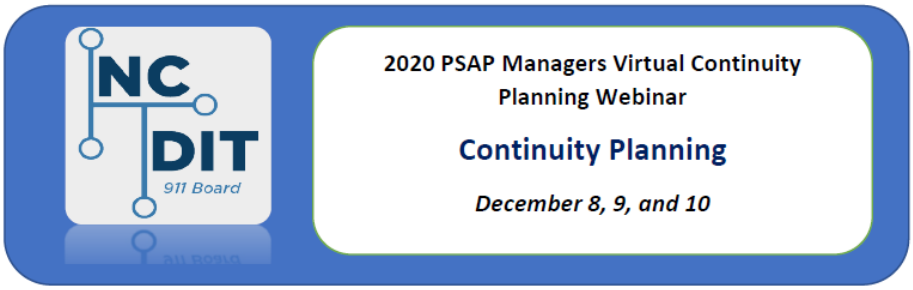
Tab 6 b)

COVID-19 Update

Tab 6 c)

Staffing Update

Tab 6 d)
2020 PSAP Managers Virtual Continuity Planning Workshop Series



Day 1 – *"I'm on the ESInet. Now What? ESInet Capabilities"*
Tuesday, December 8, 2020, from 9 a.m. to 10:30 a.m.
***Repeat* Session: 3 p.m. to 4:30 p.m.**
To Access Click: TEAMS Meeting Link or Call in (audio only)
1-984-204-1487 Phone Conference ID: 954 815 578#

- **Welcome and Opening Remarks -** Pokey Harris, NC 911 Board Executive Director
- **ESInet Implementation Overview** - Gerry Means NC 911 Board Network Engineer
- **ESInet Capabilities and Continuity Planning** - Gerry Means NC 911 Board Network Engineer

---

Day 2 – "No Comms…No Battle: Radio and State Resources"
Wednesday, December 9, 2020, from 9 a.m. to 10:30 a.m.
***Repeat* Session: 3 p.m. to 4:30 p.m.**
To Access Click: TEAMS Meeting Link or Call in (audio only)
1-984-204-1487 Phone Conference ID: 127 500 001#

- **Welcome and Opening Remarks -** Pokey Harris, NC 911 Board Executive Director
- **State VIPER Resources -** Joe Allison, NC SHP Network Engineer/Zone Manager
- **AUX (Auxiliary) Communications** - Tom Brown and Virginia Enzor
- **EM DPR Regions Resources -** Greg Hauser Statewide Interoperability Coordinator, Brian Short, Director of Emergency Operations Henderson-Vance County, Thomas Brake, Joint Operations Center Manager for Charlotte Douglas International Airport

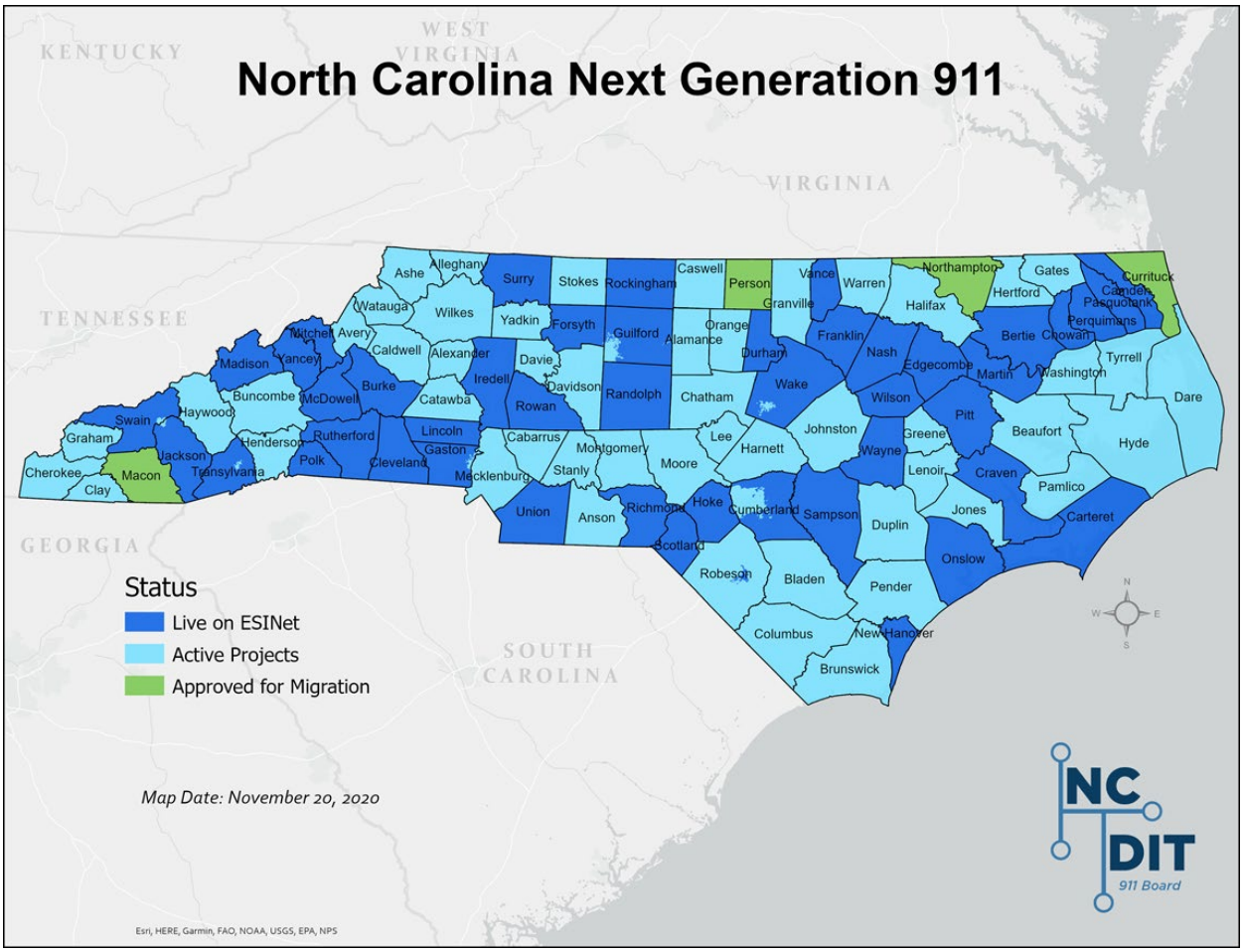
---

Day 3 – *"Putting it All Together: The Continuity Plan"*
Thursday, December 10, 2020, from 9 a.m. to 10:30 a.m.
***Repeat* Session: 3 p.m. to 4:30 p.m.**
To Access Click: TEAMS Meeting Link or Call in (audio only)
1-984-204-1487 Phone Conference ID: 998 478 682#

- **Welcome and Opening Remarks** - Pokey Harris, NC 911 Board Executive Director
- **NMAC Operations -** Stanley Meeks, NC 911 Board NMAC Manager
- **The Continuity Plan** - NC 911 Board Regional Coordinators: Stephanie Conner, Tina Gardner, David Newberry and Angie Turbeville

Tab 6 e)
NextGen 911 Migration Status

NC NG911 Migration Status



Transylvania County 911
(Western Region)
ESInet Migration
September 21, 2020

Transylvania County 911 migrated to the NC 911 statewide ESInet on the Vesta hosted call handling platform as i3, taking their first live call at 1255 Hours. This is the first and only PSAP in NC served by Comporium as the LEC.

This was PSAP #55 and the 87th physical location migrating to the ESInet.

Congratulations to Kevin Shook, Emergency Management Director, and the entire team at Transylvania County 911.

Pictures and quote not available at time of publication.

Surry County 911
Mount Airy PD 911
Elkin PD 911
(North Central Region)
ESInet Migration
September 21, 2020

Surry County 911 and its two secondary PSAPs, Mt. Airy PD and Elkin PD, successfully migrated to the NC 911 AT&T managed service ESInet as i3 and hosted Vesta, taking the first live call on September 21 at 1442.

Nicholas D. Brown, Assistant Director, Surry County 911 Communications shared his thoughts that day saying, “Our technician (Robert Cross), that has been with us throughout this entire process has been wonderful. Our project manager, (Karen Zealor) assisted us with numerous conference calls and kept us all on schedule to make sure everything was completed as requested. The administrator and user training from Motorola, was very helpful - it taught us a lot of things that we didn’t know about the phone system.”



Kudos on this triple header cutover!!!

This migration brought the total number of PSAPs live on ESInet in North Carolina to 58 PSAP agencies and 90 physical PSAP locations.

Hoke County 911
(Eastern Region)
ESInet Migration
November 12, 2020

On November 12, Hoke County 911 migrated as i3 to the statewide ESInet, also becoming part of the Viper hosted call handling platform. Becoming PSAP #59 (and the 92nd physical location including backup facilities), they received the first call at 1127 EST.

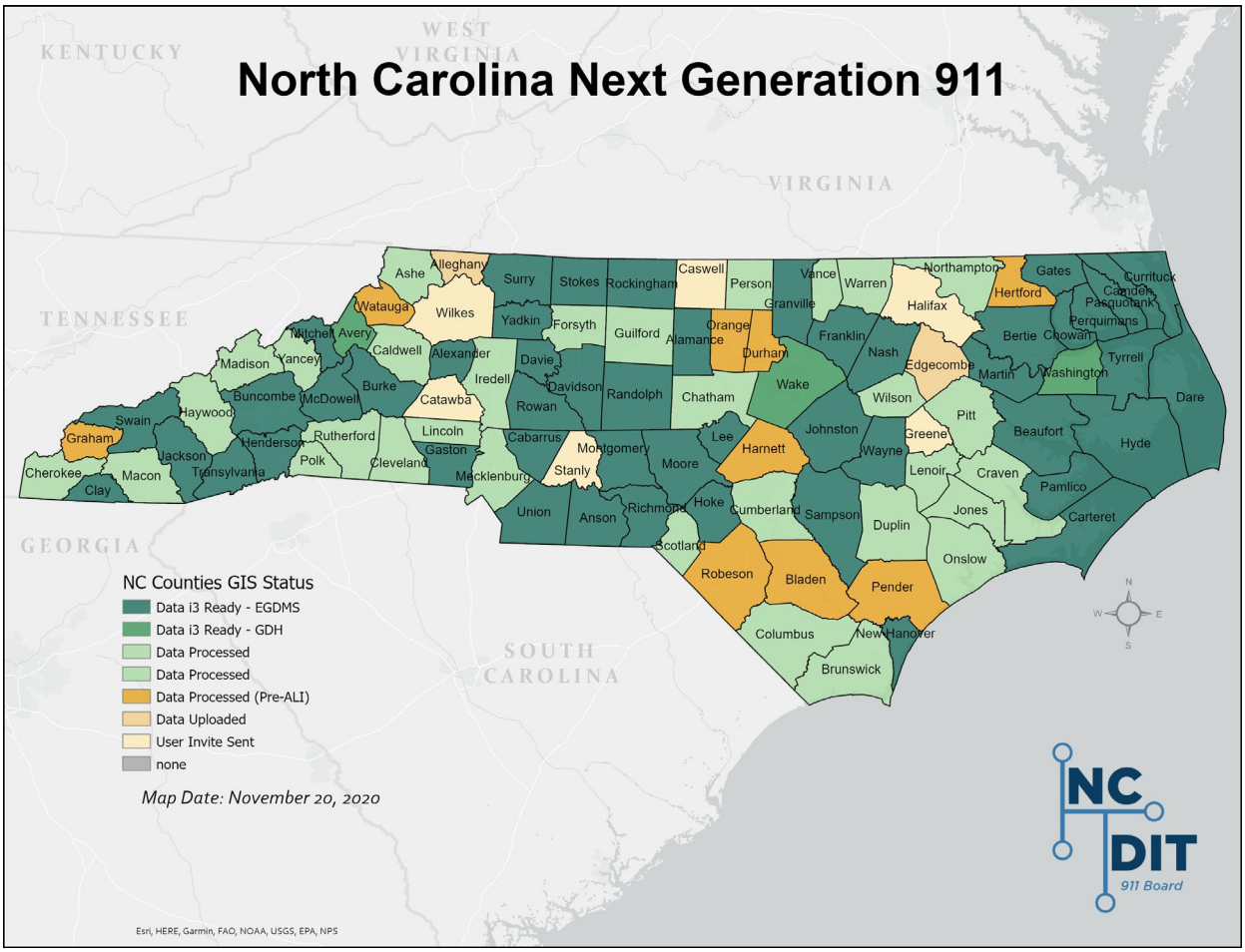
Jimmy Stewart, Director of Hoke County Emergency Communications, and former 911 Board member shared a very historical and illuminating perspective saying, "I was fortunate to have been a member of the NC 911 Board at the inception of the NC State ESInet. It was a concept that wasn't new as some states had established state 911 telephone networks, but it was definitely new to us. Richard Taylor ~~suckered~~ asked Jeff Shipp and the Technology Committee (which had a different name before all of this if I remember correctly) to take the lead in developing this concept. Gerry Means was hired to design and oversee the ESInet and establish the NMAC. I was fortunate to be a Board member to see the culmination of all of that work when the vote to award that contract to AT&T was made and start the process that now has seen 59 centers come on board. This is a small paragraph that represents thousands of manhours of work, sweat, and tears in establishing this system. It's culmination from an idea to its fruition with almost half of the centers in NC being on-boarded it is a prime example of the leading-edge North Carolina has been on in the 911 arena. The leadership then with Richard and now with Pokey as well as the Board staff then and now have set the standard for which I am proud to have been a small part of.

I told Gerry at the onset years ago that I couldn't wait to get on the ESInet. I even mentioned it in my parting words in my last meeting as a Board member. Well, for me that wait is over. Hoke County Emergency Communications is number 59 and I could not be happier or prouder. My thanks to everyone who played any part in this.

p.s. As a rule, I hate pictures of myself knowing how unphotogenic I am. But this makes me so happy, I am going to violate my cardinal rule about pictures."

Tab 6 f)
NextGen 911 GIS Status Map

NC NG911 GIS Status



Tab 6 g)
Consideration of Nomination for Board Vice Chair (January 2021 Meeting)

Tab 7
Executive Committee Report
Donna Wright

Tab 8
Education Committee Report
Chuck Greene

Tab 8 a)
Traning Eligibility Request/ Update Eligible Use of Funds List: Priority Dispatch – EMD and EPD Refersher Course
(Roll Call Vote Required)

Buncombe County 911 – December 2020 Training

4-hour training sessions designed to increase employee's understanding and comfort with using the Priority Dispatch Systems.

1) Introductions
2) Overview of ProQA functionality
    a. Basic review of the software, navigation techniques, error correction, review of available shortcuts
    b. Working with CAD or in Standalone Mode
3) Quality Improvement principles
    a. Discussion of QA/QI standards
    b. Pitfalls associated with freelancing and asking leading questions
    c. Rules, axioms and laws as they apply to the QA/QI standards
4) Emergency Medical Dispatch
    a. Case Entry overview
    b. ECHO level situations
    c. Chief Complaint Selection
    d. Local Special Definitions
5) Emergency Police Dispatch
    a. Case Entry overview
    b. ECHO level situations
    c. COLD CALL situations
    d. Chief Complaint Selection
    e. Case Exit review
    f. Local Special Definitions
6) Open Discussion for other topics

Tab 8 b)
General Committee Report

Tab 9
Funding Committee Report
David Bone

Tab 9 a)
Basic Freedom Licensing Approval
(Roll Call Vote Required)

Tab 9 b)
Orange County Funding Reconsideration
(Roll Call Vote Required)

Orange County
Emergency Services

510 Meadowlands Drive
Hillsborough, NC 27278
919.245.6100

NC 911 Funding Committee Members:

For the past several years, the Orange County PSAP has applied fund balance to our annual distribution to offset the increasing cost of providing 911 services. With the reconsideration we received due to evacuation and rebuild of our primary PSAP, plus spending funds in the account first, we have now dwindled our fund balance to the point where this cannot continue. For FY 2021 we are requesting a funding reconsideration from the NC 911 Board to continue providing quality service and to reestablish a fund balance that can and should be used for one time purchases and not to sustain monthly expenses.

We are in a position, due to the environmental problems with our building; we do not have funding for critical IT infrastructure upgrades. These upgrades allow us to remain a viable and leading division in our County, providing reliable 911 service to the residents and visitors to Orange County. The costs of 911 phone services drain most of the distribution we receive from 911 users' fees on a yearly basis; thus, leaving very little to cover maintenance contracts, upkeep and upgrades to ensure minimal downtime to operations. Many IT capital projects moved through budget years to secure funding for 911 delivery and maintenance costs. We now are at the point where we need to upgrade hardware and versions of software to keep up with technology and to maintain a consistent replacement plan in line with the NC 911 Board replacement schedule.

With a current fund balance of $17,588.89, we do not have any ability to offset any of the expense increases. With the attached budget as an example, all current 911 fund distribution goes to operating cost. The cost to maintain all of the systems leaves us no room to make any capital purchases to increase the productivity and reliability of the system. The additional funding will allow us to upgrade hardware for our CAD system, creating stability, while we begin the 5 year project with our partner agencies to replace the current CAD, RMS, and JMS system with a solution that works for the County. Recorder replacement would allow us to maintain a replacement cycle, while also fixing issue we found after the removal and reinstallation during our evacuation of the building. VIPER upgrade requirements are also included that would allow us to remain up to date and full functionality.

*W*e thank you for your consideration and understanding as you review this and are available at any time for any questions or concerns you may have.

Kevin Medlin
Orange County Emergency Services
911 Communications Operations Manager
kmedlin@orangecountync.gov
O:919-245-6139
C:919-357-1098

North Carolina 911 Board

PSAP: Orange County Emergency Services
Contact Name: Kevin Medlin
Contact Address: PO Box 8181
City: Hillsborough
Zip: 27278
Contact Email: kmedlin@orangecountync.gov

Instructions: All requests for review of PSAP Distribution amount must use this form with each request. Please do not change block descriptors, formulas or formatting.
******PLEASE SEE INSTRUCTIONS tab for further details***** ***All requests are due by August 31, 2020.*** **Email this form and all supporting documentation to marsha.tapler@nc.gov.**
If you have questions regarding this form or filing a request, please call Marsha Tapler at 919-754-6344 or email.

FY2020 Emergency Telephone System Fund Balance:	**$23,296.92**

SOFTWARE	FY2021 Requested Increase Amount ONE-TIME Capital Purchase Cost	FY2021 Requested Increase Amount Recurring MONTHLY Cost	FY2021 Requested Increase Amount Recurring ANNUAL Cost	Comments
Voice Logging Recorder	12,990.00			CRS Motorola Version Upgrade
Dispatch Protocols (Law, Fire, Medical)			39,600.00	Priority Dispatch Gold Version, support and training
TOTAL	$12,990.00	$0.00	$39,600.00	
HARDWARE				
Voice logging server	50,644.00			Carolina Recording Primary Recorder Hardware upgrade/replacement
TOTAL	$50,644.00	$0.00	$0.00	

Items below this cell are to be completed by 911 Board Staff	
APPROVED FY2021 FUNDING	$755,470.78
FY2021 Anticipated Capital Expenditures	$63,634.00
FY2021 Anticipated Monthly Recurring	$0.00
FY2021 Anticipated Annual Recurring	$39,600.00
Fund Balance to bring PSAP up to 10% carry forward	
Requested FY2021 Funding	$858,704.78
Maximum 20% carry forward amount:	$121,976.36
Carry forward procedure for funding reconsiderations is 10%.	$60,988.18

Staff recommendation to approve additional funding: **$103,234.00**

FOR 2021 01

ACCOUNTS FOR: 35 EMERGENCY TELEPHONE FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
35755103 EMERG TELEPHONE FUNDS							
35755103 499999 SUBSCRIBER FEES	-755,471	0	-755,471	.00	.00	-755,471.00	.0%
TOTAL EMERG TELEPHONE FUNDS	-755,471	0	-755,471	.00	.00	-755,471.00	.0%
35755120 E911 - OPERATIONS							
35755120 530200 CERTIFICATIONS	20,000	0	20,000	60.00	.00	19,940.00	.3%
35755120 540000 TELEPHONE	455,000	0	455,000	37,317.72	.00	417,682.28	8.2%
35755120 571000 EQUIPMENT REP &	272,498	0	272,498	.00	.00	272,498.00	.0%
35755120 620000 DEPARTMENTAL SU	7,973	0	7,973	.00	.00	7,973.00	.0%
TOTAL E911 - OPERATIONS	755,471	0	755,471	37,377.72	.00	718,093.28	4.9%
TOTAL EMERGENCY TELEPHONE FUND	0	0	0	37,377.72	.00	-37,377.72	100.0%
TOTAL REVENUES	-755,471	0	-755,471	.00	.00	-755,471.00	
TOTAL EXPENSES	755,471	0	755,471	37,377.72	.00	718,093.28	

FOR 2021 01

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
GRAND TOTAL	0	0	0	37,377.72	.00	-37,377.72	100.0%

** END OF REPORT - Generated by LYSA MAY **

Orange County
Emergency Services

510 Meadowlands Drive
Hillsborough, NC 27278
919.245.6100

Overview

Orange County Emergency Services staff is pleased to present our proposed E9-1-1 Strategic Plan objectives for 2021-2025. These objectives will be incorporated into a living document which will be reviewed annually by the PSAP Manager and Staff to continue analyzing our strengths, weaknesses, opportunities and threats to further meet our imperatives and objectives. These objectives will also provide a road map that will position Orange County's E9-1-1 System to embrace next generation technology, support state and regional collaborative efforts and stress fiscal responsibility while improving E9-1-1 services for the agencies and citizens served. These objectives also reflect the desired direction for the future of Orange County and should be considered as intentions for improving customer service, quality of dispatch services, improved working environment and our forecast of future needs.

About Our Organization

The OCES Communications Division is dedicated to provide the vital link between the community and emergency services through integrity, leadership, and teamwork.

Organizational Goals

- Deliver exceptional 9-1-1 and non-emergency public safety services
- Ensure operational staffing and agency emergency preparedness
- Develop Continuity of Operations Plan (COOP) for Orange County's E9-1-1 system to ensure local and countywide 9-1-1 access and reliability.
- Ensure compliance with applicable national and state 9-1-1 call taking and dispatching standards
- Promote 9-1-1 and public safety communication awareness and build and enhance partnerships with all stakeholders
- Create a robust and functional radio system that is accessible to all County and partner public agencies
- Create a robust and functional radio paging system that works countywide
- Continue to enhance the 9-1-1 system to incorporate future technologies known as, NG9-1-1 (Next Generation 9-1-1) allowing text, video and the capability of connecting to the statewide network
- Actively attract, recruit and sustain a highly motivated workforce
- Utilize all agency resources efficiently and responsibly
- Restructure the hiring process to focus on tiered learning approach:
  - Call Taking
  - Radio Dispatching
  - Both functions
- Identify and implement telecommunicator contracts and psychological testing
- Revamp the training program to enhance and strengthen critical skills prior to on-the-job training

Technology Goals

**Goals from strategic plan*	*Technology related goals*
Continue to enhance the 9-1-1 system to incorporate future technologies known as, NG9-1-1 (Next Generation 9-1-1) allowing text, video and the capability of connecting to the statewide network	Forward leaning in embracing technology, and becoming part of NC Esinet to provide backbone for these technologies
Deliver exceptional 9-1-1 and non-emergency public safety services	Up to date and current hardware and software that is functional.
Develop Continuity of Operations Plan (COOP) for Orange County's E9-1-1 system to ensure local and countywide 9-1-1 access and reliability.	Create and conduct drills annually to test agency back up plan
Promote 9-1-1 and public safety communication awareness and build and enhance partnerships with all stakeholders	Creation of e-newsletter and website to keep residents and partner agencies informed.

Technology Infrastructure

This section should describe the infrastructure that an organization has – computers, internet connections, printers, etc.

Item	Description	Purchase Date	Replacement Plan	Delineate Eligible %
Telephone Sets				
CPE Equipment	Vesta 9-1-1	2016	ESInet Hosted	
Headsets	Plantronics HW710/HW510 Plantronics CA12CD Wireless Headset Adapters Plantronics Batteries for CA12CD Wireless Base	8/26/2019		
Monitors	Radio – ELO touchscreen monitors Phone – ELO touchscreen monitors	March 2020		
Keyboards	Lenovo	2019		
Point to Point Connection				
CAD	Central Square OneSolution CAD software	2013	Countywide project to replace CAD, RMS, and JMS to all partner solution	
GIS Software				
Voice Logging	EvenTide by Carolina Recording Systems	2015	Reconsideration for replacement this year	
Time Synchronization Device	PresenTense/Netclcok	2019		
Protocol Software and Flip Cards	IAED Emergency Dispatch EMD/EPD/EFD	2016	Updated per normal updates	
Quality Assurance	IAED Emergency Dispatch Aqua	2016	Updated per normal updates	
ALI Database Software				
Software Licenses				
Radio Console Software	Motorola MCC7500	2018		
Console Audio Box Software				
Paging Software	Pagegate	2013		
CAD to CAD	Central Square OneSolution	2013		
Automated Digital Voice Dispatch Software				
Message Switch Software	Central Square Query/Mobile Server SMS	2013		
Servers	Dell Poweredge	2013	Looking to replace as part of reconsideration	
Computer Workstations	Dell CAD workstations	2013/2015	Looking to replace as part of reconsideration	
UPS	Eaton	2010	Upgraded batteries replaced as needed	
Generator				
Radio Network Switching Equipment				

Fax Modem				
Printers				
Radio Console Ethernet Switch				
Radio Console Access Router				
Backup Storage for 911 Database	Backed up off site as part of OCIT project			
Alpha Numeric Pager/Tone Generator				
Radio Consolette	Motorola XTL 5000	2020	Replaced as part of VIPER upgrade	
Handheld GPS				
Monitors	Dell 22” Monitors	2013	Looking to upgrade as part of reconsideration.	

Technical Skills

- ArcGIS support
- Active Directory Management
- Workstation Support
- SQL support
- Basic Networking Support

Needed training

- High level Network management
- Advanced Cyber-security management

Vendor Relationships

List all your relationships - past and present - with vendors or IT companies who have done technology work for you.

Vendor	**Service Provided**	**Level of Support**
CAD - Central Square	CAD and related software support, service, installation	24/7/365
Phone – Mobile Communications	Full support for VESTA 9-1-1, including installation, programming, emergency assistance, and maintenance	24/7/365
Radio – Mobile Communications	Full support for Motorola products, including installation, programming, emergency assistance, and maintenance	24/7/365
Recording – Carolina Recording	Full support for EvenTide/Mediaworks, including installation, programming, emergency assistance, and maintenance	24/7/365
Recording – Logisys	CAD and related software for support, service, installation	24/7/365

Technology Assessment

Strengths & Challenges

Based on your assessment of technology assets, assess your organization's technology strengths and challenges.

	Strengths	**Challenges**
Infrastructure	Core team and cooperation between OC911 and OCIT has large skill set to secure operations.	Update needed to server infrastructure as well as cloud based initiatives
Software		New CAD, RMS,JMS project needed due to possible end of life of current system.
Skills	GIS is a focus point and County updates are completed weekly to maintain correct dispatching.	Higher level Networking training needed for Division
Vendor Relationships	Good relationship with vendors that support the 911 PSAP, work with them consistently to confirm reliability.	Ability to invoice in means that secures proper funding.
Attitudes towards technology (management, staff, clients, board)	Board is very comfortable with technology and pushing us to improve in this area.	Most staff are comfortable with their current processes and are reluctant to change.

Identified Areas of Concentration

Most urgent (high impact) to least priority (low impact)

	High Impact	**Low Impact**	**Cost**
CAD Software Replacement	X		5 year project with partner agencies
Full CAD Hardware Replacement (Servers and work stations)	X		Looking to replace with reconsideration
Battery Backups for each work station		X	Looking to replace with reconsideration
4 Motorola APX8000 handheld radios		X	

Priority Dispatch

PDC Pricing Agreement

1. **Price**. The annual license, service and support fee for your licensed Priority Dispatch products is:
   - $39,600 for year 1
   - $39,600 for year 2
   - $39,600 for year 3
   - N/A
   - N/A

a. Customer will be billed on an annual basis.
b. If the quantity of Priority Dispatch System licenses is increased during the life of this agreement, the annual fee will be amended to reflect the additional licenses at the then current price.
c. Pricing is exclusive of any applicable tax. Any applicable tax will be added to the amount.
d. Annual invoice is net 30-days, unless otherwise specified.
e. If invoice is not paid within 60-days it will be considered "overdue" and accrue interest at 1%per month, compounding.
f. If invoice is not paid within 90-days it will be in "default" and services and products provided by Priority Dispatch may be removed, suspended, or become unavailable. If there is a dispute over an invoice the "overdue" or "default" status may be delayed if there is communication towards resolution. Lack of communication for 30-days will advance the invoice to the next status (i.e. overdue to default).

2. **Term**. This agreement shall have an initial term of 36 months from the annual renewal date

3. **Services**. The use of PDC's products and services are set forth in the End User License Agreement(s).

4. **Support**. Support for PDC's products are available 24/7/365 via phone, email and Internet.

Agency: Orange County Emergency Services	Priority Dispatch
Signature: Kevin Medlin	Signature: Brent Hawkins
Print Name: Kevin Medlin	Print Name: Brent E. Hawkins
Title: 911 Ops Manager	Title: Vice President & General Counsel
Date: 11/13/2020	Date: 11/13/2020

Carolina Recording Systems, LLC
P.O. Box 11311
Charlotte, NC 28220

Budgetary Quote

Customer Name:
Orange County Emergency Services Attn: Kevin Medlin P.O. Box 8181 Hillsborough, NC 27278

This is not an Invoice

Date	Account #
1/1/2020	O-1102

QTY	MODEL	DESCRIPTION	UNIT PRICE	TOTAL
1	271143	Mandatory license fee for Upgrade to a subsequent System Release - for end-customer with ONE AIS (or FIRST AIS) (Non-Discountable; must be pre-paid) Motorola ASTRO 25 Version Upgrade License Fee Budgetary	7,995.00	7,995.00
1	209222	Integration to ASTRO 25 system - Subsequent ASTRO version - SINGLE AIS SIN: 132-33, FSC CLASS: 7010	3,995.00	3,995.00
1	Prof Services - Cuto...	Professional Services: Cutover services for AIS Integration Updates, Configure recorder to accept data from AIS, Test all Connections and Interfaces.	1,000.00	1,000.00

******If upgrading your Motorola radio version, a pass through license is needed between Eventide and Motorola for the recorder. If there are no future plans to upgrade your Motorola radio version, please discard this budgetary.******

Contact Information:
Phone: 888-776-0202
Fax: 888-776-0201
Service Dispatch: 888-661-0202
Website: www.crsnc.com

Subtotal	$12,990.00
Total	$12,990.00

Carolina Recording Systems, LLC
PO Box 11311
Charlotte, NC 28220
CRS

QUOTE

FOR: Eventide NexLog Communications Recording System - System Upgrade

Orange County Emergency Services
510 Meadows Dr
Hillsborough, NC 27278

Kevin Medlin
(919) 245-6139
lmedlin@co.orange.nc.us

Quote Prepared By

Victor Williams
sales@crsnc.com
(252)375-6579
Fax: (888) 776-0201
Help Desk: (888) 661-0202

Est. Delivery	Terms	Shipping Terms	Quote Valid Through	Quote Number
8 to 12 Weeks	Net 30	FOB - Frieght, Delivery - Prepaid and Add	03/15/2020	ORANGE0120

Line	Qty	Model	Description	Unit Price	Ext. Price
1	1	NexLog740	**NexLog 740 - Recorder A** Eventide NexLog 740 recording System	$ 53,895.00	$ 53,895.00
2	1	NexLog740	**NexLog 740 - Recorder B** Eventide NexLog 740 recording System	$ 30,640.00	$ 30,640.00
3	1	MotoP25	**Motorola P25 Integration vis AIS** **Includes:** Integration to P25 Core via Customer-Supplied Archive Information Server (AIS) MCC7500 SDK License Fee (transferred) Decoder *For all P25 implementations, payment is required up front due to pass-through licensing charge to Motorola Solutions for use of the integration's Software Development Kit (SDK).	$ 68,490.00	$ 68,490.00
4	1	NAS-16512	Network Attached Storage - 12TB RAID 5	$ 4,795.00	$ 4,795.00
5			**Equipment Total**		**$ 157,820.00**
6	1	XXXX	Professional Services: Includes Pre-installation site survey, installation, configuration, testing, and unlimited training.	$ 10,200.00	$ 10,200.00
7	3	Man S&H	Manufacturer Shipping	$ 175.00	$ 525.00
8		Credit	System Upgrade - License Transfer Credit		$ (99,290.00)
9		License xfer	License Transfer Charge		$ 9,159.00
10	1	Dongle	AIS License Transfer Dongle Cost	$ 95.00	$ 95.00
11			**Solution Total**		**$ 78,509.00**

Installation Notes:
Customer's radio, telephone, and CAD vendors should provide the proper inputs, identified and terminated within 6 feet of the recorder's physical location.
Customer is responsible for insuring the necessary 3rd party licensing, installation, and integration work is completed by its other vendors.

Amount noted on the funding reconsideration includes only eligible expenditures.
OC911: Confirmed with CRS, all yellow high lighted are license transfers we would not have to Pay. Included in the total are all Blue lines under Recorder A, the DVSI port under AIS, NAS under Peripherals, S&H, Professional Services, and License Transfer Charges.

Orange County Emergency Services				
Part Number	**Description**	**Quantity**	**List Price (Each)**	**List Price (Extended)**
NexLog 740 - Recorder A - Primary Site				
NexLog740	NexLog 740 base system: 3U rack-mountable, Core i3 CPU, and Embedded Linux	1	$7,995.00	$7,995.00
105301	Integrated 7" Color LCD Touch Screen Display for NexLog 740	1	$1,295.00	$1,295.00
105378	Upgrade 740 to 4x4TB HotSwap RAID5=12TB storage	1	$6,190.00	$6,190.00
105321	Standard 740: 1xDVD-RAM Drive	1	$0.00	$0.00
108233-000	Dual Hot-Swap power supplies, 120/240 VAC (standard-no charge)	1	$0.00	$0.00
324430	Rack Mount Slides - 4 Post, 3U (for NexLog 740)	1	$360.00	$360.00
271052	Internal IP Recorder with First 8 G.711 Channels	1	$3,850.00	$3,850.00
271035	Additional Internal IP G.711 8-Channel license pack	6	$1,750.00	$10,500.00
324773	Quad Port 100/1000 PCIe Network Card (for NexLog 740 only - Max QTY 1)	1	$890.00	$890.00
271172	SMS-only IP Channel License (24 Pack) for Motorola VESTA	1	$1,995.00	$1,995.00
209029	911 NENA ANI/ALI CAD Spill Integration - USA/Canada only	1	$3,495.00	$3,495.00
271014	Central Archive License (for archive to another NexLog)	1	$1,670.00	$1,670.00
271140	Eventide Interface license (audio) for Motorola VESTA 911 IP/SPAN Recording	1	$2,495.00	$2,495.00
271070	Windows Screen Recording (First 5 PCs on recorder)	1	$2,500.00	$2,500.00
271076	Windows Screen Recording (5 additional PCs on recorder)	2	$500.00	$1,000.00
271083	8 pack MediaWorks PLUS (web) concurrent license	2	$995.00	$1,990.00
271082	Quality Factor Software: 20 Agent ADD-ON license pack	2	$1,990.00	$3,980.00
271077	Quality Factor Software: FIRST 20 Agents (Requires MediaWorks PLUS)	1	$2,500.00	$2,500.00
115021	Enhanced Reporting Package	1	$0.00	$0.00
271098	Geo Search/View (Requires Lat/Lon, MW PLUS, Google Maps)	1	$995.00	$995.00
271111	Eventide MP3 option for MediaWorks PLUS	1	$195.00	$195.00
271109	Eventide SSL Enabler option	1	$0.00	$0.00
NexLog 740 - Recorder B - Primary Site				
NexLog740	NexLog 740 base system: 3U rack-mountable, Core i3 CPU, and Embedded Linux	1	$7,995.00	$7,995.00
105301	Integrated 7" Color LCD Touch Screen Display for NexLog 740	1	$1,295.00	$1,295.00
105311	Upgrade 740* to 2x1TB HotSwap RAID1=1TB storage	1	$1,600.00	$1,600.00
105321	Standard 740: 1xDVD-RAM Drive	1	$0.00	$0.00
108233-000	Dual Hot-Swap power supplies, 120/240 VAC (standard-no charge)	1	$0.00	$0.00
324430	Rack Mount Slides - 4 Post, 3U (for NexLog 740)	1	$360.00	$360.00
105284-024	24-Channel Analog Card, 24 Ch. Licenses	1	$6,000.00	$6,000.00
105284-016	16-Channel Analog Card, 16 Ch. Licenses	1	$4,000.00	$4,000.00
109033-003	Quick Install Kit (9 ft. Cable + "66" Block):	2	$220.00	$440.00
108121	24 port GPIO PCI Card/Cable Kit (non-isolated; 24 inputs)	1	$795.00	$795.00
209029	911 NENA ANI/ALI CAD Spill Integration - USA/Canada only	1	$3,495.00	$3,495.00
271101	45 Baud Analog TTY Decoder for TDD/SMS-to-911 (for Analog channels)	1	$1,995.00	$1,995.00
271014	Central Archive License (for archive to another NexLog)	1	$1,670.00	$1,670.00
271083	8 pack MediaWorks PLUS (web) concurrent license	1	$995.00	$995.00
271109	Eventide SSL Enabler option	1	$0.00	$0.00
Motorola P25 Integration via AIS - Recorder A - Primary Site				
271141	Mandatory license fee for Initial System Release - for end-customer with ONE AIS (or FIRST AIS) (Non-Discountable; must be pre-paid)	1	$49,995.00	$49,995.00
209220	Integration to Motorola ASTRO 25 system - Initial ASTRO version - SINGLE AIS	1	$11,995.00	$11,995.00
115015	Mandatory Remote Install Prep for P25 or TETRA; (Non-Discountable)	1	$3,500.00	$3,500.00
324720	DVSI 2-Port USB Decoder Unit (for P25, DMR, MOTOTRBO, NXDN) - Max 8	1	$3,000.00	$3,000.00
Peripherals				
NAS-16512	Network Attached Storage - 12TB RAID 5	1	$4,795.00	$4,795.00
Manufacturer Shipping and Handling				
Man S&H	Manufacturer Shipping and Handling	3	$175.00	$525.00
Professional Services				
XXXX	Professional Services: Includes Pre-installation site survey, installation, configuration, testing, and unlimited training.	1	$10,200.00	$10,200.00
			List Sub-total	$168,545.00
License Transfer				
License xfer	License Transfer Charge			$9,159.00
Dongle	AIS License Transfer Dongle Cost	1	$95.00	$95.00
Credit	System Upgrade - License Transfer Credit			-$99,290.00

Tab 9 c)

FY 2022 PSAP Estimated Funding Distribution

Marsha Tapler

(Roll Call Vote Required)

PSAP	PSAP Distribution FY2019	PSAP Distribution FY2020	Maximum Allowable 20% Carry Forward	Fund Balance FY2020	Fund Balance FY2019	Fund Balance +/-	Carry forward (Ok) or Over 20% (Reduce)	Excess Funds over Maximum Allowable 20% Carry forward	5YR rolling Avg before reduction	Estimated PSAP Proposed Yearly Distribution FY2022	Estimated PSAP Proposed Monthly Distribution FY2022
Alamance County Central Communications	$609,325.96	$604,648.02	$121,397.40	695,383.39	824,994.77	-$129,611.38	*OK*	0.00	661,773.40	$661,773.40	$55,147.78
Secondary Burlington PD	178,730.64	118,918.08	$29,764.87	14,775.08	15,869.34	-$1,094.26	*OK*	0.00	167,332.87	$167,332.87	13,944.41
Alexander County Communications	190,406.41	205,594.59	$39,600.10	374,996.31	391,241.23	-$16,244.92	*OK*	0.00	231,874.64	$231,874.64	19,322.89
Alleghany County E911	144,837.66	182,945.37	$32,778.30	0.00	4,926.65	-$4,926.65	*OK*	0.00	213,387.18	$213,387.18	17,782.27
Anson County Emergency Communications	174,096.97	200,282.36	$37,437.93	0.00	345,605.90	-$345,605.90	*OK*	0.00	200,282.36	$200,282.36	16,690.20
Ashe County Communications	323,269.45	366,255.27	$68,952.47	149,969.43	170,158.47	-$20,189.04	*OK*	0.00	374,719.18	$374,719.18	31,226.60
Avery County Communications Center	203,511.19	180,508.18	$38,401.94	505,118.23	432,100.07	$73,018.16	*Reduce*	-34,616.22	160,465.56	$125,849.34	10,487.44
Beaufort County Communications Center	229,760.87	292,304.22	$52,206.51	305,510.58	177,970.31	$127,540.27	*Reduce*	-75,333.76	285,005.72	$209,671.96	17,472.66
Bertie County Sheriff's Communications	189,965.35	203,145.88	$39,311.12	152,812.17	127,407.79	$25,404.38	*OK*	0.00	184,093.75	$184,093.75	15,341.15
Bladen County Sheriff's Communications	262,089.94	277,911.07	$54,000.10	353,673.05	294,546.45	$59,126.60	*Reduce*	-5,126.50	214,296.66	$209,170.16	17,430.85
Brunswick County 9-1-1	548,007.30	757,912.55	$130,591.98	1,507,564.03	1,164,663.41	$342,900.62	*Reduce*	-212,308.64	621,174.22	$408,865.58	34,072.13
Buncombe County Emerg. Communications	717,021.56	24,984.00	$74,200.56	3,827,676.43	4,314,068.21	-$486,391.78	*OK*	0.00	478,073.00	$478,073.00	39,839.42
Secondary Asheville PD	0.00	0.00	$0.00	0.00	0.00	$0.00	*OK*	0.00	126,238.95	$126,238.95	10,519.91
Burke County Emerg. Communications	647,482.50	581,125.58	$122,860.81	1,141,279.92	1,197,714.81	-$56,434.89	*OK*	0.00	635,844.48	$635,844.48	52,987.04
Cabarrus County Sheriff Communications	709,164.33	694,860.25	$140,402.46	564,534.32	488,478.41	$76,055.91	*OK*	0.00	696,848.49	$696,848.49	58,070.71
Caldwell County Communications	430,622.07	418,622.70	$84,924.48	616,015.18	575,309.02	$40,706.16	*OK*	0.00	343,708.00	$343,708.00	28,642.33
* Carteret County Communications	413,165.85	372,448.53	$78,561.44	1,410,533.19	1,312,068.02	$98,465.17	*Reduce*	-19,903.73	198,045.10	$0.00	0.00
Caswell County 911 Communications	103,699.29	303,687.05	$40,738.63	460,739.06	299,133.58	$161,605.48	*Reduce*	-120,866.84	225,995.69	$105,128.85	8,760.74
Catawba Co Communications Center	699,005.17	853,712.01	$155,271.72	993,802.50	675,657.26	$318,145.24	*Reduce*	-162,873.52	838,660.24	$675,786.72	56,315.56
Secondary Hickory PD	198,926.30	213,786.90	$41,271.32	115,885.37	38,716.74	$77,168.63	*Reduce*	-35,897.31	90,681.36	$54,784.05	4,565.34
Secondary Newton Pd	37,373.08	40,370.40	$7,774.35	13,109.52	6,446.81	$6,662.71	*OK*	0.00	19,046.72	$19,046.72	1,587.23
Chatham County Emergency Operations Center	396,070.82	506,302.00	$90,237.28	440,434.11	443,917.77	-$3,483.66	*OK*	0.00	559,790.73	$559,790.73	46,649.23
Cherokee County 911	249,937.76	272,270.23	$52,220.80	42,585.48	68,760.51	-$26,175.03	*OK*	0.00	314,159.12	$314,159.12	26,179.93
Chowan Central Communications	244,614.08	275,826.41	$52,044.05	195,297.50	122,476.67	$72,820.83	*Reduce*	-20,776.78	277,100.84	$256,324.06	21,360.34
Clay County E911 Communications	255,670.28	222,660.19	$47,833.05	468,936.33	349,681.97	$119,254.36	*Reduce*	-71,421.31	176,090.36	$104,669.05	8,722.42
Cleveland County Communications Center	343,133.13	203,352.64	$54,648.58	1,474,569.03	1,453,640.41	$20,928.62	*OK*	0.00	165,272.10	$165,272.10	13,772.68
Kings Mountain (City of)	92,036.89	100,403.79	$19,244.07	170,487.69	206,857.08	-$36,369.39	*OK*	0.00	74,038.83	$74,038.83	6,169.90
Shelby Police Communications	128,630.31	119,189.15	$24,781.95	243,823.55	266,563.66	-$22,740.11	*OK*	0.00	67,360.92	$67,360.92	5,613.41
Columbus Central Communications	276,074.17	322,399.54	$59,847.37	848,220.17	776,811.39	$71,408.78	*Reduce*	-11,561.41	330,309.14	$318,747.73	26,562.31
Craven County Sheriff Communications	280,937.01	288,035.30	$56,897.23	674,310.77	515,529.59	$158,781.18	*Reduce*	-101,883.95	123,045.15	$21,161.20	1,763.43
Havelock Public Safety Comm.	191,250.02	149,339.28	$34,058.93	134,066.46	252,138.34	-$118,071.88	*OK*	0.00	179,040.62	$179,040.62	14,920.05
New Bern Communications Center	320,560.06	295,570.70	$61,613.08	279,692.94	212,969.28	$66,723.66	*Reduce*	-5,110.58	217,031.66	$211,921.08	17,660.09
Cumberland County Communications	864,493.45	861,166.07	$172,565.95	2,804,276.89	2,391,247.63	$413,029.26	*Reduce*	-240,463.31	613,845.64	$373,382.33	31,115.19

	PSAP	PSAP Distribution FY2019	PSAP Distribution FY2020	Maximum Allowable 20% Carry Forward	Fund Balance FY2020	Fund Balance FY2019	Fund Balance +/-	Carry forward (Ok) or Over 20% (Reduce)	Excess Funds over Maximum Allowable 20% Carry forward	5YR rolling Avg before reduction	Estimated PSAP Proposed Yearly Distribution FY2022	Estimated PSAP Proposed Monthly Distribution FY2022
	Fayetteville City Communications	891,636.05	919,978.18	$181,161.42	766,995.77	677,298.84	$89,696.93	*OK*	0.00	978,606.14	$978,606.14	81,550.51
	Currituck Central Communications	213,917.39	212,237.71	$42,615.51	322,686.66	327,823.54	-$5,136.88	*OK*	0.00	230,358.24	$230,358.24	19,196.52
	Dare Central Communications	420,254.75	0.00	$42,025.48	480,041.67	1,141,807.76	-$661,766.09	*OK*	0.00	487,060.57	$487,060.57	40,588.38
	Davidson County 911	561,029.62	486,024.05	$104,705.37	744,187.18	724,449.00	$19,738.18	*OK*	0.00	572,238.86	$572,238.86	47,686.57
	Davie County Communications	206,006.05	214,101.99	$42,010.80	482,051.42	409,274.73	$72,776.69	*Reduce*	-30,765.89	231,190.87	$200,424.98	16,702.08
	Duplin County/Kenansville PSAP	154,485.36	261,285.36	$41,577.07	486,794.38	477,936.25	$8,858.13	*OK*	0.00	291,883.40	$291,883.40	24,323.62
	Durham Emergency Communications	1,740,462.86	1,666,795.05	$340,725.79	1,703,114.17	578,829.99	$1,124,284.18	*Reduce*	-783,558.39	800,521.21	$16,962.82	1,413.57
	Edgecombe County E911	91,784.43	197,868.62	$28,965.31	563,443.29	516,173.95	$47,269.34	*Reduce*	-18,304.03	143,751.13	$125,447.10	10,453.92
	Tarboro Police Communications	38,226.15	143,421.70	$18,164.79	82,559.80	78,248.51	$4,311.29	*OK*	0.00	91,380.62	$91,380.62	7,615.05
	Forsyth County 911 Communications	674,553.49	328,370.73	$100,292.42	1,574,225.28	1,501,537.08	$72,688.20	*OK*	0.00	338,145.89	$338,145.89	28,178.82
	Secondary Kernersville PD	52,464.70	14,688.00	$6,715.27	1,479.00	0.00	$1,479.00	*OK*	0.00	11,641.50	$11,641.50	970.13
*	Winston Salem Police/Fire Communications	521,155.75	528,587.65	$104,974.34	1,995,564.16	1,734,196.97	$261,367.19	*Reduce*	-156,392.85	479,353.14	$0.00	0.00
	Franklin County Sheriff Communications	305,556.65	604,890.74	$91,044.74	650,087.10	259,834.73	$390,252.37	*Reduce*	-299,207.63	556,269.87	$257,062.24	21,421.85
	Gaston County Communications	760,574.62	698,275.97	$145,885.06	938,260.47	1,989,902.12	-$1,051,641.65	*OK*	0.00	809,327.81	$809,327.81	67,443.98
*	Mount Holly Police Department	62,924.81	67,075.86	$13,000.07	364,060.13	362,662.28	$1,397.85	*OK*	0.00	71,371.85	$0.00	0.00
	Gates County Communications	110,600.37	150,580.26	$26,118.06	18,108.79	0.00	$18,108.79	*OK*	0.00	153,279.35	$153,279.35	12,773.28
*	Graham County Communications	98,704.52	124,873.36	$22,357.79	529,283.50	475,640.61	$53,642.89	*Reduce*	-31,285.10	63,622.64	$0.00	0.00
	Granville County Emergency Communications	370,174.92	377,887.27	$74,806.22	541,721.77	430,963.03	$110,758.74	*Reduce*	-35,952.52	355,117.68	$319,165.16	26,597.10
	Greene County Communications	208,133.26	161,789.00	$36,992.23	240,379.45	327,777.57	-$87,398.12	*OK*	0.00	204,322.24	$204,322.24	17,026.85
	Guilford Metro 911	2,518,081.38	2,594,180.12	$511,226.15	1,059,619.39	963,215.92	$96,403.47	*OK*	0.00	2,205,703.68	$2,205,703.68	183,808.64
	High Point 911	609,920.92	534,947.22	$114,486.81	89,717.20	53,564.82	$36,152.38	*OK*	0.00	557,477.86	$557,477.86	46,456.49
	Halifax County Central Communications	333,646.02	283,655.25	$61,730.13	358,738.13	449,771.23	-$91,033.10	*OK*	0.00	376,653.45	$376,653.45	31,387.79
	Harnett County Communications	835,813.12	863,118.64	$169,893.18	490,214.65	527,908.62	-$37,693.97	*OK*	0.00	867,816.57	$867,816.57	72,318.05
	Haywood County 911	430,863.66	433,942.65	$86,480.63	611,417.36	473,062.17	$138,355.19	*Reduce*	-51,874.56	439,717.47	$387,842.91	32,320.24
	Henderson County Communications	661,168.67	612,658.03	$127,382.67	194,436.42	250,166.97	-$55,730.55	*OK*	0.00	657,686.30	$657,686.30	54,807.19
	Secondary Hendersonville PD	47,376.45	54,905.61	$10,228.21	52,576.12	37,041.51	$15,534.61	*Reduce*	-5,306.40	65,940.84	$60,634.44	5,052.87
*	Hertford County Communications	0.00	94,700.31	$9,470.03	586,959.33	643,773.08	-$56,813.75	*OK*	0.00	126,796.16	$0.00	0.00
	Hoke County Emergency Communications	339,333.74	278,456.30	$61,779.00	72,304.98	160,402.33	-$88,097.35	*OK*	0.00	314,695.36	$314,695.36	26,224.61
	Iredell County Emergency Communications	626,847.43	607,556.02	$123,440.35	323,908.52	71,087.79	$252,820.73	*Reduce*	-129,380.39	488,073.47	$358,693.09	29,891.09
	Secondary Mooresville PD	103,289.58	13,765.56	$11,705.51	15,556.82	67,048.50	-$51,491.68	*OK*	0.00	20,903.43	$20,903.43	1,741.95
	Statesville PD	100,909.62	42,408.00	$14,331.76	82,708.95	42,311.95	$40,397.00	*Reduce*	-26,065.24	24,318.36	-$1,746.88	-145.57
	Jackson County Emergency Communications	427,863.62	420,248.96	$84,811.26	721,826.00	577,569.71	$144,256.29	*Reduce*	-59,445.03	373,514.86	$314,069.83	26,172.49
	Johnston County Communications	1,457,540.91	1,377,276.75	$283,481.77	1,475,560.82	1,242,147.16	$233,413.66	*OK*	0.00	1,417,467.49	$1,417,467.49	118,122.29

PSAP	PSAP Distribution FY2019	PSAP Distribution FY2020	Maximum Allowable 20% Carry Forward	Fund Balance FY2020	Fund Balance FY2019	Fund Balance +/-	Carry forward (Ok) or Over 20% (Reduce)	Excess Funds over Maximum Allowable 20% Carry forward	5YR rolling Avg before reduction	Estimated PSAP Proposed Yearly Distribution FY2022	Estimated PSAP Proposed Monthly Distribution FY2022
Lee County Emergency 911 Center	385,929.51	404,574.56	$79,050.41	629,502.00	521,789.80	$107,712.20	*Reduce*	-28,661.79	364,222.06	$335,560.27	27,963.36
Lenoir County Communications	509,353.11	550,472.58	$105,982.57	1,332,347.56	1,133,863.12	$198,484.44	*Reduce*	-92,501.87	342,127.15	$249,625.28	20,802.11
Lincoln County Communications Center	260,420.59	253,029.37	$51,345.00	690,812.10	667,380.38	$23,431.72	*OK*	0.00	199,601.73	$199,601.73	16,633.48
Macon County Communications	155,593.71	354,430.76	$51,002.45	586,109.09	517,541.91	$68,567.18	*Reduce*	-17,564.73	271,654.66	$254,089.93	21,174.16
Madison County EOC	207,902.23	193,235.03	$40,113.73	252,362.81	257,024.76	-$4,661.95	*OK*	0.00	159,098.73	$159,098.73	13,258.23
Martin County Communications Center	310,902.96	213,699.88	$52,460.28	526,735.78	473,934.52	$52,801.26	*Reduce*	-340.97	155,399.55	$155,058.58	12,921.55
McDowell County Sheriff's Communications	296,136.02	332,296.06	$62,843.21	14,410.44	24,452.68	-$10,042.24	*OK*	0.00	364,251.71	$364,251.71	30,354.31
Charlotte-Mecklenburg Police Department	2,730,722.39	2,363,858.92	$509,458.13	6,069,860.54	5,857,208.73	$212,651.81	*OK*	0.00	2,437,921.77	$2,437,921.77	203,160.15
Secondary Charlotte Fire	25,894.71	26,724.41	$5,261.91	0.00	2,597.01	-$2,597.01	*OK*	0.00	51,837.00	$51,837.00	4,319.75
Secondary Charlotte MEDIC	338,114.92	344,767.80	$68,288.27	13,818.46	125,271.96	-$111,453.50	*OK*	0.00	289,328.16	$289,328.16	24,110.68
Cornelius Police Communications	184,876.31	115,182.04	$30,005.84	336,226.62	323,461.33	$12,765.29	*OK*	0.00	191,037.21	$191,037.21	15,919.77
* Pineville Police Comm. Center	141,478.69	72,319.25	$21,379.79	372,181.72	463,487.80	-$91,306.08	*OK*	0.00	169,075.28	$0.00	0.00
Mitchell County Central Communications	134,036.17	133,345.73	$26,738.19	411,592.25	919,502.73	-$507,910.48	*OK*	0.00	224,313.72	$224,313.72	18,692.81
Montgomery County Communications	175,917.45	200,337.82	$37,625.53	128,016.62	41,334.70	$86,681.92	*Reduce*	-49,056.39	205,506.56	$156,450.17	13,037.51
Moore County Emergency Communications	380,650.46	336,853.60	$71,750.41	881,866.82	811,374.17	$70,492.65	*OK*	0.00	364,274.63	$364,274.63	30,356.22
Nash County Central Communications	496,031.44	454,008.57	$95,004.00	365,833.74	296,029.95	$69,803.79	*OK*	0.00	341,767.42	$341,767.42	28,480.62
Rocky Mount Police Communications	354,811.05	382,460.48	$73,727.15	360,749.11	245,082.39	$115,666.72	*Reduce*	-41,939.57	350,104.95	$308,165.38	25,680.45
New Hanover County Sheriff Communications	631,434.15	652,909.68	$128,434.38	494,470.58	544,078.76	-$49,608.18	*OK*	0.00	740,549.14	$740,549.14	61,712.43
Northampton County E-911	228,206.92	200,082.44	$42,828.94	367,199.70	314,987.42	$52,212.28	*Reduce*	-9,383.34	217,551.59	$208,168.25	17,347.35
Onslow County Communications	380,838.18	235,286.80	$61,612.50	1,119,669.84	1,138,430.04	-$18,760.20	*OK*	0.00	235,083.27	$235,083.27	19,590.27
Jacksonville E-911	457,969.62	480,254.40	$93,822.40	73,587.36	0.00	$73,587.36	*OK*	0.00	498,454.09	$498,454.09	41,537.84
Orange County Emergency Communications	624,412.94	610,544.30	$123,495.72	23,296.92	67,661.00	-$44,364.08	*OK*	0.00	759,756.61	$759,756.61	63,313.05
Pamlico County Communications	158,435.69	153,692.80	$31,212.85	281,612.52	210,658.42	$70,954.10	*Reduce*	-39,741.25	141,755.46	$102,014.21	8,501.18
Pasquotank/Camden Central Communications	250,766.91	404,296.39	$65,506.33	685,185.89	470,884.68	$214,301.21	*Reduce*	-148,794.88	273,751.63	$124,956.75	10,413.06
Pender County Sheriff Communications	404,613.05	430,887.32	$83,550.04	77,433.08	14,052.01	$63,381.07	*OK*	0.00	431,288.58	$431,288.58	35,940.72
Perquimans County Communications	446,599.17	409,824.77	$85,642.39	307,875.29	50,508.62	$257,366.67	*Reduce*	-171,724.28	333,786.24	$162,061.96	13,505.16
Person County Communications	556,362.68	588,848.55	$114,521.12	225,712.17	125,595.28	$100,116.89	*OK*	0.00	605,301.50	$605,301.50	50,441.79
Pitt County 911 Communications	527,142.80	707,677.96	$123,482.08	319,788.76	150,137.70	$169,651.06	*Reduce*	-46,168.98	604,805.21	$558,636.23	46,553.02
Polk County Communications	231,134.27	557,941.15	$78,907.54	157,221.22	190,950.60	-$33,729.38	*OK*	0.00	269,684.55	$269,684.55	22,473.71
Randolph County Emergency Communications	876,407.38	697,309.38	$157,371.68	1,637,465.19	1,454,476.47	$182,988.72	*Reduce*	-25,617.04	645,039.50	$619,422.46	51,618.54
Richmond County Emergency Comm.	291,536.08	297,456.29	$58,899.24	367,596.94	341,839.42	$25,757.52	*OK*	0.00	204,396.04	$204,396.04	17,033.00
Robeson County Communications	123,708.63	329,196.57	$45,290.52	1,043,691.01	1,194,814.38	-$151,123.37	*OK*	0.00	373,815.64	$373,815.64	31,151.30
Lumberton Emergency Comm.	106,773.13	188,068.74	$29,484.19	322,745.97	204,449.78	$118,296.19	*Reduce*	-88,812.00	107,258.19	$18,446.19	1,537.18

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	Rockingham County 911 Communications	236,758.92	310,977.41	$54,773.63	567,891.13	738,061.33	-$170,170.20	*OK*	0.00	366,543.83	$366,543.83	30,545.32
	Rowan County Telecommunications	747,799.88	653,197.99	$140,099.79	1,432,666.46	1,294,853.45	$137,813.01	*OK*	0.00	553,748.00	$553,748.00	46,145.67
	Rutherford County Communications	406,216.30	456,477.91	$86,269.42	97,992.19	172,842.62	-$74,850.43	*OK*	0.00	530,247.29	$530,247.29	44,187.27
	Sampson County Sheriff Communications	240,994.34	260,346.19	$50,134.05	912,664.14	771,363.97	$141,300.17	*Reduce*	-91,166.12	132,207.86	$41,041.74	3,420.15
	Scotland County Emergency Communications	316,127.25	436,067.32	$75,219.46	183,169.53	57,368.42	$125,801.11	*Reduce*	-50,581.65	183,364.97	$132,783.32	11,065.28
	Stanly County Emergency Communications	408,728.98	412,653.62	$82,138.26	200,602.13	133,866.98	$66,735.15	*OK*	0.00	399,330.09	$399,330.09	33,277.51
	Stokes County Emergency Communications	339,080.00	276,106.57	$61,518.66	564,544.32	452,308.20	$112,236.12	*Reduce*	-50,717.46	278,238.54	$227,521.08	18,960.09
	Surry County Communications Center	795,650.72	322,057.30	$111,770.80	170,974.15	340,303.38	-$169,329.23	*OK*	0.00	540,513.87	$540,513.87	45,042.82
	Secondary Elkin PD	0.00	18,412.20	$1,841.22	3,990.28	2,465.86	$1,524.42	*OK*	0.00	14,745.12	$14,745.12	1,228.76
	Secondary Mt. Airy	7,239.52	56,278.80	$6,351.83	96,754.95	49,640.53	$47,114.42	*Reduce*	-40,762.58	41,916.84	$1,154.26	96.19
	Eastern Band Cherokees	153,529.70	172,659.68	$32,618.94	317,087.81	217,810.97	$99,276.84	*Reduce*	-66,657.90	153,701.82	$87,043.92	7,253.66
	Swain County 911 Dispatch	218,430.80	234,772.49	$45,320.33	131,003.18	116,891.33	$14,111.85	*OK*	0.00	230,865.87	$230,865.87	19,238.82
	Transylvania County Communications	350,394.83	347,923.37	$69,831.82	272,741.81	364,991.09	-$92,249.28	*OK*	0.00	372,086.33	$372,086.33	31,007.19
	Secondary Brevard PD	72,583.49	56,961.73	$12,954.52	115,314.13	88,945.50	$26,368.64	*Reduce*	-13,414.11	80,147.16	$66,733.05	5,561.09
	Union County	790,713.69	746,597.80	$153,731.15	2,074,713.19	2,164,165.83	-$89,452.64	*OK*	0.00	754,071.07	$754,071.07	62,839.26
	Vance-Henderson 911 Center	572,670.89	593,071.64	$116,574.25	535,381.00	232,773.06	$302,607.94	*Reduce*	-186,033.69	364,967.85	$178,934.16	14,911.18
	Cary Police Communications	693,677.30	575,466.69	$126,914.40	958,994.77	684,470.87	$274,523.90	*Reduce*	-147,609.50	333,027.03	$185,417.53	15,451.46
	Holly Springs Public Safety Center	231,163.45	168,940.09	$40,010.35	610,256.20	590,069.08	$20,187.12	*OK*	0.00	246,215.31	$246,215.31	20,517.94
	Raleigh Wake 911 Center	2,780,250.69	2,587,879.74	$536,813.04	1,461,296.63	1,152,169.15	$309,127.48	*OK*	0.00	2,672,612.73	$2,672,612.73	222,717.73
	Warren County Sheriff Comm.	183,024.25	180,632.63	$36,365.69	386,600.28	347,212.08	$39,388.20	*Reduce*	-3,022.51	181,259.49	$178,236.98	14,853.08
	Washington County Communications	130,585.25	162,822.22	$29,340.75	594,575.76	541,406.48	$53,169.28	*Reduce*	-23,828.53	117,442.76	$93,614.23	7,801.19
	Watauga County Sheriff Communications	326,564.49	314,310.86	$64,087.54	286,565.26	294,575.45	-$8,010.19	*OK*	0.00	352,753.96	$352,753.96	29,396.16
	Beech Mountain Police Dept	60,741.60	65,235.82	$12,597.74	135,139.50	124,080.56	$11,058.94	*OK*	0.00	88,442.24	$88,442.24	7,370.19
	Boone Police Department 911	212,762.09	165,601.39	$37,836.35	48,203.48	108,839.00	-$60,635.52	*OK*	0.00	176,062.17	$176,062.17	14,671.85
*	Wayne County Central 911	548,512.92	601,535.01	$115,004.79	2,051,295.51	1,756,713.40	$294,582.11	*Reduce*	-179,577.32	259,267.05	$0.00	0.00
	Wilkes County Sheriff Communications	527,154.80	431,561.47	$95,871.63	206,073.84	280,732.30	-$74,658.46	*OK*	0.00	551,272.24	$551,272.24	45,939.35
	Wilson County Emergency Communications	503,411.88	496,433.82	$99,984.57	755,721.00	615,175.76	$140,545.24	*Reduce*	-40,560.67	314,032.35	$273,471.68	22,789.31
	Yadkin County Emergency Communications	234,714.52	268,040.03	$50,275.46	422,193.86	319,168.19	$103,025.67	*Reduce*	-52,750.22	222,725.90	$169,975.69	14,164.64
	Yancey County Sheriff Comm.	157,439.19	176,082.84	$33,352.20	290,550.37	230,206.60	$60,343.77	*Reduce*	-26,991.57	127,415.99	$100,424.42	8,368.70
	Totals	$52,261,205.79	$51,106,068.26	$10,336,727.40	$75,962,602.32	$70,889,434.23			-$4,479,662.84	$48,433,866.25	$42,973,831.19	$3,581,152.60

Approved Secondary PSAPs

*Funding Committee approved to recommend withholding the FY 2022 estimated distribution for this PSAP, provided that representatives of the PSAP are allowed to present to the Board, no later than March 31, 20201, additional evidence of their intent to spend down their fund balance. The Board may consider such evidence and if it deems it appropriate, reinstate the PSAP's FY 2022 distribution when the final FY 2022 PSAP distribution amounts are considered.

Tab 9 d)
General Committee Report

Tab 10
Finance Team Report
Marsha Tapler/Kristen Falco/ Sarah Templeton

Tab 11
Grant Committee Report
Jeff Shipp/Pokey Harris

Tab 12
Standards Committee Report
Donna Wright

Tab 13

Technology Committee Report

Jeff Shipp/Gerry Means/Stanley Meeks

Tab 14

911 Regional Coordinator Reports

Turbeville/Conner/Gardner/ Newberry

Tab 15

NC 911 Board
2020 Work Goals and Year Ahead

Tab 15 a)

2019 and 2020 Board Goals Review

Pokey Harris

911 Board 2019 Goals
Per consensus of 911 Board Members – 2018 Board Work Session, December 6, 2018
Approved by 911 Board – December 7, 2018
(Not in any specific order of priority.)

- *Work with the General Assembly to update the State's 911 statutes to facilitate statewide deployment and adoption of Next Generation 911 services.*
  - *December 31, 2019*
- *Continue with NextGen 911 deployment and implementation of related operational components.*
  - *Achieve 85% program inclusion with all primary PSAPs as users of the statewide NG911 system, with migration of minimum 25% of all primary PSAPs to the ESInet.*
    - *December 31, 2019*
  - *Build, equip, and operate the Network Management and Assistance Center (NMAC); train NMAC staff for Tier 1 and Tier 2 support to PSAPs.*
    - *June 30, 2019*
  - *Draft standards and rules for NextGen migration and sustainment*
    - *December 31, 2019*
  - *Establish path forward for primary, secondary, and not approved PSAPs*
    - *December 31, 2019*
- *Develop policy manual encompassing current open policies and identify other policies for development consideration.*
  - *April 1, 2019*
- *Implement enhancements of grant program processes.*
  - *Adopt grant policy draft*
  - *Approve grant priorities*
    - *NG911 expenditures (non-eligible, capital) (300)*
    - *Support of Regional Initiatives (250) with focus on consolidations (500)*
    - *Replacing End of Life Equipment (150)*
  - *Approve grant draft cycle timeline to include grant applicant presentation.*

***Tentative* 2019 Grant Cycle Calendar**			
Milestone	**Date**	**Day of Week**	**Days to Next Date**
Board Meeting - Recap Grant Priorities	2/22/19	Friday	5
Grant Workshop for PSAPs	2/27/19	Wednesday	2
Beginning of Grant Cycle	3/1/19	Friday	49
Grant Applications Due	4/19/19	Friday	11
Grant Committee Discussion	4/30/19	Tuesday	1
Grant Applications Presentation Day	5/1/19	Wednesday	2
Grant Committee Meeting - Review and Vote	5/3/19	Friday	4
Grant Committee Results to Board for Review prior to Board Meeting	5/7/19	Tuesday	10
Board Meeting - Vote on Grant Applications	5/17/19	Friday	5
Results Notifications to Grant Applicants	5/22/19	Wednesday	70
Grant Contracts Signed Target	7/31/19	Wednesday	
Key Timeframes	**Calendar Days**		
Days from Workshop to Applications Due	51		
Days from Beginning of Grant Cycle to Applications Due	49		
Days from Applications Due to Presentation Day (Staff Prep Time)	12		
Days from Presentation Day to Grant Committee Meeting	2		
Days from Grant Committee Meeting to Results to Board	4		
Days for Board to Pre-Review Results prior to Vote	10		

    - *December 7, 2018*
- *Develop a funding model for 911 service, NG911 service, PSAPs, and 911 Board operations.*
  - *Consider a prospective funding model vs rolling average method.*
  - *Review, revise, and update the eligible uses of 911 revenue and seek legislative changes as necessary to align with PSAP services in the NG911 environment.*
  - *Improve and optimize the reimbursement process.*
  - *Determine amount of excessive fund balances and address accordingly.*
    - *December 31, 2019*
- *Update 911 Board By-Laws*
  - *December 31, 2019*
- *Complete development of training standards and implement, in collaboration and consultation with 911 stakeholder groups.*
  - *Ongoing*
- *Continue efforts for implementation of EMD for all PSAPs*
  - *Ongoing*

NC 911 Board 2020 Goals

Approved by NC 911 Board, Friday, December 6, 2019

Goal (Per Committee Initiative)	**Completetion Date**
Education	
Complete development of training standards and implementation, in collaboration and consultation with the Standards Committee	December 31, 2020
Develop an information sharing program to effectively communicate Board and Staff's vision, initiatives and responsibilities for NG911 and other state projects.	Ongoing
Develop processes to ensure the implementation of telecommunicator training and EMD certifications defined in statute 143B-1406 (f)(4a) and 143B-1406(f)(5b)(b) for funded PSAPs.	December 31, 2020
Explore the feasibility of expanding Board sponsored training in conjunction with the Community College system.	Ongoing
Funding	
Developing a funding model that takes into consideration the implementation of NextGen 911 technologies.	June 30, 2020
Explore the feasibility of a hosted CAD solution and hosted CAD servers that would be purchased by the NC 911 Board, located at the NC DIT data centers, to assist all PSAPs as they start to migrate to NextGen technologies.	Ongoing
Determine a strategy and develop a policy to address, investigate, and explore options with how to manage excessive PSAP fund balances.	June 30, 2020
Standards	
Review and update potential verbiage of the Rules in order to prepare for the long process of updating them.	Ongoing
Evaluate the newly passed legislation to include the verbiage, if necessary, or if the new language does not require an addition to the rule, establish a policy/procedure to accommodate the new legislation.	Ongoing
Consider how a "checks and balance" would occur if there are new requirements.	Ongoing
Technology	
Develop policy perspectives regarding the impact of NG911 on backup centers in the NextGen environment.	*June 30, 2020*
Commit to 60 PSAP migrations to the ESInet. Goal is to map a potential conversion plan to meet or exceed the migration goal.	*December 31, 2020*
Develop policies and rules regarding the implementation of the i3 GIS dataset.	*June 30, 2020*

Tab 15 b)

2018 State 911 Plan Review

Pokey Harris

NORTH CAROLINA
2018 STATE 911 PLAN

Approved:
December 07, 2018

Prepared by:

Ritter Strategic Services, LLC

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EXECUTIVE SUMMARY

The 911 network currently in place in North Carolina was designed in the 1960s and consists of point-to-point analog technology and low-speed data transmissions that are costly and outdated. Although the current 911 network is extremely reliable and secure, it has not kept up with technology and is not able to provide comparable service for the latest devices and methods of communicating.

Consumers and businesses are increasingly using and depending on new communications technologies and devices, such as VoIP devices, instant messaging, text messaging, Short Message Service (SMS), and email, all of which enable the transfer of huge amounts of data. In addition, consumers and businesses are increasingly giving up their landline phone service for wireless phone service only. The deaf and hard-of-hearing community is increasingly using text messaging to communicate, and many have given up use of TTY/TDD machines in favor of text messaging. As the rest of the world moves to Internet Protocol (IP)-based networks, the current E911 system will continue to lag further behind technologically, will continue to degrade, and will be unable to meet the needs and demands of consumers requesting emergency assistance. The state must transition to a digital/IP-based network and must prepare for future technological changes.

Consumers expect that they should be able to communicate with 911 using their smart phones and smart devices, including sending photos and videos or by texting. To support these trends, the North Carolina 911 Board ("the Board") and PSAPs must migrate to a platform that enables new and emerging communications services and devices to access 911. The evolution of communications technology provides an opportunity for the Board and PSAPs to make major improvements in the current 911 infrastructure, which include the capability for multimedia services that will enhance public safety, reduce response times, and save lives.

In 2017, the Board executed a contract to implement a single statewide IP-enabled NG911 system, which includes the ESInet, Next Generation 911 Core Services (NGCS), and hosted call-handling solution for primary PSAPs in North Carolina. As of November 2018, 84 PSAPs had expressed an interest in joining the NG9-1-1 system.

What is NG911? The term refers to the complete ability to transmit, receive, process, transfer, dispatch, use, and store both voice and data (in the form of pictures, videos, text messages, and incident information) associated with a 911 call or request for emergency assistance. The NG911 system that is implemented in North Carolina will contain the same functions of the current analog system, such as reliability, while providing for greater accessibility, interoperability, and a more efficient use of 911 resources. NG911 will enable the transfer of 911 calls between geographically dispersed PSAPs; the increased sharing of data and resources to improve emergency response; and improved coordination and partnerships within the 911 community.

North Carolina General Statutes ("GS") §143B-1402(a)(1) requires the Board to publish and maintain a comprehensive plan for the provision of 911 service in the state. GS §143B-1402(a)(1) further requires the Board to monitor trends in 911 and enhanced 911 technology, incorporate GIS mapping and other resources into the plan, ensure that each PSAP in the state has a back-up; and implement strategies for the efficient and effective delivery of enhanced 911 services.

This document represents the first official update to the 2010 North Carolina State 911 Plan ("the 2010 Plan"). The Board's decision in 2018 to update the 2010 Plan is timely and a strategic

imperative. Due to the complexity of new 911 technology and the inherent economies of scale, implementation of a single statewide digital network is the most effective and efficient way to provide enhanced 911 services, rather than on a county-by-county basis.

Implementing a single statewide digital network requires a level of statewide planning and coordination not previously required. Creating a three- to five-year strategic plan is a critical tool to help the Board and staff plan for and prioritize resources, amend governance, and address all needs associated with NG911, including but not limited to technology, funding, operations, and training. The 2018 North Carolina State 911 Plan will provide the Board, Board staff, PSAPs, public safety personnel, and state and local officials with a roadmap of the best route to implement NG911 and will assure equal access to enhanced 911 services to every resident of and visitor to North Carolina, regardless of the telecommunications service, device, or technology used.

Because of the interconnected and shared nature of NG911, implementation is more complex and requires collaboration among all the stakeholders in a way that was not necessary in the past. Policy and governance issues cannot be addressed by individual local jurisdictions or individual 911 authorities. NG911 requires establishing a collaborative governance framework that will enable such a shared, interconnected, and interoperable system of systems to come into existence. It is important for policy makers at every level of government to recognize that NG911 service requires a statutory and regulatory framework that assures the continued availability, quality, consistency, and sustainability of enhanced 911 service throughout the state.

Goals and objectives are important in strategic planning because they turn the Board's vision for NG911 into specific measurable targets or steps. Goals build on the vision and mission by defining and prioritizing the broad direction in response to specific priorities. Goals describe the general accomplishments to be achieved if the vision is to be achieved. Objectives articulate specific steps that are needed to complete each goal and include the owner-agency and the planned timeline. The following 10 goals are not placed in order of priority, so they may be achieved concurrently with the roll-out of North Carolina's NG911 system.

Goal 1: Provide and pay for a statewide hosted Next Generation 911 system.

Goal 2: Implement a comprehensive Cybersecurity program for the fundamental security of the ESInet, interconnected networks, software, applications, and PSAP users of the ESInet.

Goal 3: Explore and investigate the interconnection of PSAP users of the ESInet with other ESInet users and with other networks serving public safety after complete acceptance of the NG911 system from the NG911 system vendor.

Goal 4: Build and implement statewide GIS database that will be used as a core service of the NG911 system, to be based on the NENA i3 Standard and other NENA NG911 Standards as they relate to GIS.

Goal 5: Increase Board staff to provide for the reorganization and expansion of job responsibilities to better serve PSAPs.

Goal 6: Amend state law (G.S. §143B-1400 et seq.) to reflect changes in 911 service, PSAP operations, and Board responsibilities in the Next Generation 911 environment.

Goal 7: Amend state law (G.S. §143B-1400 et seq.) to define "Multi-Line Telephone System" (or MLTS) and to provide for the regulation of MLTS, to be consistent with the State's authority as well as federal law and FCC rules, upon the effective date of federal law.

Goal 8: Develop a revenue model for 911 service, NG911 service, PSAPs, and 911 Board operations.

Goal 9: Implement outreach and public education programs to keep the public, NG911 stakeholders, and industry partners informed about the Board's NG911 efforts.

Goal 10: Establish statewide minimum training standards or rules, which are consistent with NENA and APCO standards and best practices, for all 911 Telecommunicators, in collaboration with 911 stakeholder groups.

1 INTRODUCTION

1.1 Background & Project Overview

North Carolina General Statues ("GS") §143B-1402(a)(1) requires the North Carolina 911 Board ("the Board") to publish and maintain a comprehensive plan for the provision of 911 service in the state. The Board is further required to describe the allowable uses of 911 revenue in the State 911 Fund.

GS §143B-1402(a) (1) further requires the Board to monitor trends in 911 and enhanced 911 technology, incorporate GIS mapping and other resources into the plan, ensure that each PSAP in the state has a back-up; and implement strategies for the efficient and effective delivery of enhanced 911 services.

1.2 Purpose of the 2018 North Carolina State 911 Plan

This document represents the first official update to the 2010 North Carolina State 911 Plan ("the 2010 Plan"). Although Board staff recommended updates and changes in 2012, those updates were not adopted by the Board; thus, the 2012 changes were not official. The Board's decision in 2018 to update the 2010 Plan is timely and a strategic imperative. Due to the complexity of NG911 technology and the inherent economies of scale, implementation of a single statewide NG911 system is the most effective and efficient way to provide enhanced 911 services, rather than on a county-by-county basis.

Implementing a single statewide digital network requires a level of statewide planning and coordination not previously required. Creating a three- to five-year strategic plan is a critical tool to help the Board and staff plan for and prioritize resources, amend governance, and address all needs associated with NG911, including but not limited to technology, funding, operations, and training. The 2018 North Carolina State 911 Plan ("the 2018 Plan") will provide the Board, Board staff, PSAPs, public safety personnel, and state and local officials with a roadmap of the best route to implement NG911 and will assure equal access to enhanced 911 services to every resident of and visitor to North Carolina, regardless of the telecommunications service, device, or technology used.

The 2018 Plan also documents the status of 911 in North Carolina, the vision for NG911 in North Carolina, and the plan to get from here to there. The 2018 Plan sets forth the top priorities identified by the Board and its PSAP stakeholders, with the main goal to implement a NG911 system. It is vitally important to change out the current 911 system—a disparate collection of circuit-switched analog technology and non-integrated 911 call delivery operations—to an integrated and secure Internet Protocol (IP)-based call-routing system using GIS. Simply stated, the current system is no longer capable of adapting to new modes of communication, especially those that are based on IP. The 911 system must change if it is to continue to meet the public's expectation that their 911 calls will always be answered, and they will always be found regardless of the type of communication device or service they use, or regardless of their location.

The 2018 Plan is intended to establish an overall plan or vision for the statewide implementation of NG 911 services. Because the 2018 Plan serves as a strategic planning guide for the future, the 2018 Plan must remain flexible to account for unforeseen circumstances or events and should be reviewed and amended at least annually to account for and adjust to any such changes. The 2018

Plan is also intended to foster collaboration and should be used on an ongoing basis. Overall, the 2018 Plan will:

- Serve as a tool to communicate strategy for the migration toward NG911 services statewide while informing key decision makers where priorities exist;
- Serve as a tool to examine and explore new technologies and trends in 911 service;
- Ensure the effective and efficient use of 911 resources (e.g., revenue, personnel, and equipment) by focusing resources on the key priorities;
- Provide focus for the Board, Board staff, and the 911 community by providing an opportunity for interested parties to collaborate and provide their input in a structured format, resulting in greater efficiency and effectiveness in accomplishing a statewide strategy for NG911 implementation; and
- Demonstrate the value of having the Board coordinate and facilitate statewide provision of enhanced 911 services.

1.3 Updating the State 911 Plan

The goals established in the 2018 Plan are high-level, general directions, and the objectives for achieving the goals are concise, specific, and measurable. As goals and objectives are achieved, they should be documented. Any changes to the 2018 Plan should be documented in the following manner:

- The Plan is given a new version number following an annual review or following any interim update that was necessary. The number assigned at the time should be a full number; i.e., 1.0; 2.0; or 3.0.
- Any changes made to the Plan on an interim cycle are given a fractional number, such as 1.1; 1.2; or 1.3.
- The date of the official change to the Plan should be documented.
- There should be a description of what changes were made to the Plan, including the page and section numbers.
- The footer of the revised Plan should be updated to indicate a new Plan number.

Appendix A—Document Change History provides the form to use to document any updates to the 2018 Plan.

1.4 Methodology

In February 2018, the Board awarded a contract from a proposal submitted by Ritter Strategic Services, LLC (RSS) to update the existing 2010 State 911 Plan, and in June 2018, the contract was executed. At the request of the Board and staff, the timeline was reduced by 10 working days, so Board staff could submit the 2018 Plan to the 911 Board for adoption at the Board's December 2018 meeting.

The timeline was further challenged by Hurricane Florence, which began battering the North Carolina coast on Thursday, September 13, 2018, even before it made landfall near Wrightsville Beach, NC the following day. Although Florence was classified as a Category 1 storm when it made landfall, the storm brought with it catastrophic rain that caused significant flooding and damage across the state. Board staff were assigned to the state's Emergency Operations Center,

Emergency Support Function 2 (ESF2), as the PSAP Coordination unit. The primary focus was to provide coordination efforts for re-routing 911 calls from one PSAP to another, and to facilitate discussion and conversation between PSAPs and carriers when known issues impacting call delivery were identified. Members of the 2018 Study Group, who represent state and local government public safety agencies and 911 industry partners, were also focusing their expertise and energies on preparing for and responding to the storm—where it rightfully belonged. The result was an interruption in the focus, rhythm, and schedule of the collective work of Study Group members and Board staff on the 2018 Plan.

The 2018 Plan was organized to conform to the current existing national Model State 911 Plan released by NASNA and the National 911 Office. The 2018 Plan was also based on *Next Generation 9-1-1 Strategic Planning Guidebook* published in 2015 by the Office of Emergency Communications (OEC) in the Department of Homeland Security (DHS). The RSS team also reviewed 911 Plans from other states and used their collective experience in writing strategic plans.

The RSS team also reviewed 911 industry standards and best practices, met with Board staff and PSAPs, coordinated one on-site meeting of the 2018 Study Group, and facilitated conference calls with Board staff and Study Group members to review goals and objectives along with various drafts of the 2018 Plan. In addition to the one on-site Study Group meeting, the RSS team attended four regional PSAP meetings to provide attendees with an overview of the project and to obtain their input on the Board's goals and objectives. In addition, RSS facilitated one on-site staff meeting on July 18, 2018, and attended one Board meeting in Morehead City on July 27, 2018. Table 1 lists the dates and locations of the regional meetings.

Table 1—Regional PSAP Meetings

Date	Location
July 11	Woodfin, NC
July 17	Roanoke Rapids, NC
July 19	Salisbury, NC
July 26	Morehead City

1.4.1 2018 Study Group

The 2018 Plan was developed in close conjunction with Board staff and Legal Counsel as well as members of the 2018 Study Group. As part of the update process, Board and staff members appointed professionals across the state to represent the various stakeholder groups in public safety and 911. The RSS team worked with Board staff to incorporate stakeholder input and feedback into the 2018 Plan.

Table 2 contains a list of the 2018 Study Group members, along with each member's affiliation.

Table 2—2018 Study Group

Name	Title	Association
Ms. Rachel Bello	President, NC NENA	NC NENA
Mr. Greg Coltrain	VP of Business Development	Wilkes Communications/ TriCounty Broadband/ RiverStreet Networks
Mr. Brian Drum	Communications Administrator, Catawba County 911	NC NENA
Mr. Bill Greeve	Chief Information & Innovation Officer	Wake County Government, County Manager's Office
Mr. Len Hagaman	Sheriff, Watauga County	NC Sheriff's Association
Mr. Greg Hauser	NC Statewide Interoperability Coordinator (SWIC)	NC Department of Public Safety (DPS)
Ms. Gina Hawkin	Chief, Fayetteville Police Department	North Carolina Association of Chiefs of Police (NCACP)
Mr. Topper Hightower	Universal Service Executive	AT&T
Mr. Josh Holloman	Chief, EMS Division, Johnston County EMS	NC Emergency Medical Services (EMS)
Mr. Tim Johnson	Director, Center for Geographic Information and Analysis (CGIA)	CGIA
Ms. Melanie Neal	President, NC APCO	NC APCO/Guilford Metro 911
Ms. Christy Shearin	Director, Franklin County Emergency Communications	PSAP Representative
Mr. Richard Sneed	Chief, Eastern Band of Cherokee Indians	Eastern Band of Cherokee Indians
Mr. Jack Veit	County Manager, Craven County	North Carolina Association of County Commissioners (NCACC)
Mr. Lee Worsley	Executive Director	Triangle J Cog

2 HISTORY OF 911 IN THE UNITED STATES

In 1967, Indiana Congressman J. Roush called for a single nationwide telephone number to report fires. Later that year, President Lyndon Johnson recommended that a nationwide three-digit emergency telephone number be created to report all emergencies. In November 1967, after meeting with the Federal Communications Commission (FCC), AT&T[1] announced that it had reserved the numbers "911" for the nationwide emergency number.[2]

The Alabama Telephone Company implemented the nation's first 911 system in Haleyville, Alabama. On February 16, 1968, Alabama Speaker of the House Rankin Fite made the first 911 call from the Haleyville City Hall. US Congressman Tom Bevill answered the call on a telephone located in the police department.[3]

Early 911 technology had limited capability and 911 calls had to be delivered to an answering point within the caller's telephone exchange. Because there was little correlation between a telephone exchange boundary and the emergency response jurisdiction, a 911 call could end up at a PSAP that did not serve the caller's location. Basic 911 service, as it has since been defined,[4] did not provide any telephone number or location information with the call—it was a voice service only—and the caller had to provide his or her location and call-back information.

Significant advancement in 911 technology occurred with the introduction of Enhanced 911 (E911) service in the early 1980s. Using existing circuit-switched technology, 911 calls were selectively routed to the PSAP serving the caller's location. In addition, 911 call-takers could receive callers' telephone numbers and fixed locations.

An important part of E911 call routing is the placement of the caller's location information in the 911 database. The information in the 911 database is provided by two parties. First, the 911 Authority is responsible for creating the Master Street Address Guide (MSAG), with corresponding Emergency Service Zones (ESZ) and Emergency Service Numbers (ESN). The ESN enables proper routing of the landline 911 call. Telecommunications carriers comprise the second group. When an individual signs up for landline phone service, the Incumbent Local Exchange Carrier (ILEC) or Competitive Local Exchange Carrier (CLEC) updates the database management system (DBMS) with the new service address. Carriers also update the DBMS for any changed or deleted service addresses.

By the 1990s, the use of cellular technology had increased dramatically. This consumer-driven change posed serious challenges for public safety, because landline E911 systems did not have the capability of providing dynamic location information for wireless callers. In 1996, the FCC mandated wireless E911 in two phases. Phase I provides the call-back number and the address of the tower that received the wireless 911 call. Phase II provides the call-back number and the caller's approximate location, within certain accuracy parameters.

The change from landline 911 to wireless 911 was mitigated by wireless carriers that translated wireless 911 calls to mimic landline 911 calls. The translations allowed wireless 911 calls to route

[1] At that time, AT&T had a monopoly on local and long-distance telephone service and was the only telephone provider in the nation.
[2] Indiana Statewide 911 Board, *Indiana Statewide 9-1-1 Plan*, June 2018, p. 2.
[3] Alabama Chapter of NENA Website, "World's First 911 Call," http://www.al911.org/first_call.htm, April 18, 2008.
[4] 47 CFR 20.18

to a PSAP and for wireless 911 calls to be processed and dispatched without requiring costly upgrades to the PSAP. However, the nomadic aspect of wireless service has been problematic with respect to obtaining the caller's precise location. Even with Phase II service, PSAPs only receive the caller's approximate location as provided by latitude and longitude ("lat/long") and displayed on a map, which may take up to 30 seconds to obtain. Although much less reliable than landline technology, Phase II wireless E911 still represented a huge improvement in obtaining the approximate location of wireless 911 callers.

At around the same time that wireless E911 deployment was peaking, carriers began offering Voice over Internet Protocol (VoIP) service. Although this new technology was deployed similarly to wireless E911 service, VoIP E911 service introduced new challenges to PSAPs because of the nomadic nature of some VoIP communications, and how customer location information was provisioned. In 2005, the FCC ordered interconnected VoIP providers to provide their customers with E911 service. Once again, the transition to VoIP E911 service was mitigated by VoIP providers that translated VoIP 911 calls to mimic landline 911 calls, and PSAPs did not have to upgrade their call-taking equipment.

There are two types of VoIP telephone service, although the FCC did not make that distinction in its order. There is static or fixed VoIP service, and dynamic or nomadic VoIP service. Static VoIP service is that offered by cable companies and they interface with the 911 network. Those 911 calls are routed and treated the same way that landline 911 calls are; that is, those 911 calls are selectively routed to the designated PSAP with ANI and ALI and look just like landline 911 calls to the 911 call-taker. Nomadic VoIP service refers to services offered by companies such as Vonage that allow customers to move their phone when relocating to another city, state, or country (but not during a call). Nomadic VoIP 911 calls are problematic because the VoIP provider relies on its customers to re-register their service addresses when moving or relocating. As long as the customer has Internet access, he or she can make calls. However, if the customer does not change his or her address and calls 911, the 911 call will be delivered to the PSAP designated by the last address registered by the customer, not the customer's current location.

In 2004, Congress passed the ENHANCE 911 Act of 2004, which stands for "Ensuring Needed Help Arrives Near Callers Employing 911." The two purposes of this Act were to coordinate 911 and E911 services at the federal, state, and local levels, and to ensure that 911 funds are not diverted for non-911 purposes. The ENHANCE 911 Act has been amended twice since 2004, through the New and Emerging Technologies (NET) 911 Improvement Act of 2008 and the Next Generation 911 Advancement Act of 2012, which was passed as part of the Middle-Class Tax Relief and Job Creation Act of 2012. The ENHANCE 911 Act also established a National E911 Implementation and Coordination Office (ICO) to coordinate the implementation of E911 service at the federal, state, and local levels. The ICO was also charged with administering a federal PSAP 911 grant program that has been authorized to provide up to $250 million in grants.

In the early 2000s, wireless carriers in the US started offering text messaging with cell phones. Since its introduction, text messaging has grown from 30 billion in 2001, to over 2.3 trillion in 2011. In August 2014, the FCC adopted an order that requires all wireless carriers and other providers of text-messaging applications in the US to deliver interim "text-to-911" service within six months of receiving a request from a PSAP that has been certified as "text-ready."

Since the FCC Order, over 1,400 PSAPs in the nation have voluntarily certified that they are capable of receiving text messages or will be within six months.[5] In states that have not implemented NG911, such emergency "text" requests traverse the public internet and therefore cannot be prioritized—that is, there is no guarantee that the text request will be received at the appropriate PSAP in a timely manner.[6] Effective and true text-to-911 service needs an Emergency Services IP network (ESInet) to assure prompt and accurate message delivery and location.

In 2018, Public Law No. 115-127, also known as Kari's Law, was signed into law, which requires businesses that sell or lease Multi-Line Telephone Systems (MLTS) to allow users to directly dial 911 without having to dial any additional digit, code, pre-fix, or post-fix, including any trunk access code such as the digit "9." The Act requires the FCC to adopt rules, which will not be effective until February 2020.

In March 2018, H.R. 1625, the Consolidated Appropriations Act, 2018 was signed into law. Division P, *the Repack Airwaves Yielding Better Access for Users of Modern Services Act* of 2018, or the RAY BAUM'S Act of 2018, concerns access to 911 service during emergencies.[7] The Act requires the FCC, within three years of the Act's implementation date, to publish a study on the public safety benefits, feasibility, and costs of providing the public with access to 911 service during times of emergencies when mobile/cellular service is unavailable. The FCC is to study access to 911 service through the following:

- Telecommunications Service Provider-owned Wi-Fi access points and other communications technologies operating on unlicensed spectrum, without requiring any login credentials;
- Non-Telecommunications Service Provider-owned Wi-Fi access points; and
- Other alternative means.

On September 5, 2018, the Public Safety and Homeland Security Bureau of the FCC opened PS Docket No. 18-261 to implement Kari's Law and RAY BAUM'S Act. RAY BAUM'S Act requires identification of a dispatchable location with a 911 call, defined as "[a] location delivered to the PSAP by the CMRS provider with a 911 call that consists of the street address of the calling party, plus additional information such as suite, apartment or similar information necessary to adequately identify the location of the calling party. The street address of the calling party must be validated and, to the extent possible, corroborated against other location information prior to delivery of dispatchable location information by the CMRS provider to the PSAP."[8]

2.1 The Federal E911 Matching-Funds Grant Program

The E911 Implementation Coordination Office (ICO) was created in 2004 as a joint effort of the U.S. Department of Transportation National Highway Traffic Safety Administration (NHTSA)

[5] Federal Communications Commission, *Text-to-9-1-1 Master PSAP Registry*, https://www.fcc.gov/files/text-911-master-psap-registryxlsx, as of October 27, 2018.
[6] Wisconsin State Interoperability Council, NextGen 9-1-1 Workgroup, *Wisconsin Statewide NG9-1-1 Plan*, May 11, 2017, p. 14.
[7] https://www.congress.gov/bill/115th-congress/house-bill/4986.
[8] Ibid.

and the U.S. Department of Commerce National Telecommunications and Information Administration (NTIA). The ICO was created pursuant to the ENHANCE 911 Act of 2004, which also authorized grant funding to assist PSAPs in implementing NG911.

In June 2009, application and reporting requirements were published in the Federal Register and the ICO announced the availability of $41.325 million in matching grants for hardware, software, training, and consulting services directly related to upgrading a PSAP's equipment and operations. The total appropriation for the E911 Grant Program was $43.5 million. In September 2009, the funds were awarded to 30 states and territories.

The grant rules required states to match the grant amount by 50 percent, and 90 percent of the grant amount had to directly benefit PSAPs. Grantee states were further required to submit vouchers for reimbursement. To qualify for funding, a state or territory was required to apply on behalf of all eligible entities within its jurisdiction. A state was also required to submit a detailed plan that contained the projects and activities to be funded along with their estimated timelines and costs for either wireless Phase II service or migration to NG911. States or territories in which 911 fees had been diverted within 180 days of the application were deemed ineligible to apply for any such grants. Furthermore, if any state or territory submitted inaccurate information regarding 911 fee diversion or if a state or territory diverted 911 funds during the grant period, the entire grant had to be returned. According to the ICO, Arizona was the only state that diverted 911 fees to its General Fund and was required to return 100 percent of the federal grant funding.[9]

In June 2018, the ICO announced the availability of $110 million in grants, and final rules were published in the Federal Register in July 2018. The deadline to file certifications of compliance was September 10, 2018. It is anticipated that the application process will open in the first quarter of 2019. The rules for this round were largely unchanged from those adopted in 2009. The most significant change was the inclusion of tribal nations in states' NG911 plans. According to the Office of Emergency Communications (OEC) in DHS, tribal nations represent a unique and important sector of the emergency communications environment in the US.[10] Although many tribal nations have cooperative arrangements and relationships with their neighboring counties and PSAPs, tribes have historically been excluded from statewide NG911 plans. Including tribal nations and governments in NG911 planning will enhance the readiness and ability of tribal, state, and local emergency responders to communicate and coordinate effectively during any sort of emergency or incident.[11]

The Board's inclusion of the Eastern Band of Cherokee Indians in the delivery of enhanced 911 service is discussed in a subsequent subsection of this Plan.

[9] E911 Implementation Coordination Office, *E911 Grant Program Final Report,* March 2013, p. 2.
[10] Department of Homeland Security, Office of Emergency Communications, *Emergency Communications Case Study: Tribal Communications Partnerships—The Missing Piece in the Emergency Communications Landscape*, August 2013, p. 1.
[11] Ibid., p. 2.

3 THE 911 ENVIRONMENT IN NORTH CAROLINA

North Carolina is the tenth largest state in the U.S. with a population of 10,273,419 in 2017. The state's population grew 7.7 percent between 2010 and 2017, compared to 5.5 percent nationally. Since 2000, the state's population has grown over 25 percent.

With respect to land size, North Carolina is the 28th largest in the nation. Having a relatively large population and relatively low land area means that the population per square mile in the state is 196 people, compared to 87 per square mile for the nation.[12] According to the 2010 US Census, 66 percent of the state's population lived in an urban area and 34 percent lived in a rural area.

There are 100 counties in the state and over 500 municipalities. As of 2017, the two largest counties were Mecklenburg and Wake, with populations, respectively, of 1,076,837 and 1,072,203. The next largest county is Guilford, with a population of 526,953. The least populated county in the state is Tyrell, with 4,052 people. Table 3 below provides a breakdown of the various population ranges for 2017.[13] Appendix B—North Carolina Population by County: 2010 and 2017 contains the state's population by county (listed alphabetically) for 2010 and 2017.

Table 3—Breakdown of North Carolina Population, 2017

Population Range	No. of Counties	% of Total
Less than 10,000	4	4%
10,001 - 24,000	22	22%
24,001 - 50,000	20	20%
50,001 - 100,000	27	27%
100,001 - 500,000	24	24%
500,001 - 1 million	1	1%
Over 1 million	2	2%
Totals	***100***	***100%***

The ten largest cities in North Carolina, in order of population, are Charlotte; Raleigh; Greensboro; Durham; Winston-Salem; Fayetteville; Cary; Wilmington; High Point; and Greenville. North Carolina has the largest state-maintained highway system in the United States, exceeding 77,400 miles of roads. The state has over 1,500 lakes and over 37,000 miles of fresh water streams. Tourism is an important source of revenue for the state, and in 2017 visitors spent more than $1 billion in the state.

[12]US Census Bureau, American Fact Finder: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2017: North Carolina, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk, as of October 26, 2018.
[13] Ibid.

Some of the major attractions in North Carolina are year-round golfing; snow skiing at ski resorts; fresh- and salt-water fishing; hunting; the Great Smoky Mountain National Forest; the Blue Ridge Parkway; Wrightsville Beach; the Cape Hatteras and Cape Lookout National Seashores; and the Wright Brothers National Memorial in Kitty Hawk. The vast differences in geography, population, and attractions place a unique demand on the 911 systems across North Carolina and underscore the importance of a single statewide digital network for E911 service.

Table 4 and Table 5 provide information on statewide 911 call volume.

Table 4—Statewide 911 Call Volume in 2017

	Number of 911 Calls	% of Total
Wireline 911	1,265,176	17.40%
VoIP 911	607,047	8.30%
Wireless 911	5,406,307	74.30%
Total 911 Call Volume	***7,278,530***	***100.00%***

Table 5—Year to Year Comparison: 2017 to 2018

	Sept. 2017	% of Total	Sept. 2018	% of Total	% Change: 2017-2018
Wireline	95,956	16.32%	94,267	14.85%	-1.76%
VoIP	48,696	8.28%	52,220	8.23%	7.24%
Wireless	443,302	75.40%	488,390	76.93%	10.17%
Total 911 Call Volume	***587,954***	***100.00%***	***634,877***	***100.00%***	***7.98%***

3.1 Statutory Framework for 911 Service

North Carolina General Statutes (G.S.) Chapter 143B, Article 15, Part 10, Section §143B-1400 *et seq.*, establishes the statutory provisions and requirements for 911 service at the state and local levels. The statutory provisions for 911 service in the state include, but are not limited to, the creation of a state 911 Board, the monthly 911 service charge, and eligible uses of 911 revenue.

3.2 State-Level Governance for 911 Service—the 911 Board

North Carolina adopted 911 by legislative act in 1989, and authorized local governments to adopt ordinances to fund 911 operations. In 1998, the North Carolina General Assembly created the Wireless 911 Board, pursuant to S.L. 1989-587; as codified in Chapter 62A of the N.C. General

Statutes. The Wireless Board was originally established to provide a wireless E911 system in response to FCC Order 94-102 mandating wireless E911 service.

In 2007, the North Carolina General Assembly further amended the 911 statutes to create the 911 Board and charged the 911 Board with responsibility for landline 911 as well as wireless 911 service. The General Assembly also consolidated the 911 service charge into a single statewide uniform charge effective January 1, 2008 and disallowed any other 911 fee or tax by local governments. The initial rate was 70 cents ($0.70) per connection for any type of voice communication service provider. This was done to consolidate North Carolina's 911 system under the Board with a uniform 911 service charge to integrate the state's 911 system, enhance efficiency and accountability, and create a competitive playing field among voice communication technologies. In Fiscal Year (FY) 2010,[14] the Board lowered the rate to sixty cents ($0.60), effective July 1, 2010.[15] In March 2018, the Board raised the rate to 65 cents ($0.65).

3.2.1 911 Board Composition

The Board is comprised of 17 members, as established in G.S. §143B-1401. The Secretary of the Department of Information Technology (referred to as the State Chief Information Officer) serves as Board Chair. The Governor appoints four members and the General Assembly appoints 12 members. Of the legislative Board member appointments, six are appointed based on the recommendation of the Speaker of the House of Representatives, and six are appointed based on the recommendation of the Senate President Pro Tempore.

The four appointments by the Governor are as follows:

- One municipal representative with a primary PSAP, based on a recommendation from the North Carolina League of Municipalities;
- One county representative with a primary PSAP, based on a recommendation from the North Carolina Association of County Commissioners;
- One representative of a VoIP provider; and
- One representative from the state chapter of NENA.

The six appointments by the General Assembly upon the recommendation of the House Speaker are as follows:

- One Sheriff, based on a recommendation from the NC Sheriff's Association;
- One representative of a CMRS provider operating in the state;
- One representative from the state chapter of APCO;
- Two representatives from LECs operating in the state, one of whom represents a carrier with fewer than 50,000 access lines; and
- One Fire Chief with PSAP supervisory experience based on a recommendation from the North Carolina Firefighter's Association.

The six appointments by the General Assembly upon the recommendation of the Senate Speaker Pro Tempore are as follows:

[14] In North Carolina, the Fiscal Year starts on July 1 and ends June 30 the following year.
[15] NC Department of Information Technology, *the NC 911 Board: About the NC 911 Board*, https://it.nc.gov/about/boards-commissions/911-board/about-nc-911-board, as of August 31, 2018.

- One Chief of Police, based on a recommendation from the NC Association of Chiefs of Police;
- Two representatives from CMRS providers operating in the state;
- One Rescue or Emergency Medical Services (EMS) with experience operating or supervising a PSAP, based on a recommendation from the NC Association of Rescue and Emergency Medical Services; and
- Two representatives from LECs operating in the state, one of whom represents a carrier with fewer than 200,000 access lines.

One State Official:

- Secretary of the NC Department of Information Technology, who also serves as Board Chair

Eight Local and Public Safety Officials:

- Municipality with a primary PSAP (NC League of Municipalities)
- County with a primary PSAP (NC Association of County Commissioners)
- Sheriff (NC Sheriff's Association)
- Chief of Police (NC Association of Chiefs of Police)
- PSAP (NC Chapter of APCO)
- PSAP (NC Chapter of NENA)
- Fire Chief with PSAP experience (NC Firefighter's Association)
- Rescue or EMS Chief with PSAP experience (NC Association of Rescue and Emergency Medical Services)

Eight Providers:

- Three CMRS representatives
- Four Local Exchange Carrier (LEC) representatives
- One VOIP representative

Board members serve terms of four years, are limited to two terms, and serve until their respective successor has been appointed. The Governor may remove any Board member, regardless of appointment, "…for misfeasance, malfeasance, or nonfeasance…" pursuant to G.S. §143B-13(d).[16] Board members serve without compensation, but receive per diem, subsistence, and travel allowances at the rate established in state law. Nine members constitute a quorum at a Board meeting, and the Board meets upon the call of the Chair. Board members are considered public servants and as such, are subject to the provisions of the State Government Ethics Act.

3.2.2 Powers and Duties of the 911 Board

G.S. §143B-1402 establishes the Board's powers and duties, which include the following:

1. Develop a 911 State Plan;
2. Administer the 911 Fund;
3. Distribute revenue in the 911 Fund to CMRS providers and PSAPs pursuant to requirements established by the Board;

[16] This subsection of the Executive Organization Act of 1973 concerns provisions for the appointment, qualifications, terms, and removal of members of boards or commissions.

4. Establish cooperative purchasing agreements or other contracts for the procurement of goods and services;
5. Establish policies and procedures to fund advisory services and training for PSAPs;
6. Set operating standards for PSAPs and back-up PSAPs;
7. Investigate revenues and expenditures associated with the operation of PSAPs to ensure compliance with Board rules, regulations, requirements, and policies;
8. Make and enter into contracts and agreements as needed to fulfill its statutory obligations;
9. Use funds to pay for statewide 911 projects;
10. Accepts gifts, grants, or other money for the 911 Fund;
11. Undertake its duties in a manner that is competitively and technologically neutral to communication service providers;
12. Design, create, or acquire printed or Web-based public education materials regarding the proper use of 911;
13. Adopt rules to implement G.S. §143B-1400 *et seq*.;
14. Take other necessary and proper action to implement the provisions of G.S. §143B-1400 *et seq*.; and
15. Pay private sector vendors for provisioning a communications network for providing access to 911.

G.S. §143B-1402(b) strictly prohibits the Board (or any state agency) from constructing, operating, or owning a communications network for the provision of 911 service. The Board is permitted to pay private sector firms for such networks.

3.2.3 The 911 Service Charge

G.S. §143B-1403 provides for the monthly 911 service charge that is imposed on "…each active communications service connection that provides access to the 911 system through a voice communications service…." The rate established in statute, which excludes pre-paid wireless service but includes all other communications services, is 70 cents ($0.70) per month per access line, which was effective July 1, 2008.[17] The Board is permitted to lower the service charge and lowered the rate to 60 cents per month effective July 1, 2010.[18] In March 2018, the Board raised the rate to 65 cents ($0.65). Providers of these services are required to remit the service charge to the 911 Board by the end of the calendar month following the month in which the charge was collected. Providers are entitled to retain as an administrative fee either one percent of the amount collected or $50, whichever is greater.

The 911 service charge on prepaid wireless service was established by statute to be the same rate for each retail transaction and is assessed at the retail point of sale. Pursuant to G.S. §143B-1414, retail sellers are entitled to retain up to five percent of the amount collected as an administrative fee. Retail sellers must remit the amount collected to the NC Department of Revenue either monthly or semiannually. For sellers that remit monthly, the amount collected is due by the 20th day of the month following the calendar month in which the fee was collected. For sellers that remit semiannually, the amount collected in the first six months of the calendar year is due by July 20, and the amount collected in the second six months of the calendar year is due by January 20.

[17] The inflation-adjusted rate (in October 2018 dollars) is 80 cents.
[18] The inflation-adjusted rate (in July 2018 dollars) is 70 cents.

It is important for there to be parity between or among the various types of voice communications devices and providers with respect to remittance and assessment of the 911 service charge. There should be parity in how often the 911 service charge is remitted; that is, if one group is required to remit the service charge monthly, then all groups should remit monthly. Disparate remittance periods could make it more difficult to accurately estimate 911 revenue and to efficiently manage cash flow. It is also important to maintain parity with respect to the amount providers are entitled to withhold to cover their administrative costs; that is, if one provider or group is entitled to withhold one percent, then all providers or groups should withhold the same percentage amount. Lack of parity with respect to the administrative fee could result in a lack of a competitive playing field.

3.2.4 The 911 Fund

G.S. §143B-1404 provides for the creation and administration of the 911 Fund, which is an interest-bearing special revenue fund within the State treasury. The Board administers the Fund and funds may only be used as provided for in §143B-1400 *et seq*. The statute allows the Board to retain up to two percent of the revenue for administrative expenses. Currently, the Board is setting aside only one percent for its administrative costs.[19] Ten percent of the service charge must be allocated to the Next Generation 911 Reserve Fund. The remainder of the funds are distributed between CMRS Providers and primary PSAPs. Primary PSAPs are defined as the "…first point of reception of a 911 call by a public safety answering point…."[20]

Wireless, or rather CMRS, providers receive a percentage of 911 revenue, excluding 911 revenue from wireless pre-paid retail sales, for cost recovery. PSAPs receive a percentage of all 911 revenue, including wireless pre-paid. The Board must determine the specific percentage that each group receives to ensure full cost recovery to wireless carriers; any excess funds not used for cost recovery are available for distribution to PSAPs.

G.S. §143B-1405 establishes the statutory process for CMRS cost recovery along with requirements with which wireless carriers must comply to be eligible for reimbursement of their costs to provide wireless E911 service. If there are excess funds from cost recovery at the end of a fiscal year, the Board has the authority to reallocate those funds to the PSAP Grant and Statewide 911 Projects Account, pursuant to limitations and other requirements in G.S. §143B-1407.

3.2.5 The 911 Board Staff & Committees

The Executive Director of the 911 Board is responsible for the day-to-day operations of the Board and its staff. Board staff also provide staff assistance to the Board's six committees, which are comprised of Board members and other stakeholders. Following are the committees:

- Education Committee
- Funding Committee
- Grant Committee

[19] North Carolina Department of Information Technology, the North Carolina 911 Board, *911 Fund*, https://it.nc.gov/about/boards-commissions/911-board/911-fund, as of August 31, 2018.

[20] G.S. §143B-1400(23). A public safety answering point (PSAP) is further defined in G.S. §143B-1400(25) as the "…public safety agency that receives an incoming 911 call and dispatches appropriate public safety agencies to respond to the call…."

- Technology NG 911 Committee
- Standards Committee
- Study Group

3.2.6 Accountability

In February of each odd-numbered year, the 911 Board must report to the Joint Legislative Commissioner on Governmental Operations and the Revenue Laws Study Committee on the receipts and expenditures of all funds received by the Board during the reporting period. The report must also contain the status of the 911 system and the results of any investigation of PSAPs by the Board.

The State Auditor is required by statute to audit the 911 Board at least every two years pursuant to Part 5A of Chapter 147 of the General Statutes. The audits are conducted to ensure that the 911 Fund is properly managed.

3.2.7 Intergovernmental Coordination

The responsibilities of the Board and its staff require intergovernmental coordination and collaboration for the delivery of 911 service to residents of and visitors to North Carolina. Historically, the primary purpose of coordination has been based upon the distribution of revenue from the 911 Fund and its subsequent verification and auditing. The Board's decision to provide and pay for the NG911 system will require additional coordination and collaboration with PSAPs, and other local government and public safety officials.

In its 2015 Biennial Report, the Board included an action plan to improve customer service; improve educational and outreach processes; develop a conceptual design to implement NG911; and continue conducting 911 meetings across the state to obtain input from PSAPs and the public. The Board extended the action plan into 2018 by forming the Study Group and hosting regional meetings for local officials and PSAP directors to assist in updating the State 911 Plan.

3.2.7.1 GIS/Mapping Support

Currently, North Carolina does not have a comprehensive geographic dataset of local jurisdictions for 911 service. For NG911 to be effective, it is important to have current and accurate data that is seamless across an entire region or state. The demands and challenges of NG911 will require an innovative approach to how GIS data is used, stored, and created. As a result, establishing partnerships at the state and local levels is crucial. The 911 Board has established a cooperative agreement with the North Carolina Center for Geographic Information and Analysis NC CGIA) to obtain robust GIS data from PSAPs that will support NG911 service.

3.2.7.2 Coordination of 911, Enhanced 911, and NG911 Services with Native American Tribal Nations and Governments

Section 2.1 of this Plan provided a high-level summary of the Federal 911 Grant Program and new rules established for the round of grants in 2018. To reiterate, the new rules require state applicants to include Native American Tribal Nations and governments in statewide NG911 planning and efforts. Including tribal nations and governments in NG911 planning will enhance the readiness and ability of tribal, state, and local emergency responders to communicate and coordinate

effectively during any sort of emergency or incident. Including tribal governments in NG911 planning and implementation ensures equal access to enhanced 911 services.

As part of the Board's distribution of funds and the offering of the NG911 system, inclusion of the Eastern Band of Cherokee Indians is statutorily required. The Eastern Band is the local governing body and is included as all other units of local government in North Carolina.

The inclusion of Native American Tribal Nations and governments has been addressed in the 911 general statutes. G.S. §143B-1406(g) defines the Eastern Band of Cherokee Indians as a PSAP, thereby including this tribal government in the funding and planning of all 911 service in the state, including NG911. A representative of the Tribal Council of the Eastern Band of Cherokee Indians serves on the Study Group for the 2018 State 911 Plan.

3.2.8 Board Programs and Initiatives

In 2017, the Board contracted with AT&T to provide the state's IP-enabled NG911 system, which includes the ESInet, Next Generation 911 Core Services (NGCS), and hosted call-handling solution for primary PSAPs in North Carolina. As of November 2018, 84 PSAPs had expressed an interest in joining the ESInet. On November 13, 2018, the first PSAP in the state transitioned to the ESInet. The estimated date for all PSAPs to migrate to the ESInet is December 31, 2021.

The Board has also initiated a project for an electronic Customer Relationship Management (CRM) software system, which when complete, will contain data and information about each PSAP, such as the type of CPE, CAD, and mapping systems used, 911 call volume, and other data deemed necessary by the Board and staff. The goal of this project is to provide a central reporting system for Board staff and PSAPs to enter relevant data, which will provide immediate, accurate, and reliable information about the 911 environment in North Carolina. Having this information centrally stored will allow staff to proactively address challenges and better plan for the future, which, in turn, will improve the Board's efficiency and effectiveness.

3.3 Local-Level Governance for 911 Service

In North Carolina, PSAPs are operated, managed, and staffed by local governments, either at the municipal or county level. These same local governments are responsible for funding PSAP operations. In the current analog 911 environment, 911 service has typically been delivered via a contract between a PSAP (or municipality or county) and the 911 system provider, which traditionally has been the Incumbent Local Exchange Carrier (ILEC). The 911 system provider supplies the 911 network, network monitoring, network maintenance and repair, and static ALI database as part of the contract. The PSAP purchases or leases the 911-related equipment (e.g., CPE, CAD, mapping) and is responsible for equipment maintenance and repairs. As a result, it was not typical for counties or municipalities to coordinate the provision of 911 service on a regional basis except for back-up arrangements.

NG911 will create an environment where coordination among multiple counties is possible and beneficial. In other states that have implemented NG911, regional consortia have been established for procurement advantages and redundant operating purposes. Regardless, the delivery of 911

services to the public is a local matter, although PSAPs are accountable to the Board with respect to the use of 911 funds.

3.3.1 Monthly Distribution of 911 Revenue to PSAPs

G.S. §143B-1406 provides for the process of the monthly distribution of 911 revenue to primary PSAPs. To be eligible to receive such distributions, a PSAP must provide E911 service, comply with all provisions of state 911 law, and must have received distributions in FY 2008-09. Subsection (a)(1) through (3) provides specific requirements the Board must follow concerning monthly distributions, such as setting a base amount for each PSAP. In addition, the Board "…must determine a method for establishing distributions that is equitable and sustainable and that ensures distributions for eligible operating costs and expected increases for all funded PSAPs…." The Board is further required to consider the following six factors:

1. Population served by each PSAP.
2. PSAP reports, budgets, prior disbursements, and prior costs.
3. PSAP operations, technologies used by the PSAP for 911 service, compliance with operating standards established by the Board, and level of service a PSAP delivers dispatching fire, law enforcement, and EMS and providing Emergency Medical Dispatch (EMD).
4. The tier designation of the county in which the PSAP is located.[21]
5. Any current existing interlocal agreement between a primary PSAP and a secondary PSAP, provided that the secondary PSAP was in existence as of June 1, 2010, receives funding from the primary PSAP under the agreement, and is within the primary PSAP's service area.
6. Any other information the Board deems relevant.

Standards for eligible and prohibited uses of 911 funds are provided in subsection (d). PSAPs are prohibited from using 911 funds for the following:

- The lease or purchase of real estate;
- Cosmetic remodeling of 911 Centers;
- Personnel costs for 911 Telecommunicators; and
- The purchase of mobile communications vehicles, ambulances, fire engines, or other emergency vehicles.

PSAPs may use 911 revenue only for the following:

- The non-recurring costs of establishing a 911 system;
- Expenditures for in-state training of 911 personnel regarding the maintenance and operation of the 911 system (within specific guidelines);
- Charges associated with the provision of 911 service by the 911 service supplier; and
- The lease, purchase, or maintenance of the following:
  - 911 call-taking equipment, including necessary computer hardware, software, and database provisioning.

[21] G.S. §143B-437.08 concerns development tier designations, which are based on factors such as unemployment; income; percent change in population; and per capita adjusted assessed property values.

- Addressing.
- Telecommunicator furniture.
- Dispatch equipment located exclusively within the building where the PSAP or back-up PSAP is located, except for radio-dispatch equipment.

3.3.2 Accountability

The fiscal officer of a PSAP to whom a distribution from the 911 Fund is made must deposit the funds in a special revenue fund as defined in G.S. §159-26(b)(2), designated as the Emergency Telephone System Fund. Annually, a participating PSAP must submit to the Board an approved budget detailing the revenues and expenditures eligible for reimbursement.

In accordance with G.S. §143B-1408, the Board is empowered to provide notice to any communications service provider or PSAP found by the 911 Board to be using fees from the 911 Fund for purposes not authorized by statute. The provider or PSAP must stop making any further unauthorized expenditures but may petition the Board for a hearing on the matter. If the Board determines at the hearing that the expenditure does not represent an eligible use of 911 revenue, the provider or PSAP will be required to reimburse the 911 Fund. If reimbursement is not made, the Board is authorized to suspend future distributions.

3.4 Current 911 PSAP Technology

In North Carolina, all 911 calls are answered at a primary PSAP, which is legally defined as the first agency that receives a 911 call. Primary PSAPs must be capable of receiving and processing E911 calls from all voice communications service providers. There are currently115 primary PSAPs in the state. There are also12 secondary PSAPs in the state, which the Board has defined as a PSAP that is able to receive voice and data of an E911 call that has been transferred from a Primary PSAP for dispatch of law enforcement, emergency medical services, ambulances, firefighters, or other responders. PSAPs range in size from two-position centers up to almost 60-position PSAPs.

In addition to the Public Switched Telephone Network (PSTN), there are several pieces of equipment at a PSAP that play a crucial role in the answering and processing of E911 calls. Common equipment includes the call-taking equipment, or Customer Premise Equipment (CPE); Computer Aided Dispatch (CAD); voice logging recorders; Uninterruptable Power Systems (UPS); generators; GIS/Mapping; and radio.

Typically, PSAPs enter into agreements or contracts with their 911 System Service Provider (SSP), which provides the 911 network, database, and network monitoring and maintenance. The PSAP typically enters into a separate lease/purchase agreement with the SSP for the call-taking equipment. The PSAP also provides and is responsible for the equipment mentioned above. As in most states, the level of technology in place and used varies from PSAP to PSAP, which results in varying levels of capability with respect to the provision of 911 service.

3.4.1 Wireless Phase II Status

The implementation of wireless E911 service did not significantly affect the 911 system or network. As stated previously, service providers translated wireless 911 calls to mimic landline 911 calls, so they can be received and processed by PSAPs without requiring costly equipment upgrades. In the wireless environment, a wireless 911 call routes from the Mobile Switching Center (MSC), which is essentially a wireless central office. From the MSC, the wireless 911 call travels on a dedicated, secure, and closed network to the serving Selective Router, where the call is routed to the designated PSAP. When the PSAP queries the ALI database, there are instructions to route the query to the designated wireless database. The caller's approximate location is then transmitted back to the PSAP, as measured in lat/long and displayed on a map. Obtaining the caller's approximate location instead of the address of the tower that received the call often takes up to 20 to 30 seconds to obtain.

The following carriers provide wireless service in North Carolina:

- AT&T
- Cricket Communications
- Sprint
- T-Mobile
- US Cellular
- Verizon Wireless

In addition to the carriers/providers listed above, there are numerous Mobile Virtual Network Operators (MVNOs), which purchase network services from Tier I carriers in wholesale quantities and prices, and then re-sell the service under another name. Examples are Boost, which uses the Sprint network, and Carolina West, which uses the network of Verizon Wireless.

According to the National 911 Program Office, 100 percent of the primary PSAPs in North Carolina were providing Phase II wireless E911 service as of 2016.[22]

3.5 Current 911 Infrastructure

The current 911 network in North Carolina is a patchwork of separate networks maintained by two Incumbent Local Exchange Carriers (ILECs), AT&T and Century Link. Competitive Local Exchange Carriers (CLECs), wireless carriers, and Voice over Internet Protocol (VoIP) providers connect to various Selective Routers owned by the two ILECs to provide E911 service.

Dialing "911" is more than just being connected to a 911 Telecommunicator at a PSAP. In a traditional landline environment, a caller dials "911" from his or her landline phone. The audio, or voice, is routed through a secure, dedicated, and closed network, along with the caller's telephone number (or ANI) to the Selective Router. The Selective Router compares the caller's ANI with the routing instructions in the Selective Router Database (SRDB), and selectively routes the 911 call (both audio and ANI) to the designated PSAP. Special 911 call-taking equipment at the PSAP takes the telephone number (ANI) and queries the 911 database for the caller's

[22] National 911 Program Office, *2017 National 911 Progress Report*, November 2017.

Automatic Location Information (ALI), along with the appropriate emergency response agencies. That information is sent back to the PSAP for display on a 911 call-taker's screen, who then processes the call and initiates dispatch of emergency personnel if needed.

3.6 Current 911 System Limitations

The Selective Routers in use today in North Carolina were designed in the 1970s only for analog, circuit-switched telephone networks. It is technologically impossible for an analog Selective Router to perform the functions required in the NENA i3 standard for NG911, and therefore there is no road map that will bring this equipment in that direction.

Most of the 911 trunks in the state use the Centralized Automatic Message Accounting (CAMA) signaling system, which was designed originally for billing long distance calls because it provides both the calling and the called number using in-band signaling. CAMA is a major reason why 911 callers sometimes experience longer call setup times, on the order of six to 20 seconds, while "normal" telephone calls set up in just a second or two. CAMA signaling technology is not capable of supporting the newer capabilities of communications features such as text or video. CAMA was designed for voice communications only, and therefore lacks the capacity to accept data.

In the legacy environment, CAMA allows the telephone system to send a station identification number to the PSAP via multifrequency (MF) signaling through the 911 service provider's E911 equipment. Call-taking equipment at the PSAP, often referred to as Customer Premise Equipment (CPE), is probably the most essential piece of equipment at a PSAP. The CPE receives the initial MF signaling and the CPE ensures the delivery of a voice-generated request for assistance from a 911 caller that is answered and processed by a 911 Telecommunicator.

Legacy 911 call handling is limited to processing voice calls and requires a 911 Telecommunicator to answer both incoming 911 calls and initiate the outgoing dispatch of response units. In this environment, the 911 call-taker must interpret the caller's verbally relayed information and make all dispatch entries based only on that information.

In the legacy 911 environment, wireless 911 calls are routed based on the tower that received the 911 call, not the caller's location. Federal and State laws direct routing to the appropriate PSAP; this generally means the primary PSAP closest to the caller within the jurisdiction. As a result, some wireless 911 calls are routed to the wrong PSAP and must be transferred. However, PSAPs are not always able to transfer the ANI and ALI associated with a given wireless 911 call to the appropriate PSAP. Transferring any 911 call introduces a potential point of failure, which means the potential exists for the 911 call to drop during the transfer. In addition, there are significant time delays associated with having to obtain the 911 caller's location, and those delays, in turn, increase response times. Furthermore, if the transfer took place over 10-digit phone lines, the 911 call-taker may not have a call-back number, and if the call is dropped, the caller cannot be called back. Transfers by means of a 10-digit line require 911 telecommunicators in both PSAPs to remain engaged because call data cannot be automatically transferred. Finally, transferring the 911 call sometimes confuses or angers the caller, because the caller does not understand why the call got transferred and why the same questions are being asked repeatedly. The ultimate effect is a negative impact on the quality of 911 service.

In September 2018, over 75 percent of 911 calls in North Carolina were from wireless devices, slightly less than 18 percent were from landline telephones, and about seven percent were from VoIP phones. The 911 system that was designed and built for landline service only now transports only a quarter of the state's 911 calls.

Call statistics are automatically collected across the State. These statistics show that the state's 911 call-takers had the precise location of only 25 percent of their 911 callers in September 2018 and had only an estimate of the location of over 75 percent of their callers. That is, three-quarters of the 911 callers in North Carolina had their calls routed based not on their location, but rather on the location of the tower that received the 911 call. During an emergency, such as Hurricane Florence, it can be reasonably presumed that some wireless 911 calls got bounced from the closest tower because of call overflow and the FCC's requirement to route wireless 911 calls to the next available tower if the closest one is not available. It can therefore be reasonably presumed that at least some wireless 911 calls were routed to a non-serving PSAP and had to be transferred to the appropriate PSAP.

It is clear that wireless Phase II service is a vast improvement over Phase I and Phase 0, but these 911 calls are not routed based on the caller's location. Obtaining the caller's approximate location can take up to 30 seconds to obtain; even then, the caller's true location can vary up to 100 meters—or about one football field length. The public expects more and deserves more.

4 THE FUTURE ENVIRONMENT: NEXT GENERATION 911

4.1 The Drive to Next Generation 911

The current 911 systems in place in the US were built in the 1970s and were based on circuit-switched technology. A circuit is a connection or line between two points, using various media such as copper, coaxial cable, fiber, or radio wave. A circuit-switched network is one that establishes a physical circuit temporarily on demand and keeps the circuit open and reserved for the user until the user disconnects. The current 911 systems were designed to handle only one type of communications device: analog landline telephone service.

The explosive growth in communications technology is forcing 911 Authorities at every level of government to change the way they operate in order to provide equivalent services to constituents. To support these trends, PSAPs must migrate to a platform that enables new and emerging communications services and devices to access E911. The evolution of communications technology provides an opportunity for the 911 Board and PSAPs to make major improvements in the current E911 infrastructure. These improvements include the capability for multimedia services that will enhance public safety, reduce response times, and save lives.

Residents and businesses no longer live or operate in small isolated communities, and telecommunications services are no longer local-only offerings. People's lives take place in widespread areas with a multitude of communications options, and communications are no longer constrained to a fixed location. Traditional communications companies are transforming their circuit-switched networks into packet switched networks to accommodate the transport of voice, data, and video. The trend is only going to accelerate in the coming months and years.

Consumers and businesses are increasingly using and depending on new communications technologies and devices, such as VoIP devices, instant messaging, text messaging, Short Message Service (SMS), and email. These new technologies and devices enable the transfer of huge amounts of data. In addition, consumers and businesses are increasingly giving up their landline phone service for wireless phone service only. The deaf and hard-of-hearing community is increasingly using text messaging to communicate. Many have given up use of TTY/TDD machines in favor of text messaging. Consumers expect that they should be able to communicate with 911 using their smart phones and smart devices, including sending photos and videos or by texting.

As the rest of the world moves to Internet Protocol (IP)-based networks, the current E911 system will continue to lag further behind technologically, will continue to degrade, and will be unable to meet the needs and demands of consumers requesting emergency assistance. Every time a new technology is introduced (e.g., wireless, VoIP, texting) or system functions are expanded (e.g., location determination), the existing E911 network and equipment must undergo significant, convoluted, and costly engineering changes. These changes result in significant time delays and solutions that are not completely effective. The current 911 network and infrastructure cannot effectively or adequately support the network and technology needs of the future. The state's 911 systems must transition to a digital/IP-based network and must prepare for future technological changes.

The way PSAPs operate and provide 911 service is changing rapidly, but currently, PSAPs attempt to respond to today's requests for service using yesterday's technology. Delivering additional data

with a 911 call requires a digital network to provide the speed and data capacity to properly route and deliver a 911 call based on the call's location (rather than the location of the wireless tower, for example) to the appropriate PSAP. The existing analog, circuit-switched 911 networks in the state must be upgraded to a single, statewide 911 IP-based network. Such a network will improve call set-up time, increase the speed at which voice and data arrive at the PSAP, and improve response time, thereby saving lives. A single statewide IP-based network will also provide for call load sharing and host equipment sharing; the latter will allow local governments to retain control over how 911 calls are processed and dispatched, while minimizing 911 costs through centralizing network, equipment and software.

The technology associated with a digital network cannot be implemented on a county-by-county and on an "as a local government can afford it" basis. There must be a plan and funding that provide for the implementation of a single IP-based statewide network to transport 911 requests for service to the appropriate PSAP. The funding source for NG911 must be technology neutral, provide parity across all devices and carriers, and must cover the complete cost of the NG911 system. The plan must account for the fact that while telecommunications and access to E911 service are becoming increasingly borderless, emergency response is, and always will be, a local response; that is, if something goes wrong during a 911 call, local authorities are held accountable to their constituents.

It is nationally accepted that 911 call-takers and dispatchers in local 911 centers are the true first responders to any incident, whether isolated or widespread, human-caused or natural, accidental or deliberate. Yet, 911 service, infrastructure, training, and operations are rarely included in any federal government appropriations or homeland security grant programs. It is simply not good enough to merely implement or facilitate the implementation of a NG911 system without considering the impacts to PSAPs to prepare and train their 911 employees for answering, processing, and dispatching calls in a NG911 environment. PSAPs need a road map to implement NG911 to ensure that every resident can access and obtain the same level and quality of 911 service.

4.2 What is Next Generation 911?

Much work has been done in many forums to design a 911 system to meet consumer expectations and technological changes. In the future, consumers will be able to access 911 from any networked communication device, with location automatically provided at the beginning of the call.

Internet Protocol (IP) is the technology that will be used for the future 911 network, which is being called Next Generation 911, or NG911. According to the National Emergency Number Association (NENA), NG911 is:

> *"An Internet Protocol (IP) based replacement for E9-1-1 features and functions that supports all sources of emergency access to the appropriate PSAPs, operates on reliable, secure, managed, multi-purpose IP networks, and provides expanded multimedia capabilities for PSAPs and other emergency responders."*

According to the Association of Public Safety Communications Officials (APCO) Project 43, NG911 is:

> *"A secure, nationwide, interoperable, standards-based, all-IP emergency communications infrastructure enabling end-to-end transmission of all types of data, including voice and multimedia communications from the public to an Emergency Communications Center."*

In other words, NG911 is

- A secure and open architecture that uses a reliable and managed IP network to allow new communications devices such as text messaging, data, pictures, and video to access 911 service.
- A system that enables call access, transfer, and backup among and between PSAPs without geographic or technical restrictions.
- An architecture that will facilitate an interoperable system of systems for all emergency response organizations.
- A system that will contain the same functions of the legacy 911 system, such as redundancy and reliability (e.g., 99.999% up time), while providing for greater accessibility, interoperability, functionality, and a more efficient use of 911 resources.

When fully implemented, NG911 will enable:

- Transfers of 911 calls between geographically dispersed PSAPs, and from PSAPs to remote public safety dispatch centers, if necessary;
- Increased sharing of data, resources, procedures, and standards to improve emergency response;
- Reductions in capital and operating costs for the state and PSAPs; and
- Improved coordination and partnerships within the emergency response community.

Table 6 below provides a high-level summary of the differences between the current 911 system and NG911.

Table 6—The Difference Between Current 911 & NG911

Current 911	NG911
Virtually all calls are voice calls via landline, wireless, or VoIP telephones over analog lines/circuits/trunks.	Voice, text, pictures, videos, etc., from many types of communications devices, sent over IP networks. Callers will be able to access 911, regardless of the device used, ensuring equal access to 911.
Most of the situational information is provided by the caller via voice.	Advanced data sharing is automatically done, and situational information can be provided automatically (ACN, Telematics).

Current 911	NG911
Calls are routed on analog lines through analog Selective Routers; callers' locations are provided by querying the appropriate database and sending that location information back to the PSAP.	Calls are routed automatically based on the caller's geographic location. Physical location of PSAP becomes immaterial and transparent to caller. Caller's location is provided with the call.
Limited ability to forward or transfer calls with complete data.	PSAPs are able to transfer 911 calls across the state with voice and accompanying data.
Limited ability to handle overflow situations; callers can either get a busy signal or constant ringing.	PSAPs are able to control call congestion situations, including the ability to dynamically reroute calls.
Complex analog trunking and data network.	Managed private ESInet.
Only accepted media is voice.	Voice, Text, Video.
Call routing is based on translation from the 911 caller's phone number.	Call routing is based on translation from the 911 caller's location.

4.3 How does NG911 Work?

In the NG911 environment, when telephone service is provisioned or modified, the customer address will be pre-validated against the local GIS (using the Location Validation Function, LVF) to ensure the address is correct; this also ensures the call can be geospatially routed.

When a 911 call is placed, location information is included in the Geolocation header of the call data. The location information can be provided in one of two ways. The first type of location information is the civic address, which is defined as Presence Information by Document Format-Location Object, or PIDF-LO. The second type of location information is by reference, which is a geographic point as identified by lat/long, which is defined as the location Uniform Resource Identifier, or URI.

The location information is passed by the Emergency Services Routing Proxy, or ESRP, to the Emergency Call Routing Function, or ECRF, for proper routing of the 911 call. At the same time, the device or network queries the Emergency Call Routing Function (ECRF) for routing. The ECRF provides what is called "next hop routing" to the Emergency Services Routing Proxy (ESRP). All of this is accomplished by using what is called a Location to Service Translation (or LoST) protocol.

The ECRF determines the appropriate PSAP to receive the call based on the caller's or device's location, then applies policy routing rules established by the PSAP and 911 Board, and the call is routed to the PSAP that serves the caller's location. All these actions or events take place on the ESInet, which transports the call and its associated data.

4.4 The NENA i3 Standard

The National Emergency Number Association ("NENA") is an ANSI-accredited Standards Developer and is at the forefront of developing standards for emergency calling services. NENA follows the Internet Engineering Task Force (IETF) standards[23] and adds specific service-related features that apply to 911 service. In addition, NENA publishes 911 information documents that often contain recommended best practices.

The NENA i3 standard details the network, components, and interfaces required for NG911 service. Specifically, the term "i3 standard" generally refers to NENA Standard 08-003, *Detailed Functional and Interface Standard for NG9-1-1 (i3)*, or NENA STA 010.2-2016, *Detailed Functional and Interface Standards for the NENA i3 Solution*. According to NENA the i3 Standard

> *"…describes the 'end state' that has been reached after a migration from legacy Time Division Multiplex (TDM) circuit-switched telephony, and the legacy E9-1-1 system built to support it, to an all IP-based communication system with a corresponding IP-based Emergency Services IP network…."*[24]

The NENA i3 Standard has the following 11 critical underlying assumptions:

1. All calls entering the Emergency Services IP Network (ESInet) are Session Initiation Protocol (SIP)-based.
2. Access network providers operate a location function for their networks.
3. All calls entering the ESInet will normally have location data in the signaling with the call.
4. The 911 authorities have converted their tabular Master Street Address Guide (MSAG) and Emergency Service Numbers (ESNs) to a GIS-based Location Validation Function (LVF) and Emergency Call Routing Function (ECRF).
5. The 911 authorities have accurate and complete GIS data, which are used to provision the LVF and ECRF. In addition, a change to the GIS system automatically updates the ECRF and LVF, which may affect routing.
6. All civic locations are validated by the access network against the LVF prior to an emergency call being placed (analogous to MSAG-validation).
7. All civic locations are periodically revalidated against the LVF to ensure that the location remains valid as the GIS system changes.
8. Legacy PSAP Gateways (LPGs) are included in the i3 architecture as the interface between i3 ESInets and legacy PSAPs, and between i3 PSAPs and legacy PSAPs.
9. Legacy Network Gateways (LNGs) are included in the i3 architecture as the interface between legacy originating networks and i3 ESInets.
10. Federal, state, and local laws, regulations, and rules are modified to support NG911 system deployment.

[23] The Internet Engineering Task Force (IETF) is the entity that creates and 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.

[24] National Emergency Number Association, *NENA STA 010.2-2016 Detailed Functional and Interface Standards for the NENA i3 Solution, p. 15.*

11. The specific protocol mechanisms, especially interworking of legacy telecom and ESInet/NGCS protocols are North-America specific and may not be applicable in other areas.

Figure 1 provides a basic diagram of the NENA i3 architecture. The green shaded areas denote areas that are considered within the i3 domain and covered by NENA STA 010.2-2016. The main purpose of the NENA STA 010.2-2016 is to define the end operating state of a new 911 delivery system that replaces the existing legacy 911 system with the same features and capabilities of the legacy system but with modern, IP- and SIP-based components and technologies, which provide greater capabilities beyond the current legacy 911 system. While the i3 architecture encompasses many areas, much of it is devoted to the treatment of a 911 call in the SIP format, through the i3 architecture, using the functional elements defined in NENA STA 010.2-2016.

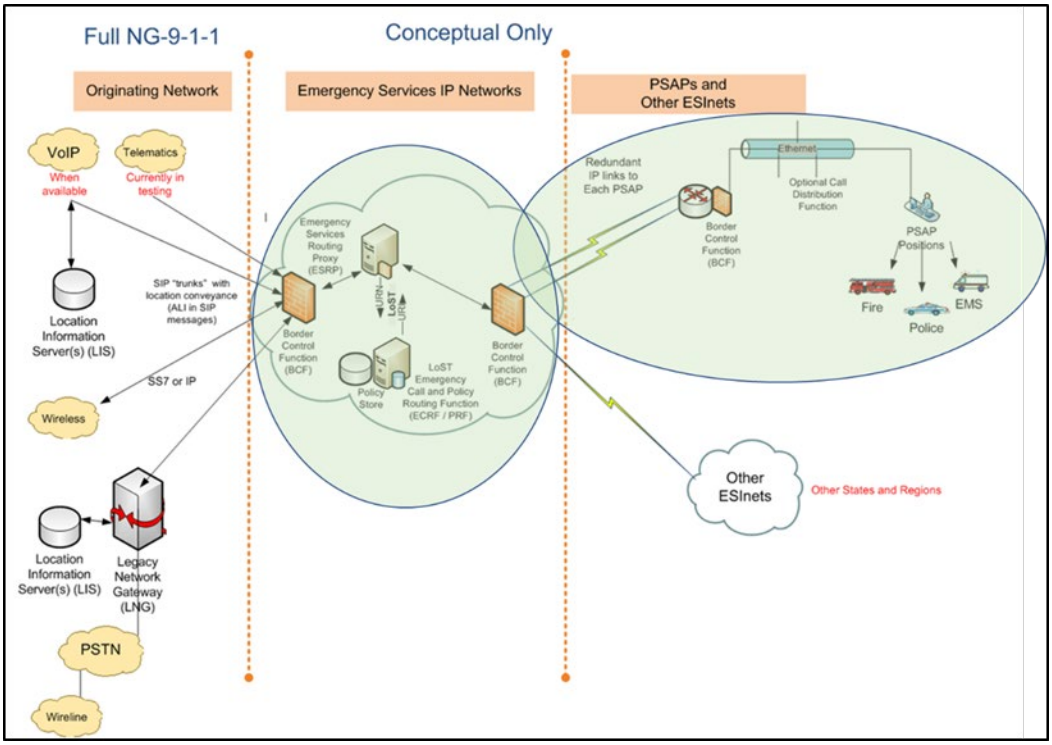

Figure 1 - Simplified NENA i3 NG911 Conceptual System Diagram

NENA STA 010.2-2016 encompasses requirements for many physical and logical elements of NG911 service, including the ESInet, the Border Control Function (BCF), the Session Border Control (SBC), the Emergency Service Routing Proxy (ESRP), the Emergency Call Routing Function (ECRF), Location Validation Function (LVF), Session Initiated Protocol (SIP), and Security.

4.4.1 i3 ESInet Standards and Best Practices

According to NENA, an ESInet is a managed IP network that is used for emergency services communications and that can be shared by all public safety agencies.[25] NENA addresses the ESInet through a combination of specific standard language in STA-010.2-2016 and a best practices document titled *NENA Emergency Services IP Network Design for NG9-1-1 (NID), NENA 08-506* (released in December 2011).

The ESInet is the core of NG 911 and is needed to provide NG911 services to the PSAP. The ESInet is the IP transport infrastructure upon which independent application platforms and core functional processes will be deployed. An ESInet will provide for broadband speed transmissions and allow prioritized, efficient, and prompt delivery of texts, videos, pictures, and other data that will be used by 911 Telecommunicators at the PSAP and by responding units for safer and more effective emergency responses in the field.

Following are highlights from the i3 standard related to ESInets:

- Each PSAP must be connected to an ESInet.
- Origination networks are not included as part of the ESInet.
- ESInets must be accessible from the global Internet, with calls going through the Border Control Function (BCF).
- Connection to the Internet is acceptable, preferably through a Virtual Private Network (VPN).
- Access to ESInets must be controlled. Only public safety agencies and their service providers may be connected directly to the ESInet.
- Elements connected to the ESInet should not be referred to by their IP address, but through a hostname using DNS.
- There must be no single point of failure for any critical service or function hosted on the ESInet. Certain services designated as non-critical may be exempt from this requirement. However, the BCF, internal ECRF, ESRP, logging service, and security services should never be exempt from this requirement. Services must be deployed to survive disaster, deliberate attack, and massive failure.

4.4.2 NG911 Security Standard

Out of necessity, PSAPs will be connected (indirectly through the ESInet) to the global Internet to accept calls. As a result, PSAPs will likely experience deliberate attacks on their systems. The types of vulnerabilities that NG911 systems must manage and protect against will fundamentally change and will require constant vigilance to create a secure and reliable operating environment. NG911 systems must have robust detection and mitigation mechanisms to deal with such attacks.

Cyber risks are inherent in systems such as the ESInet that are open to the internet. Safeguarding the NG911 system, including the PSAPs, from cyber-attacks is yet one more reason why it makes sense to have a singular statewide system that is managed and monitored by the Board; cyber security is costlier and more difficult to provide if done PSAP-by-PSAP.

[25] National Emergency Number Association, *NENA Master Glossary of 9-1-1 Terminology*, NENA-ADM-000.18-2014, July 29, 2014, p. 75.

The NENA i3 standard provides overall security requirements for NG911. There is also a separate standard, *NENA Security for Next-Generation 9-1-1 Standard (NG-SEC)*, NENA 75-001, which addresses security requirements.

The i3 security standard deals with authentication and authorization functions. Pursuant to this standard, all transactions must be protected with authentication, authorization, integrity protection, and privacy mechanisms specified in the i3 document. In addition, common authentication (single sign-on) and common rights management and authorization functions must be used for all elements in the network.

The NENA NG-SEC standard establishes minimum guidelines and requirements for the protection of NG911 assets and elements, and to provide a basis for auditing and assessing levels of security and risk. Certain applications may require access from external, public transport networks such as the Internet. These applications are placed on special, external network segments referred to as Demilitarized Zones (DMZs). The DMZ provides an intermediate environment for interaction with external domains without permitting access to internal domains or networks. This layering technique can improve the security posture of a system that requires an application to face the Internet without exposing the internal network. When applications require access from external, public transport networks (i.e. Internet), they shall be placed on a DMZ, or shall employ network-based encryption and authentication mechanisms such as a VPN.

The equipment supporting virtual or logical networks can pose a unique risk. All guidelines for the use of firewalls, intrusion detection, remote access, and all other relevant security principles shall be followed when designing interaction between virtual networks. The routers and switches supporting these networks can be used as "islands" to hop between networks of different security classification. The NENA NG-Sec standard lists the various ways that these risks can be managed.

Appendix C—NENA NG911 Standards and Best Practices Reference Chart contains a spreadsheet with the various NENA Standards as they relate to NG911.

4.5 NG911 Considerations

Internet Protocol and broadband technologies will have tremendous beneficial impacts to current 911 service and PSAP operations. At the same time, these new technologies have the potential to pose significant challenges to PSAPs. It is important for policy makers and elected and appointed officials at all levels of government to understand that the Board and PSAPs must have the resources needed to maximize benefits, minimize costs and challenges, and effectively incorporate and use NG911 technologies.

In 2017, APCO published the report, *PROJECT 43™ Broadband Implications for the PSAP: Analyzing the Future of Emergency Communications,*[26] and identified the following six areas of impact:

- Operations
- Governance

[26] Association of Public Safety Communications Officials, *PROJECT 43™ Broadband Implications for the PSAP: Analyzing the Future of Emergency Communications*, 2017.

- Cybersecurity
- Technology
- Training
- Workforce

4.5.1 NG911 & Operations

According to APCO, NG911 will have its biggest impact on 911 operations because of the PSAP's role as the first layer in emergency response. NG911 will allow PSAPs to leverage information sharing resources such as electronic health records; building records and floor plans; camera systems and detectors; officer-worn body cameras; and video from surveillance systems. As a result, PSAPs will need to amend their Standard Operating Procedures (SOPs) to account for new sources of information, increased call processing times, and more mutual aid incidents, to name a few. The revised SOPs must ensure that the handling, disseminating, and storage of all the information received with a call meets statutory requirements.

Increased call processing times, in turn, have the potential to increase call answering times, which in turn, could require the hiring of more 911 call-takers. In addition, PSAPs may need to create new positions to process and analyze all the various pieces of data that will arrive with a 911 call. Obviously, training PSAP personnel for the changes resulting from NG911 service is critical. 911 Telecommunicators will need to be trained on how to process all the new additional information in a fast-paced, stressful, and high-emotion environment.

When wireless E911 was implemented, PSAPs experienced an increase in multiple 911 calls about a given incident. This trend is expected to continue, and PSAPs will need to be prepared to handle multiple pictures, videos, texts, and calls to 911 about any given incident. Finally, the potential exists for non-emergency calls to increase, due to the increased use of social media applications. PSAP staff will have to balance the need to focus on emergencies with the public's expectation for an immediate response to those non-emergencies. In other words, in today's environment, PSAPs may get complaints about it taking longer than expected for a 911 call to be answered. In the future, PSAPs should expect to receive complaints about long waits for responses to non-emergency texts, for example.

4.5.2 NG911 & Governance

APCO emphasized that states that have established a state 911 authority have made the most progress in implementing NG911, provided there is input from PSAPs and other stakeholders. Such state authorities must remove statutory or regulatory barriers that can impede the modernization of 911 service. Examples include regulations that treat 911 service as a single-provider system accompanied by legacy requirements; 911 system service provider (SSP) certification restrictions; references to tariffs and Local Access Transport Areas (LATAs); lack of parity among carriers regarding liability; and rules that implicitly prohibit the use of IP-routing and NG911 architecture.

State authorities must also enact or amend laws and rules that will ensure that NG911 can be implemented statewide with seamless and secure interoperability. Examples include liability parity across all communications and NG911 providers; mutual aid agreements; and records

retention laws, public records and public information requests, because a 911 call will involve more than just voice.

One of the key lessons learned from past 911 implementation is the importance of statewide coordination to maintain focus and priorities for funding and support of 911 emergency services. Other benefits of statewide coordination include improved service uniformity and quality across the entire state, along with a potential reduction in costs associated with implementation of a NG 911 system. Statewide coordination and management of the NG911 system will help ensure the security and reliability of the ESInet. Statewide coordination will focus efforts; maintain priorities; ensure the timely achievement of NG911 goals; and ensure that every resident in the state will have equal access to NG 911 services. Finally, the presence of state-level standards and requirements will help ensure that desired future interoperability will be achieved and will provide economic incentives for host-sharing and regional collaboration, while simultaneously ensuring local autonomy and control of emergency response.

4.5.3 NG911 & Technology

As stated previously, the ESInet is the building block of NG911 and will replace the traditional network transport mechanisms. The ESInet provides interoperability between and among PSAPs on the same ESInet. The ESInet also facilitates hosted CPE solutions, which have the potential to bring about a higher level of reliability by placing core systems at redundant hosted locations. Doing so, in turn, provides operational continuity in local- or large-scale disasters. Hosted CPE solutions also reduce costs for the affected PSAPs because they are sharing equipment and could tend to minimize the need for hot back-up PSAPs. It is important for the 911 Board to work with the NG911 system vendor and PSAPs to establish interconnection policies, procedures, and best practices, including cyber-security, based on applicable NENA standards.

NG911 also provides opportunities for interconnectivity with other entities or agencies that are not PSAPs, and with other networks that serve public safety. Interconnectivity with entities not on the 911 ESInet or with other ESInets or public safety networks is complex and is associated with significant cybersecurity risk. It is important for the Board to investigate such possibilities in the future after the NG911 system has been implemented and accepted. The Board will need to work with the NG911 vendor, PSAPs, and the entities considering interconnection. The Board and NG911 vendor will need to define the interconnection terms, responsibilities, technical requirements, conditions, and costs to address how agencies will join the network, along with interconnection policies, shared responsibilities and costs, and cyber-security, for example. In addition, the Board will need to work with the NG911 system vendor to establish Service Level Agreements (SLAs) for allowed interconnections.

NG911 requires a GIS system that includes a GIS database with a map layer that defines the geographical jurisdictional boundaries of each PSAP in the state. One of the major administrative tasks in NG911 is the maintenance of the GIS database, which will largely replace the MSAG. In addition, the GIS system must be able to reliably convert civic or street addresses to coordinate locations (e.g., lat/long) in order to plot or map the caller's location accurately. It is important for the 911 Board to ensure that the GIS data development and maintenance associated with NG911 meets NENA standards.

In the NG911 PSAP, 911 calls (or, rather, 911 requests for assistance) will need to be answered, processed, dispatched, and stored using equipment that is capable of receiving and interpreting the

data that will be delivered with the call. The CPE must also provide standard interfaces to existing CAD and mapping applications. At the same time, until the legacy 911 system is decommissioned, the CPE must be capable of handling legacy 911 calls as well.

In NG911, CAD systems will need to be capable of exchanging data with the CPE using open standards, which means future CAD systems will need to be XML-capable. Another major component of the NG911 PSAP will be logging and storing all data and new data streams, which will require logging recorders that are capable of recording data in addition to voice, as well as recording key strokes of the CAD and CPE systems.

4.5.4 NG911 & Training

911 Telecommunicators provide the only link for the public to access or request emergency services; these essential PSAP employees are the true first responders. It is well-established that training 911 Telecommunicators is fundamental to the success of 911 service. The ability to maintain quality services for both the public and emergency responders is dependent upon the training provided, both at initial hire and on-going.

According to APCO, NG911 will provide a more immersive environment for 911 call-takers and dispatchers, who may see much of what responders see while on scene. While this additional information will ultimately improve or enhance emergency response, PSTs will be exposed to even more stress than they currently face. Both APCO and NENA have reiterated the importance of establishing a comprehensive stress management program. In 2013, NENA issued *NENA Standard on 9-1-1 Acute/Traumatic and Chronic Stress Management, NENA-STA-002.1-2013* to provide awareness of the serious risks posed by work-related stress on the mental and physical health of 911 Telecommunicators in their role as the nation's first first-responders.[27] The NENA standard also establishes best practices for PSAP comprehensive employee stress management programs.

It is essential for the long-term success of NG911 that state and local elected and appointed officials and PSAP authorities view training as a necessary and required investment to provide a consistent level of 911 service across the state. Without adequate training of PSAP personnel, even the best technical solution will fail. NG911 will require additional training of all 911 Telecommunicators to learn how to process different types of requests for assistance, such as texting, videos, social media, and other applications yet to be invented. Regardless of PSAP size, training across PSAPs in the state should include minimum baseline training so that 911 call-takers and dispatchers can proficiently answer, process, and dispatch calls from other jurisdictions in the NG911 environment, as well as maintain proficiency with legacy technology. Finally, because of the nature of NG911 service itself, all PSAP personnel must receive basic training in cybersecurity.

4.5.5 NG911 & the Workforce

Currently, PSAPs across the nation are faced with high-turnover and burn-out. Relatively low pay, limited career growth opportunities, and a fast-paced, life-or-death stressful environment have limited the ability of PSAPs to recruit and retain qualified 911 Telecommunicators. The critical

[27] National Emergency Number Association, *NENA Standard on 9-1-1 Acute/Traumatic and Chronic Stress Management, NENA-STA-002.1-2013*, August 5, 2013, p. 8.

nature of 911 service requires a special kind of employee with a unique set of knowledge, skills, and abilities; NG911 will add to the workforce challenges.

PSAPs may need to modify their hiring processes, may have to hire additional 911 Telecommunicators, may have to add new positions, such as data analyst, and may have to increase job requirements for 911 Telecommunicators, as they will now have to manage and analyze all the additional data that will arrive with the request for service.

At the same time, NG911 may provide more options for career growth and enhancement for PSAP personnel, due to the role they will play in aiding, enhancing, and improving emergency response in the field. According to APCO, in addition to current knowledge, skills, and abilities, the 911 Telecommunicator in a NG911 PSAP will need to have the following:

- Basic knowledge of IT systems, technology administration, cybersecurity, and GIS and related mapping tools;
- Proficiency with social media tools;
- Ability to examine various types of data for quality, authenticity, and reliability;
- Ability to interpret the meaning of arriving data and determining the best agency to respond and the type of response; and
- Ability to collaborate with counterparts in other PSAPs, EOCs, or jurisdictions.

4.6 Why It Is Time to Move to NG911

Consumers and businesses are using and depending on new communications technologies and devices, such as Voice over Internet Protocol (VoIP) devices, instant messaging, text messaging, Short Message Service (SMS), and email. These new technologies and devices enable the transfer of huge amounts of data. In addition, consumers are increasingly using only wireless phones in their homes. According to the Centers for Disease and Control (CDC), as of December 2017, 53.9 percent of households in the US were using wireless only, a 3.1 percent increase from the previous year. More than 75 percent of adults aged 25-34 were living in a wireless-only household, and 67 percent of adults aged 18-24 were wireless only. Not surprisingly, the percentages fell as household age increased: 64 percent of adults between 35 and 44 were wireless only, compared to 48 percent for ages 45-64 and 26 percent for those over the age of 65.[28]

The deaf and hard-of-hearing community is increasingly using text messaging to communicate. Many have given up use of TTY/TDD machines in favor of text messaging. Consumers expect that they should be able to communicate with 911 using their smart phones and smart devices, including sending photos and/or videos, or by texting. It is no longer feasible to tweak or modify the existing analog 911 network to support the new technologies in use by consumers and businesses. Delivering additional data on a 911 call requires a digital network to provide the speed and data capacity to accurately route and deliver a 911 call based on its location to the correct PSAP.

[28] Stephen J. Blumberg, Ph.D., and Julian V. Luke, *Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July–December 2017*, Division of Health Interview Statistics, National Center for Health Statistics, Centers for Disease Control, June 2018.

The existing 911 network is not capable of transmitting data such as text messages, pictures, or videos. IP-based technologies, including those supported through smartphones, tablets, and mobile apps, are widely prevalent throughout the public and can send an array of information to the PSAP. Current 911 systems have limited messaging capability (only query and response), limited data content, and are further constrained by the limited capabilities of networks and PSAP equipment such as CPE and CAD. Yet, the communications industry is going through a major evolution to the multi-media world. The nation's 911 networks are quickly becoming an island in the middle of advanced technologies that are already available to consumers and will be available to first responders through the National Public Safety Broadband Network (NPSBN) via FirstNet.

NG911 promises new opportunities for PSAPs to build in interoperability, security, economies of scale, competition, and innovation that will vastly improve the efficiency and effectiveness of emergency response. Improvements in call location technology and in GIS will enable the routing of calls based on the caller's location, rather than the tower that received the call. In summary, NG911 service provides the ability to:

- Route 911 calls based on the caller's location, as opposed to the wireless tower that received the 911 call.
- Deliver text-to-911 in a reliable way with the same priority as a 911 call.
- Deliver video-to-911.
- Provide for 911 call load sharing among PSAPs during emergencies.
    - For example, when a storm overloads one PSAP, a neighboring PSAP can automatically receive overflow calls, ensuring that 911 requests for service are answered by a trained 911 Telecommunicator in a timely manner.
- Provide accurate, reliable, and timely location information for 911 Telecommunicators and field responders, especially for wireless and other nomadic 911 callers.

5 ECONOMICS

When "traditional" landline E911 systems were implemented, the Incumbent Local Exchange Carrier (ILEC) was also the 911 service provider and charged rates that were set by tariff by the state public utility authority. To ensure that local governments could fund 911 service—including paying the ILEC for provisioning 911 service—state legislatures implemented a service charge on landline telephone service. The local 911 fee usually varied from county to county, which has contributed to the fragmented nature of 911 service. To implement 911 service, most states required counties to hold referendums to determine if residents were supported 911 fees. Although 911 referendums have historically received overwhelming support from the public, there have been areas of the country where 911 has not been implemented due to the lack of support from the public.

There is no standard funding mechanism for 911 service in the nation. Every state with 911 legislation in place has unique funding sources and requirements. That is, there are over 6,000 primary and secondary PSAPs in the nation that that are funded in a variety of ways. Some states have imposed statutory restrictions on the use of 911 revenue, while other states have placed such responsibility and authority with a state oversight board. Still, other states place no restrictions at all on the use of 911 revenue.

The most common source of funding for 911 service is still a surcharge on landline, wireless, pre-paid wireless, and VoIP service, either in the form of a per-line flat surcharge, or as a percentage of billing. In some states, local governments fund on-going 911 operations through a dedicated property or sales tax and use bond sales to finance equipment or facility projects. In other states, funding 911 service is a shared option between a state and its local governments, while a few states pay for everything associated with a 911 call, including personnel.

The current E911 service charge is not so much a user's fee but is rather an access charge. Anyone with a landline, wireless, VoIP, or broadband connection has access to 911 service. The service charge is the same regardless of whether an individual calls 911 once, multiple times, or never. If the 911 service charge were to reflect the total cost of providing 911 service, including 911 personnel, the resulting service charge would be significantly higher than the current statutory limit. Due to the statutory limits on the service charge rate, and because 911 response is a local responsibility, local governments must also fund 911 service using local revenue, which can be challenging in today's environment of shrinking resources and increased demand for all government services. The public's expectation is that 911 service is all encompassing—from the second the phone is picked up until the second that emergency responders arrive on scene—as well as seamless, transparent, and universal for all technologies and devices.

The 911 industry is capital-intensive, which means that PSAPs must be able to fund or pay for their current and future equipment and infrastructure needs. Historically, PSAPs set 911 revenue aside for a period of years and used this set-aside to replace old equipment. Once the new equipment was installed, a PSAP started setting aside 911 revenue again. This type of expenditure is different than and separate from the repair and maintenance of equipment that is used 24 hours per day, 365 days per year, without interruption. With the advent of NG911, the Board is facing the same challenge: how to continue to pay for its current, on-going costs of funding its operations and the legacy 911 system, as well as pay for the statewide NG911 system.

Another problem facing PSAPs and state 911 authorities is the diversion of 911 funds to the general fund of either a local or state government. The ENHANCE 9-1-1 Act of 2004 imposed penalties on state and local governments that divert 911 funds by making them ineligible for any federal grants for homeland security. However, the penalty has not had the desired effect because states do not feel the penalty directly; 911 centers and the residents they serve feel the pinch in terms of increased budget pressures, increased agency fees and taxes, increased wait times for 911 calls to be answered, and increased response times, to name a few.

Many public finance economists would identify the following criteria to determine an adequate long-term funding source for 911:

- The funding method should encompass the principle of access, so every device, technology, application, or service capable of accessing the legacy/analog 911 system and the NG911 system should share in the total cost of 911 service.
- The funding method should be technology, service, vendor/provider, and competitively neutral, so that it does not give competitive advantages to any particular telecommunications, broadband, or data provider at the expense of other providers.
- The funding method should provide parity with respect to the type of wireless service used by the consumer. That is, if a 911 fee is imposed on wireless service, the wireless pre-paid fee should be set at a percentage of the retail point of sale value that is equivalent to the monthly wireless 911 fee for wireless subscribers. Setting the wireless pre-paid fee as a flat fee does not account for inflation or the number of minutes purchased.[29]
- The funding method should be easy to understand and administer.
- The funding method should be periodically adjusted for inflation.

5.1 NG911 Funding Considerations in North Carolina

At the local level, many PSAPs are bound by existing long-standing contractual obligations based on old technology. Local governments receive monthly distributions (per G.S. §143B-1406) for eligible 9-1-1 expenses. Local governments must allocate funds for other expenses associated with PSAP operations, such as personnel costs, physical facilities and other expenses excluded from eligible expenses by G.S. §143B-1406. Some costs to migrate to the ESInet may pose a significant challenge to smaller local governments that lack available and adequate funding. These constraints support planning for regional primary PSAPs and consolidation of PSAPs. A funding method is needed to share costs across the state to guarantee the same level of access for every resident of North Carolina regardless of their location or the device or technology used.

Upgrading PSAP CPE and CAD systems is as important as building out the NG911 network; it will not serve the state's residents to have a robust, secure ESInet that can deliver a plethora of data when PSAPs and emergency responders are limited by outdated analog equipment. It is not

[29] In 2016, the 911 districts in Louisiana were successful in passing legislation that raised the regular wireless rate from 85 cents to $1.25 and raised the pre-paid rate to three percent of the value of the prepaid minutes. The districts determined that three percent would bring in the equivalent of the monthly wireless fee of $1.25, so parity was achieved. By setting the fee as a percentage of sales, revenue will increase as the number of minutes increases and will keep up with inflation.

clear if the current 911 service charge revenue can support the necessary upgrades to NG911-capable CPE and CAD systems. Adding to this challenge for PSAPs is how to pay for the training that will be required of all PSAP employees in a NG911 PSAP. Currently, PSAPs pay for on-the-job training, but this training does not include the standardized training that will be needed for NG911. 911 Telecommunicators will need extensive one-time and on-going training to process this new and unfamiliar content, such as photos and videos. The implementation of NG911 service will require PSAPs to revise their current standard operating procedures and provide training on those changes. Effective public policy must recognize these realities and the statutory framework must assure adequate and sustainable funding to support equal access to a consistent level of 911 throughout the entire state.

It is important to repeat that the Board and PSAPs will be paying for the both the current legacy 911 system and the new NG911 system until transition is 100 percent complete statewide. Because the existing legacy 911 network will have to co-exist with the NG911 network, operating costs during the transition will be higher. As a result, the revenues generated by the current 911 service charge may not be enough to pay for NG911 implementation costs and the current system at the same time, as well as the Board's operations. It is anticipated that Board staff responsibilities and job requirements will increase with the responsibilities of implementing NG911. Funding a statewide NG911 implementation can be a challenge for a variety of reasons, such as limited Board resources; competing budgetary requirements; increased PSAP costs; the unwillingness of elected officials to approve service charge increases; and a concern that 911 revenue will be used for non-911 purposes.

The table on the following pages provides historical information on 911 revenues and expenditures between FY 09-10 (FY ending June 30, 2010) and FY 17-18 (FY ending June 30, 2018). The data has not been adjusted for inflation and does not include expenditures for PSAP grants. In the eight-year period, CMRS revenue, VoIP revenue, and wireless pre-paid revenue increased over 90 percent, 108 percent, and 209 percent, respectively. However, during the same time, PSAP revenue fell by almost 25 percent, and wireline revenue decreased over 65 percent. As a result, total 911 revenue has fallen by 10 percent, not accounting for inflation. Although expenditures have fallen by 21 percent in that same period, the decrease appears to be a result of a 64 percent drop in CMRS/wireless carrier cost recovery and a 16 percent drop in PSAP distributions. The Board is going to be increasingly challenged to meet its requirements and obligations for funding the current legacy system during transition to NG911, funding the implementation and on-going costs of the NG911 system, and funding its operations.

Table 7—911 Revenues and Expenditures

	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18
CMRS Revenue	$3,309,837.20	$3,496,353.76	$8,672,956.87	$8,695,988.81	$8,869,200.73	$8,946,807.62	$8,581,880.79	$6,774,521.15	$6,351,992.60
% change prev. year		5.6%	148.1%	0.3%	2.0%	0.9%	-4.1%	-21.1%	-6.2%
PSAP Revenue	$47,550,175.69	$41,111,039.56	$34,691,827.45	$34,783,955.21	$35,476,803.02	$35,787,230.61	$34,327,523.25	$32,894,265.39	$35,994,624.83
% change prev. year		-13.5%	-15.6%	0.3%	2.0%	0.9%	-4.1%	-4.2%	9.4%
Wireline	$28,532,707.92	$22,593,411.48	$19,777,561.53	$18,829,638.75	$16,643,670.61	$15,152,361.70	$12,765,599.15	$11,474,327.38	$9,905,075.90
% change prev. year		-20.8%	-12.5%	-4.8%	-11.6%	-9.0%	-15.8%	-10.1%	-13.7%
VoIP	$5,693,264.38	$5,681,690.73	$6,331,959.88	$7,416,842.50	$8,896,176.23	$9,332,952.03	$11,989,990.51	$11,380,771.14	$11,866,812.87
% change prev. year		-0.2%	11.4%	17.1%	19.9%	4.9%	28.5%	-5.1%	4.3%
Prepaid Wireless	$0.00	$0.00	$0.00	$0.00	$3,888,776.39	$8,737,688.19	$11,102,700.15	$9,695,756.87	$12,032,784.87
% change prev. year						124.7%	27.1%	-12.7%	24.1%
Total (no interest)	**$85,085,985.19**	**$72,882,495.24**	**$69,474,307.04**	**$69,726,425.40**	**$73,774,627.10**	**$77,957,040.13**	**$78,767,693.90**	**$72,219,641.53**	**$76,151,291.01**
% change prev. year		-14.3%	-4.7%	0.4%	5.8%	5.7%	1.0%	-8.3%	5.4%
NG911 Fund	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$4,197,053.49	$7,997,382.62	$8,546,721.91
Interest	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$6,509.75	$75,508.92	$226,928.87
Total NG911 Balance w/int.	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$4,203,563.24**	**$8,072,891.54**	**$8,773,650.78**
CMRS Interest	$235,203.60	$63,160.59	$23,745.10	$16,678.25	$14,324.50	$9,558.92	$21,021.57	$47,544.01	$71,506.00
PSAP Interest	$197,755.68	$122,055.69	$55,212.86	$31,454.10	$27,704.92	$48,302.75	$85,422.43	$89,546.68	$142,640.43
Subtotal Interest	$432,959.28	$185,216.28	$78,957.96	$48,132.35	$42,029.42	$57,861.67	$106,444.00	$137,090.69	$214,146.43
Total 911 Revenue w/int.	**$85,518,944.47**	**$73,067,711.52**	**$69,553,265.00**	**$69,774,557.75**	**$73,816,656.52**	**$78,014,901.80**	**$78,874,137.90**	**$72,356,732.22**	**$76,365,437.44**
% change prev. year		-14.6%	-4.8%	0.3%	5.8%	5.7%	1.1%	-8.3%	5.5%
Cost Ctr. 290053500									
Admin	$802,417.49	$737,325.10	$701,760.56	$704,307.42	$745,198.36	$787,444.94	$795,633.27	$720,166.40	$769,204.98
Admin Interest	$91,855.74	$21,930.34	$17,149.11	$11,543.15	$11,280.45	$12,957.88	$17,757.42	$24,199.60	$26,312.37

Total w/int.	**$894,273.23**	**$759,255.44**	**$718,909.67**	**$715,850.57**	**$756,478.81**	**$800,402.82**	**$813,390.69**	**$744,366.00**	**$795,517.35**
CMRS Disbursements (Wireless Cost Recovery)	$8,297,141.94	$8,890,665.99	$8,856,434.14	$7,621,280.79	$6,949,006.44	$8,317,137.47	$6,296,810.75	$4,679,825.96	$2,951,543.93
% change prev. year		7.2%	-0.4%	-13.9%	-8.8%	19.7%	-24.3%	-25.7%	-36.9%
PSAP Disbursements	$63,935,114.45	$63,152,399.63	$47,976,903.61	$48,692,276.13	$51,439,759.64	$51,945,568.95	$50,003,346.34	$52,469,040.51	$53,275,245.94
% change prev. year		-1.2%	-24.0%	1.5%	5.6%	1.0%	-3.7%	4.9%	1.5%
Admin Expenses	$553,868.23	$458,919.19	$491,489.48	$595,383.66	$654,898.61	$737,626.95	$926,485.09	$811,721.97	$967,214.00
% change prev. year		-17.1%	7.1%	21.1%	10.0%	12.6%	25.6%	-12.4%	19.2%
NG 911 Expenditures	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$68,064.44
% change prev. year		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Expenditures Without PSAP Grants	**$72,786,124.62**	**$72,501,984.87**	**$57,324,826.99**	**$56,908,940.46**	**$59,043,664.66**	**$61,000,333.58**	**$57,226,641.90**	**$57,960,588.23**	**$57,194,003.52**
% change prev. year		-0.4%	-20.9%	-0.7%	3.8%	3.3%	-6.2%	1.3%	-1.3%

6 GOALS AND OBJECTIVES FOR 911 SERVICE

The transition to NG911 will not take place in a "flash-cut," but will instead occur on a PSAP-by-PSAP basis; the complete transition will take several years and require extensive changes at both the state and local levels. Coordination among participating entities during transition is important but also complex and challenging. NG911 involves shared networks, shared databases, and shared applications.

Because of the interconnected and shared nature of NG911, implementation is more complex and requires collaboration among all the stakeholders in a way that was not necessary in the past. Policy and governance issues cannot be addressed by individual local jurisdictions or individual 911 authorities. NG911 requires establishing a collaborative governance framework that will enable such a shared, interconnected, and interoperable system of systems to come into existence. It is important for policy makers at every level of government to recognize that NG911 service requires a statutory and regulatory framework that assures the continued availability, quality, consistency, and sustainability of enhanced 911 service throughout the state.

Goals and objectives are important in strategic planning because they turn the Board's vision for NG911 into specific measurable targets or steps. Goals build on the vision and mission by defining and prioritizing the broad direction in response to specific priorities. Goals describe the general accomplishments to be achieved if the vision is to be achieved. Objectives articulate specific steps that are needed to complete each goal and include the owner-agency and the planned timeline. Objectives should be SMART: Specific; Measurable; Actionable; Realistic; and Time-Bound.

The following goals and objectives are categorized under six functional areas consistent with the NASNA Model State 911 Plan. The categories are Technology; Governance; Statutory; Funding; Public Education & Outreach; and Training. The 10 goals presented on the following pages are not placed in order of priority, so they may be achieved concurrently with the roll-out of North Carolina's NG911 system. Each goal is presented on a separate page.

Technology Goal 1			
Provide and pay for a statewide hosted Next Generation 911 system.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Amend the definition of a 911 system to include NG911 and to better reflect the complete handling of a 911 call.	911 Board 911 Board Staff	Legislative Session beginning January 2019
1.1	Amend the current statutory definition of "911 system" by adding the following: Delivers 911 calls to the State NG911 Network as provided by G.S. §143B-1404(e).	911 Board 911 Board Staff	Legislative Session beginning January 2019
2	Work with the Board's NG911 system vendor to ensure the NG911 system is built and deployed within contractual specifications and the NENA i3 standard.	911 Board 911 Board Staff NG911 system vendor	12/31/2021
3	Build, equip, and operate the Network Management and Assistance Center (NMAC); train NMAC staff for Tier 1 and Tier 2 support to PSAPs.	911 Board 911 Staff	June 2019
4	Initiate program inclusion with all primary PSAPS as users of the statewide NG911 system.	911 Board 911 Board Staff NG911 system vendor PSAPs	70% by 12/31/18 80% by 07/01/19 85% by 12/31/19 90% by 12/31/20 100% by 12/31/21
5	Work with Board's NG911 system vendor to ensure that PSAPs migrate to the ESInet from their legacy call delivery network within contractual specifications and in compliance with NENA i3 standard and NENA Standard 75-001 (NG911 Security).	911 Board 911 Board Staff NG911 system vendor PSAPs	Target dates are those established in contract for going live on ESInet
6	Initiate and complete the process for the migration of secondary PSAPs (as defined and approved by the 911 Board) as users of the statewide NG911 system to coincide with the migration of the primary PSAP.	911 Board 911 Staff NG911 system vendor PSAPs	Dates to be consistent with those established in Objective 5

Technology Goal 2			
Implement a comprehensive Cybersecurity program for the fundamental security of the ESInet, interconnected networks, software, applications, and PSAP users of the ESInet.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Develop documented cybersecurity policies, procedures, requirements, and processes for ESInet users, in compliance with the NENA NG911 i3 Standard and NENA Standard 75-001. Ensure that such policies, procedures, requirements, and processes are updated as needed in compliance with NENA i3 and other cybersecurity standards as they relate to IP-enabled networks.	911 Board 911 Board Staff NG911 system vendor	7/1/2019
2	Provide 24/7/365 network monitoring and surveillance of the NG911 system.	911 Board 911 Board Staff NG911 system vendor	Ongoing

Technology Goal 3			
Explore and investigate the interconnection of PSAP users of the ESInet with other ESInet users and with other networks serving public safety after complete acceptance of the NG911 system from the NG911 system vendor.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Explore ways to further expand the NG911 system in support of PSAPs and 911 service.	911 Technical Committee 911 Board 911 Board Staff NG911 system vendor	After 12/31/2021
2	Work with NG911 system vendor to determine and define technical requirements, responsibilities, conditions, costs, and Service Level Agreements (SLAs) for future interconnectivity with the ESInet.	911 Technical Committee 911 Board 911 Board Staff NG911 system vendor	After 12/31/2021
3	Collaborate, research, and explore, where applicable and appropriate, on technology initiatives that affect 911 service with other jurisdictions and networks that serve public safety.	911 Technical Committee 911 Board 911 Board Staff PSAPs	After 12/31/2021

Technology Goal 4			
Build and implement statewide GIS database that will be used as a core service of the NG911 system, to be based on the NENA i3 Standard and other NENA NG911 Standards as they relate to GIS.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Work with North Carolina Center for Geographic Analysis (CGIA) to establish GIS standards for local GIS databases for NG911.	911 Board 911 Board Staff CGIA NG911 GIS contractor PSAPs	Dates consistent with implementation requirements.
2	Establish and implement maintenance requirements for GIS data to ensure accuracy and to ensure that GIS data is in sync with NG911 system.	911 Board 911 Board Staff CGIA NG911 GIS contractor PSAPs	Dates consistent with implementation requirements.
3	Obtain and implement PSAP jurisdictional and other GIS data necessary for NG911 implementation.	911 Board 911 Board staff CGIA NG911 GIS contractor NG911 system vendor PSAPs	Dates consistent with implementation requirements.

Governance Goal 5			
Staff the Board to meet its duties, facilitate all aspects of 911 service, and provide advisory services to PSAPs, pursuant to G.S. § 143B-1402(a)(4).			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Create a PSAP Assistance Team to serve as a Board liaison to PSAPs, as well as assist PSAPs with operational, organizational, technological, funding, and training needs.	911 Board 911 Board Staff	12/31/2019
2	Staff NMAC with experienced and trained staff as needed to provide Tier One and Tier Two proactive and reactive support for the state's PSAPs.	911 Board 911 Board Staff	
3	Modernize, update and streamline the Board's financial management systems, processes and procedures, including a. Updating eligible uses of 911 funds to account for technological changes; b. Clarifying and simplifying the reimbursement process, including but not limited to simplifying Board staff internal review; c. Providing clear, concise, consistent, and reasonable documentation requirements; and d. Implementing web-based financial management of the Board's funding operations.	911 Board 911 Board Staff	

Statutory Goal 6			
Seek legislative amendments to G.S. §143B-1400 *et seq.* to reflect changes in 911 service, PSAP operations, and Board responsibilities in the Next Generation 911 environment.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Amend, modify, or establish state contracts and pricing for 911 equipment, services, and supplies.	911 Board 911 Board Staff	On-going
2	Amend definitions of 911 system to reflect NG911 environment and technology.	911 Board 911 Board Staff	Legislative Session beginning January 2019
3	Re-define primary PSAP and secondary PSAP to reflect their roles in NG911.	911 Board 911 Board Staff	Legislative Session beginning January 2019
4	Amend funding formula to provide the Board with greater flexibility in the transition period from legacy 911 to NG911.	911 Board 911 Board Staff	On-going

Statutory Goal 7			
Seek legislative amendments to G.S. §143B-1400 *et seq.* to define "Multi-Line Telephone System" (or MLTS) and to provide for the regulation of MLTS, to be consistent with the State's authority as well as federal law and FCC rules, upon the effective date of federal law.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Upon transition to the NG911 network, begin collecting data on the level of location information at PSAPs, 911 call volume for MLTS calls, and other statistics as cited by the FCC.	911 Board 911 Board staff NG911 system vendor PSAPs	On-going

Funding Goal 8			
Develop a revenue model for 911 service, NG911 service, PSAPs, and 911 Board operations.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Review, revise, and update the eligible uses of 911 revenue and seek legislative changes as necessary to align with PSAP services in the NG911 environment.	911 Board 911 Board Staff	12/31/19
2	Improve and optimize the reimbursement process.	911 Board 911 Board Staff PSAPs	12/31/19
3	Foster and facilitate PSAP consolidation and regional collaboration by establishing a process whereby PSAPs pursuing consolidation can request technical, financial, and project management assistance from the 911 Board and 911 Board staff.	911 Board 911 Board Staff PSAPs	On-going

Engagement & Public Education Goal 9			
Implement outreach and public education programs to keep the public, NG911 stakeholders, and industry partners informed about the Board's NG911 efforts.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Develop an information sharing program to effectively communicate Board and Staff's vision, initiatives, and responsibilities for NG911.	911 Board 911 Board Staff	On-going
2	Update the Peer Review System to account for changes in PSAP operations and NG911.	911 Board 911 Board Staff PSAPs	On-going

Training Goal 10			
Establish statewide minimum training standards or rules that are consistent with NENA and APCO standards and best practices for all 911 Telecommunicators, in collaboration with 911 stakeholder groups.			
Objective Number	**Description**	**Ownership**	**Target Dates**
1	Complete development of training standards and implement, in collaboration and consultation with 911 stakeholder groups.	911 Education Committee 911 Board 911 Board Staff	On-going
2	Create repository of training resources and best practices.	911 Education Committee 911 Board 911 Board Staff	On-going

7 MECHANISM FOR MANAGING AND COORDINATING NORTH CAROLINA'S 911 SYSTEM

The purpose of this section is to provide a brief description of the mechanisms that are in place to ensure that local, regional, and state-level system functions are coordinated, mutually supportive, comprehensive in scope, and efficient in operation.

Board staff are responsible for executing the Plan and taking the lead in updating the Plan as progress is made on achieving the Board's goals. Goals and objectives that are achieved should be documented, and any new objectives should be added.

The Board has allocated its resources to successfully implement its goals, with the focus on NG911. The Board is also held accountable for its activities and operations. The Board is required to report to the Legislature every two years and is subject to audit by the State Auditor. As an agency of state government, the Board is subject to state open meetings laws and the Public Records Act. Rulemaking takes place under the Administrative Procedures Act, which involves a public process that allows stakeholder and public input.

8 NG911 IMPLEMENTATION PLAN

The path from the current analog 911 system to NG911 is not linear in nature, and each PSAP's migration to the ESInet has the potential to be different because of the different equipment and set-up at each PSAP. In NG911, voice and data will be delivered to the PSAP as an IP data stream, unlike the current analog E911 system today where voice is delivered down one analog path, and the ALI data delivered down a different data circuit path. As a result, PSAP equipment must be capable of accepting and processing the single IP data stream and sending it to a call-taker workstation in a usable format. Thus, PSAPs may need to either replace or upgrade their call-taking equipment to become NG-capable.

Projects of the size and scope to implement a single statewide NG911 system require scrupulous oversight and a detailed implementation plan. The Board has established a detailed Implementation Plan, which is contained in a document separate from the 2018 State 911 Plan.

APPENDIX

Appendix A—Document Change History

Version	Publication Date	Description of Change

Appendix B—North Carolina Population by County: 2010 and 2017

County	2010 Census	% of State Pop.	2017 Estimate	% of State Pop.	% Change
Alamance	151,131	1.58%	162,391	1.58%	7.45%
Alexander	37,198	0.39%	37,286	0.36%	0.24%
Alleghany	11,155	0.12%	11,031	0.11%	-1.11%
Anson	26,948	0.28%	24,991	0.24%	-7.26%
Ashe	27,281	0.29%	26,957	0.26%	-1.19%
Avery	17,797	0.19%	17,536	0.17%	-1.47%
Beaufort	47,759	0.50%	47,088	0.46%	-1.40%
Bertie	21,282	0.22%	19,224	0.19%	-9.67%
Bladen	35,190	0.37%	33,478	0.33%	-4.87%
Brunswick	107,431	1.13%	130,897	1.27%	21.84%
Buncombe	238,318	2.50%	257,607	2.51%	8.09%
Burke	90,912	0.95%	89,293	0.87%	-1.78%
Cabarrus	178,011	1.87%	206,872	2.01%	16.21%
Caldwell	83,029	0.87%	81,981	0.80%	-1.26%
Camden	9,980	0.10%	10,581	0.10%	6.02%
Carteret	66,469	0.70%	68,881	0.67%	3.63%
Caswell	23,719	0.25%	22,646	0.22%	-4.52%
Catawba	154,358	1.62%	157,974	1.54%	2.34%
Chatham	63,505	0.67%	71,472	0.70%	12.55%
Cherokee	27,444	0.29%	28,087	0.27%	2.34%
Chowan	14,793	0.16%	14,105	0.14%	-4.65%
Clay	10,587	0.11%	11,074	0.11%	4.60%
Cleveland	98,078	1.03%	97,334	0.95%	-0.76%
Columbus	58,098	0.61%	55,936	0.54%	-3.72%
Craven	103,505	1.09%	102,578	1.00%	-0.90%
Cumberland	319,431	3.35%	332,546	3.24%	4.11%
Currituck	23,547	0.25%	26,331	0.26%	11.82%
Dare	33,920	0.36%	36,099	0.35%	6.42%
Davidson	162,878	1.71%	165,466	1.61%	1.59%

County	2010 Census	% of State Pop.	2017 Estimate	% of State Pop.	% Change
Davie	41,240	0.43%	42,456	0.41%	2.95%
Duplin	58,505	0.61%	59,039	0.57%	0.91%
Durham	267,587	2.81%	311,640	3.03%	16.46%
Edgecombe	56,552	0.59%	52,747	0.51%	-6.73%
Forsyth	350,670	3.68%	376,320	3.66%	7.31%
Franklin	60,619	0.64%	66,168	0.64%	9.15%
Gaston	206,086	2.16%	220,182	2.14%	6.84%
Gates	12,197	0.13%	11,544	0.11%	-5.35%
Graham	8,861	0.09%	8,541	0.08%	-3.61%
Granville	59,916	0.63%	59,557	0.58%	-0.60%
Greene	21,362	0.22%	21,015	0.20%	-1.62%
Guilford	488,406	5.12%	526,953	5.13%	7.89%
Halifax	54,691	0.57%	51,310	0.50%	-6.18%
Harnett	114,678	1.20%	132,754	1.29%	15.76%
Haywood	59,036	0.62%	61,084	0.59%	3.47%
Henderson	106,740	1.12%	115,708	1.13%	8.40%
Hertford	24,669	0.26%	23,906	0.23%	-3.09%
Hoke	46,952	0.49%	54,116	0.53%	15.26%
Hyde	5,810	0.06%	5,363	0.05%	-7.69%
Iredell	159,437	1.67%	175,711	1.71%	10.21%
Jackson	40,271	0.42%	42,973	0.42%	6.71%
Johnston	168,878	1.77%	196,708	1.91%	16.48%
Jones	10,153	0.11%	9,597	0.09%	-5.48%
Lee	57,866	0.61%	60,430	0.59%	4.43%
Lenoir	59,495	0.62%	56,883	0.55%	-4.39%
Lincoln	78,265	0.82%	82,403	0.80%	5.29%
Macon	33,922	0.36%	34,732	0.34%	2.39%
Madison	20,764	0.22%	21,746	0.21%	4.73%
Martin	24,505	0.26%	22,789	0.22%	-7.00%
McDowell	44,996	0.47%	45,159	0.44%	0.36%
Mecklenburg	919,628	9.64%	1,076,837	10.48%	17.09%

County	2010 Census	% of State Pop.	2017 Estimate	% of State Pop.	% Change
Mitchell	15,579	0.16%	15,072	0.15%	-3.25%
Montgomery	27,798	0.29%	27,435	0.27%	-1.31%
Moore	88,247	0.93%	97,264	0.95%	10.22%
Nash	95,840	1.01%	93,991	0.91%	-1.93%
New Hanover	202,667	2.13%	227,198	2.21%	12.10%
Northampton	22,099	0.23%	19,862	0.19%	-10.12%
Onslow	177,772	1.86%	193,893	1.89%	9.07%
Orange	133,801	1.40%	144,946	1.41%	8.33%
Pamlico	13,144	0.14%	12,689	0.12%	-3.46%
Pasquotank	40,661	0.43%	39,743	0.39%	-2.26%
Pender	52,217	0.55%	60,958	0.59%	16.74%
Perquimans	13,453	0.14%	13,474	0.13%	0.16%
Person	39,464	0.41%	39,370	0.38%	-0.24%
Pitt	168,148	1.76%	179,042	1.74%	6.48%
Polk	20,510	0.22%	20,558	0.20%	0.23%
Randolph	141,752	1.49%	143,282	1.39%	1.08%
Richmond	46,639	0.49%	44,798	0.44%	-3.95%
Robeson	134,168	1.41%	132,606	1.29%	-1.16%
Rockingham	93,643	0.98%	90,949	0.89%	-2.88%
Rowan	138,428	1.45%	140,644	1.37%	1.60%
Rutherford	67,810	0.71%	66,551	0.65%	-1.86%
Sampson	63,431	0.67%	63,430	0.62%	0.00%
Scotland	36,157	0.38%	35,093	0.34%	-2.94%
Stanly	60,585	0.64%	61,482	0.60%	1.48%
Stokes	47,401	0.50%	45,717	0.45%	-3.55%
Surry	73,673	0.77%	72,224	0.70%	-1.97%
Swain	13,981	0.15%	14,294	0.14%	2.24%
Transylvania	33,090	0.35%	33,956	0.33%	2.62%
Tyrrell	4,407	0.05%	4,052	0.04%	-8.06%
Union	201,292	2.11%	231,366	2.25%	14.94%
Vance	45,422	0.48%	44,211	0.43%	-2.67%

County	2010 Census	% of State Pop.	2017 Estimate	% of State Pop.	% Change
Wake	900,993	9.45%	1,072,203	10.44%	19.00%
Warren	20,972	0.22%	19,883	0.19%	-5.19%
Washington	13,228	0.14%	12,012	0.12%	-9.19%
Watauga	51,079	0.54%	55,121	0.54%	7.91%
Wayne	122,623	1.29%	124,172	1.21%	1.26%
Wilkes	69,340	0.73%	68,576	0.67%	-1.10%
Wilson	81,234	0.85%	81,671	0.79%	0.54%
Yadkin	38,406	0.40%	37,774	0.37%	-1.65%
Yancey	17,818	0.19%	17,744	0.17%	-0.42%
Totals	***9,535,483***	***100.00%***	***10,273,419***	***100.00%***	***7.74%***

Appendix C—NENA NG911 Standards and Best Practices Reference Chart

DATA STRUCTURES DOCUMENTS (including NG911)		
02-010	Standard Legacy Data Formats For 9-1-1 Data Exchange GIS Mapping	2011/03/28
02-501	Wireless (Pre-XML) Static and Dynamic ALI Data Content Information Document	2006/10/16
02-503	XML Namespaces Information Document	2007/02/23
04-005	ALI Query Service Standard	2006/11/21
71-001	NG9-1-1 Additional Data Standard	2009/09/17
NENA-STA-004.1-2014	NENA Next Generation United States Civic Location Data Exchange Format (CLDXF)	2014/03/23
NENA-STA-008.2-2014 (orig. 70-001)	NENA Registry System (NRS) Standard	2014/10/06
NENA/APCO-INF-005	NENA/APCO Emergency Incident Data Document (EIDD) Information Document	2014/02/21
DATA MANAGEMENT DOCUMENT (including NG911)		
02-011	Data Standards for Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions	2012/05/12
02-013	Data Standards for the Provisioning and Maintenance of MSAG Files to VDBs and ERDBs	2008/06/07 Reviewed 9/12/2014
02-014	GIS Data Collection and Maintenance Standards	2007/06/17
02-015	Standard for Reporting and Resolving ANI/ALI Discrepancies and No Records Found for Wireline, Wireless and VoIP Technologies	2009/06/06
02-502	NENA Company ID Registration Service Information Document	2008/11/12
06-001	Standards for Local Service Provider Interconnection Information Sharing	2004/08/01
71-501	Synchronizing Geographic Information System Databases with MSAG & ALI Information Document	2009/09/08
71-502	An Overview of Policy Rules for Call Routing and Handling in NG9-1-1 Information Document	2010/08/24
NENA-INF-011.1-2014	NENA NG9-1-1 Policy Routing Rules Operations Guide	2014/10/06
NENA-INF-014.1-2015	NENA Information Document for Development of Site/Structure Address Point GIS Data for 9-1-1	2015/09/18
NENA-STA-003.1.1-2014	NENA Standard for NG9-1-1 Policy Routing Rules	2014/12/01
NENA-REQ-002.1-2016	NENA Next Generation 9-1-1 Data Management Requirements	2016/03/10
NG911 TRANSITION PLANNING DOCUMENTS		
NENA-INF-008.2-2014 (originally 77-501)	NG9-1-1 Transition Plan Considerations Information Document	2013/11/20

SECURITY DOCUMENTS		
04-503	Network/System Access Security Information Document	2005/12/01
75-001	Security for Next-Generation 9-1-1 Standard	2010/02/06
75-502	Next Generation 9-1-1 Security Audit Checklist Information Document	2011/12/14
VOICE OVER INTERNET PROTOCOL (VoIP) DOCUMENTS		
08-001	Interim VoIP Architecture for Enhanced 9-1-1 Services (i2) Standard	2010/08/11
08-503	VoIP Characteristics Information Document	2004/06/10
08-504	VoIP Standards Development Organization Information Document	2004/06/08
57-503	Procedures for Notification of ERDB & VPC Operators of ESN Changes by 9-1-1 Administrator Information Document	2008/01/08
58-502	VoIP Funding and Regulatory Issues Information Document	2006/06/06
NEXT GENERATION 9-1-1 (NG911) DOCUMENTS		
08-002	Functional and Interface Standards for Next Generation 9-1-1	2007/12/18
08-003	Detailed Functional and Interface Standards for the NENA i3 Solution	2011/06/14
08-501	Interface between the E9-1-1 Service Provider Network and the Internet Protocol (IP) PSAP Information Document	2004/06/15
08-505	Methods for Location Determination to Support IP-Based Emergency Services Information Document	2006/12/21
08-506	Emergency Services IP Network Design for NG9-1-1 Information Document	2011/12/14
08-751	NENA i3 Requirements Document	2006/09/28
08-752	Location Information to Support IP-Based Emergency Services Requirements Document	2006/12/21
57-750	NG9-1-1 System and PSAP Operational Features and Capabilities Requirements Document	2011/06/14
NENA-INF-003.1-2013	Potential Points of Demarcation in NG9-1-1 Networks Information Document	2013/03/21
NENA-INF-006.1-2014	NG9-1-1 Planning Guidelines Information Document	2014/01/08
NENA-INF-009.1-2014	Requirements for a National Forest Guide Information Document	2014/08/14
NENA/APCO-REQ-001.1.1-2016	NENA/APCO NG9-1-1 PSAP Requirements Document	2016/01/15
WIRELESS 9-1-1 INTEGRATION DOCUMENTS		
57-001	Wireless E9-1-1 Overflow, Default, and Diverse Routing Standard & A PSAP Manager's Guide to GIS & Wireless 9-1-1	2004/11/18
57-002	E9-1-1 Wireless Maintenance Call Routing & Testing Validation Standard including Call Routing & Testing Validation Worksheet & Sample Non-Disclosure Agreement	2007/06/09

Appendix D—Glossary of Acronyms

The following Acronyms are used in this document.[30]

Acronym	Description
ALI	Automatic Location Identification
BCF	Border Control Function
CIDB	Call Information Database
CPE	Customer Premises Equipment
ECRF	Emergency Call Routing Function
ESInet	Emergency Services IP Network
E-MF	Enhanced - Multi-Frequency
EO	End Office
ESN	Emergency Services Number
ESME	Emergency Services Message Entity
ESRP	Emergency Services Routing Proxy
ESGW	Emergency Services Gateway
HELD	HTTP-Enabled Location Delivery Protocol
i2	NENA 08-001—Interim VoIP Architecture for Enhanced 911 Services (i2)
i3	NENA 08-003—Detailed Functional and Interface Standard for NG9- 1-1 (i3)
IETF	Internet Engineering Task Force
IP	Internet Protocol
LIF	Location Interwork Function
LIS	Location Information Server
LoST	Location to Service Translation
LRF	Location Retrieval Function
LNG	Legacy Network Gateway
LPG	Legacy PSAP Gateway
LSRG	Legacy Selective Router Gateway

[30] National Emergency Number Association, *NENA Master Glossary of 9-1-1 Terminology*, NENA-ADM-000.18-2014, 07/29/2014.

Acronym	Description
MCS	MSAG Conversion Services
MF	Multi-Frequency
MLP	Mobile Location Protocol
MSAG	Master Street Address Guide
MSC	Mobile Switching Center
NENA	National Emergency Number Association
NG911	Next Generation 911
NIF	NG911 Specific Interwork Function
OSI	Open Systems Interconnection
pANI	Pseudo Automatic Number Identification
PIF	Protocol Interworking Function
PSAP	Public Safety Answering Point
RTP	Real Time Transport Protocol
SBC	Session Border Controller
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SR	Selective Routing, Selective Router [a.k.a., E911 Tandem, or Enhanced 911 (E911) Control Office]
SS7	Signaling System 7
SSP	System Service Provider
TDM	Time Division Multiplexing
UA	User Agent
URI	Uniform Resource Identifier
VoIP	Voice over Internet Protocol
VSP	VoIP Service Provider
WCM	Wireline Compatibility Mode

Tab 15 c)
2021 NC 911 Board Goals
Committee Chairs

Tab 15 c i)
2021 Education Committee Proposed Goals Presentation
Chuck Greene

Education Committee
Develop an information sharing program to effectively communicate the Board and Staff's vision, initiatives, and responsibilities for NG911 and other state projects.
Explore the feasibility of expanding Board sponsored training in conjunction with the Community College system.
Explore the feasibility of creating a voluntary Telecommunicator training, certificate and/or certification program in collaboration with the Community College system.
Explore methods for public outreach utilizing nontraditional media outlets.

Tab 15 c ii)
2021 Funding Committee Proposed Goals Presentation
David Bone

Funding Committee
Explore strategies and develop procedures to assist with management of low/high PSAP fund balances.
Review the Approved Use of Funds List and vet expenditures to establish maximum allowable limits, where appropriate, while aligning with legislation.
Continue to explore backup capabilities and alignment with the ESInet.
Continue reviewing the funding model, taking into consideration the ongoing implementation of NextGen 911 Technologies.

Tab 15 c iii)
2021 Standards Committee Proposed Goals Presentation
Donna Wright

Standards Committee
Review and update potential verbiage of the Rules in order to prepare for the long process of updating them, focusing on the outcomes of legislative sessions
Consider how a checks and balance would occur if there are new requirements regarding matters such as i3 standards and the need for collaboration between all committees regarding NG911 deployment.
Explore feasibility of establishing PSAP levels based on operational and technical capabilities.

Tab 15 c iv)
2021 Technology Committee Proposed Goals Presentation
Jeff Shipp

Technology Committee
Enhance PSAP service continuity by developing specific PSAP plans based on the technology enhancement offered by the NG911 service platform. Define basic elements of continuity planning. PSAPs should have defined rules for abandonment and alternate routing. Continued workshops and outreach for continuity planning with PSAPs.
Develop framework for minimum requirements for connection to ESInet based on cybersecurity assessment findings and review.
Commit to 60 PSAP migrations to the ESInet. Goal is to map a potential conversion plan to meet or exceed the migration goal.
Exploration of ongoing ALI database maintenance via automated applications.
Assemble workgroup or ad hoc to begin analysis/exploration of a hosted CAD offering to PSAPs, establishing realistic goals and timeline for the first year of this effort. Perform SWOT analysis.

Tab 15 c v)

2021 Proposed Goals Discussion and Approval

(Roll Call Vote Required)

NC 911 Board 2021 Goals

As Proposed by Committee per Initiative

Education
Develop an information sharing program to effectively communicate the Board and Staff's vision, initiatives, and responsibilities for NG911 and other state projects.
Explore the feasibility of expanding Board sponsored training in conjunction with the Community College system.
Explore the feasibility of creating a voluntary Telecommunicator training, certificate and/or certification program in collaboration with the Community College system.
Explore methods for public outreach utilizing nontraditional media outlets.
Funding
Explore strategies and develop procedures to assist with management of low/high PSAP fund balances.
Review the Approved Use of Funds List and vet expenditures to establish maximum allowable limits, where appropriate, while aligning with legislation.
Continue to explore backup capabilities and alignment with the ESInet.
Continue reviewing the funding model, taking into consideration the ongoing implementation of NextGen 911 Technologies.
Standards
Review and update potential verbiage of the Rules in order to prepare for the long process of updating them, focusing on the outcomes of legislative sessions
Consider how a checks and balance would occur if there are new requirements regarding matters such as i3 standards and the need for collaboration between all committees regarding NG911 deployment.
Explore feasibility of establishing PSAP levels based on operational and technical capabilities.
Technology
Enhance PSAP service continuity by developing specific PSAP plans based on the technology enhancement offered by the NG911 service platform. Define basic elements of continuity planning. PSAPs should have defined rules for abandonment and alternate routing. Continued workshops and outreach for continuity planning with PSAPs.
Develop framework for minimum requirements for connection to ESInet based on cybersecurity assessment findings and review.
Commit to 60 PSAP migrations to the ESInet. Goal is to map a potential conversion plan to meet or exceed the migration goal.
Exploration of ongoing ALI database maintenance via automated applications.
Assemble workgroup or ad hoc to begin analysis/exploration of a hosted CAD offering to PSAPs, establishing realistic goals and timeline for the first year of this effort. Perform SWOT analysis.

Tab 15 d)

NC 911 PSAP Grant Program

Jeff Shipp

Tab 15 d i)

NC 911 Grant Program
Policy Revisions

(Roll Call Vote Required)

Grant Policy

PSAP grants are authorized by G.S. 143B-1407(c) and require a PSAP Grant Agreement with the 911 Board. Funding reconsiderations may be considered by the NC 911 Board pursuant to GS 143B-1406(a)(4) and the Board's policies regarding funding reconsiderations.

A) Grant Priorities

The Board ~~shall~~ may establish one or more priorities to be utilized in evaluating and awarding grants. Priorities shall be established not less than sixty (60) days in advance of advertising grant availability. The Grant Committee shall establish weightings for priorities, if any, established by the Board. The Staff shall identify those weightings in the notice of grant opportunities. Unless otherwise provided by law, the Board may identify a sum or a percentage of revenues to fund grants together with funding priorities. The Grant Committee shall recommend an allocation of available funds for grants after evaluating grant applications.

B) Grant Cycles

The Board may establish one or more grant cycles in each fiscal year. The earliest may occur following notice of the 911 Board's proposed funding in December of each year. In establishing a grant cycle, the Board shall advertise grant availability, and operate the grant program in a manner that leverages local government budgetary processes and available funds. In the first quarter of the Board's fiscal year, the Board may allocate funds for grants as authorized by GS 143B-1405(c) (from CMRS allocations) and GS 143B-1406(b) (from PSAP allocations).

Grant cycles will be advertised as required by GS 143B-1407 and the Board's Rules. Applications shall be due no later than 90 days from the first day of the grant cycle, unless otherwise established by the Board.

Board staff will conduct a grant application process workshop which may be attended in person, subject to available meeting space, or electronically. Staff will review the application form, the priorities established by the Board, conduct a question and answer session, and identify submission requirements such as interlocal agreements, or similar activities pertinent to the grant process. Staff may seek clarification of any cost, price or element presented by an applicant. Clarifications, if any, will be made in writing.

C) Grant Review and Evaluation

The Board's staff will review all grant applications prior to evaluation. Staff shall confer with Grant Committee regarding need for subject matter experts (SMEs) and take action to secure such services or other action as directed by the Executive Director. Staff shall advise the Grant Committee regarding funding reconsiderations and grant funding, any impact upon a grant applicant's future funding arising from the applicant's request, communications between staff and an applicant to clarify a grant application, past grants awarded, and such other matters as relevant to the grant program.

Grant applicants shall appear before the Grant Committee, or the Board, at a date and time scheduled for oral presentations.

The Grant Committee will consider the applications and evaluate each application after applicants' oral presentations. Evaluation criteria shall include requirements of GS 143B-1407, weighted priorities established by the Board and other criteria as necessary or proper. Following

review and evaluation by the Grant Committee, staff shall prepare an action item for reporting out committee's deliberations including fiscal reviews, SME reports/advice, rationale for recommendation, and such other information as directed by the Grant Committee. PSAPs may not seek a grant when the PSAP has more than one active grant. Provided, however, that the Grant Committee may consider a grant application regardless of the foregoing if the PSAP has been unable to complete a grant due to force majeure conditions.

Items or costs identified on the Approved Use of Funds List for funding through the PSAP monthly distributions are not eligible for grant funding.

Grantees submitting applications for costs that were previously submitted but not funded will/may not receive priority scoring. Projects comprising multiple phases or otherwise segregated and submitted in multiple grant cycles will/may not receive priority scoring.

An applicant may not file more than one grant application in a grant cycle.

Grant funds shall not be used to purchase or provide goods or services to secondary PSAPs in excess of the secondary PSAP funding policy.

D) Grant Agreements

Grant agreements must be executed by the grantees and returned to the Executive Director with any necessary interlocal agreements or other necessary documentation within ninety (90) days of presentation to the grantee.

E) Grant Funding Modifications

Grantees seeking additional funding through their grant agreements must submit an application in a grant cycle. In the event a grantee submits a request for additional funding as an amendment to a grant agreement, the Board and the Executive Director shall refer the request to the Grant Committee. The 911 Board Staff will review all requests. The Staff may request such other and further information as deemed necessary to fully consider the request. PSAPs shall provide such information as requested pursuant to GS 143B-1406(f).

~~PSAPs should not apply for a grant when part of the funding requested is an expense eligible for a funding reconsideration.~~ Grant applications presenting, or including, a funding reconsideration request shall be referred to the Executive Director and the Funding Committee.

F) Grant Termination, Suspension, Close out

PSAP representatives shall attend 911 Board meetings to present their requests, provide additional information, clarification, and support their requests. The Funding Committee shall act without delay in any action taken and shall make a recommendation to the 911 Board for action no later than the Board's May meeting.

The Executive Director will provide periodic reports on grantees' progress and funding. Upon closing out a grant, any remaining funds allocated to the grant shall revert to the grant fund.

G) Grant Committee Membership

The Board Chair may appoint two or more Board members, and other persons as the Chair determines upon recommendation of a Board member or the Executive Director. The Executive Director may, upon request of the Grant Committee or at the direction of the Board Chair,

identify one or more subject matter experts to assist the Grant Committee with review and evaluation of grant applications. In the absence of a Grant Committee, grant applications will be reviewed and evaluated by all members of the 911 Board

Effective date: _____

Tab 15 d ii)
2022 NC 911 Grant Program Priorities
(Roll Call Vote Required)

2022 Grant Program Priorities
1 - Regional Initiative with Focus on Primary PSAP Consolidations (Two or more PSAPs consolidate into one entity.)
2 - Replacing End of Life Equipment - Radio, CAD, and/or Recorder Only
3 - Other

Tab 15 d iii)
2022 NC 911 Grant Program Cycle Draft/Tentative Timeline
(Roll Call Vote Required)

TENATIVE 2022 Grant Cycle Calendar TENTATIVE 2020.10.29										
Milestone	**Date**	**Day of Week**	**Days to Next**							
Grant Workshop for PSAPs	3/25/21	Thursday	7	Meeting Date for Grant Committee, Staff, and Potential Applicants						
Beginning of Grant Cycle - Application Posted to Website	4/1/21	Thursday	61							
Grant Applications Due	6/1/21	Tuesday	29							
Grant Committee Discussion	6/30/21	Tuesday	16	Meeting Date for Grant Committee and Staff						
Grant Applications Presentation Day 1	7/16/21	Friday	5	Meeting Date for Grant Committee, Staff, and Applicants						
Grant Applications Presentation Day 2 (Potential Hold - Need TBD)	7/21/21	Wednesday	9	Meeting Date for Grant Committee, Staff, and Applicants						
Grant Committee Meeting - Review and Vote	7/30/21	Friday	14	Meeting Date for Grant Committee and Staff						
Grant Committee Results to Board for Review prior to Board Meeting	8/13/21	Friday	14							
Board Meeting - Vote on Grant Committee Recommendation	8/27/21	Friday	35	Meeting Date for Board						
Results Notification and Grant Agreement to Applicants	10/1/21	Friday	31							
Grant Acceptance Acknowledgement Due from PSAP	11/1/21	Monday	63							
Final Date for all PSAP Agreements to be Executed (Per Individual Agreement Date Based on Return of Acknowledgement)	1/3/2022	Monday								
Key Timeframes	**Calendar Days**									
Days from Workshop to Applications Due	68									
Days from Beginning of Grant Cycle to Applications Due	61									
Days from Applications Due to Presentation Day 1 (Grant Comm/Staff Prep Time)	45									
Days from Presentation Day 2 to Grant Committee Review and Vote	9									
Days from Grant Committee Meeting to Recommendation to Board	14									
Days for Board to Pre-Review Recommendaiton Prior to Vote	14									
Days to Award Notifications and Grant Agreements to PSAPs	35									
Days to Receive Acceptance Acknowledgement from PSAPs	31									
Days for PSAPs to Execute Grant Agreement	94									
Allocate ~30 minutes per applicant. Includes presentation and questions.										

Tab 15 e)

2021 NC 911 Board Meeting Dates

Pokey Harris

(Roll Call Vote Required)

Day	Month	Date	2021 NC 911 Board and Committees Meetings	Location	Assigned Staff
Thursday	January	7	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Gardner/Stephanie Conner
Thursday	January	14	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	January	21	Education Committee Meeting 10:00am t0 12:00pm	TBD	Angie Turbeville
Thursday	January	21	Funding Committee Meeting 1:00pm to 12:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	January	22	**911 Board Meeting**	TBD	Pokey Harris
Thursday	February	4	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	February	11	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	February	18	Education Committee Meeting 10:00am t0 12:00pm	TBD	Angie Turbeville
Thursday	February	18	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	February	26	**911 Board Meeting**	TBD	Pokey Harris
Thursday	March	4	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	March	11	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	March	18	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Thursday	March	25	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Friday	March	26	**911 Board Meeting**	TBD	Pokey Harris
Thursday	April	1	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	April	8	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	April	22	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Thursday	April	22	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	April	23	**911 Board Meeting**	TBD	Pokey Harris
Thursday	May	6	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	May	13	Technology Committee Meeting 10:00am	TBD	David Newberry
Thursday	May	20	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Thursday	May	20	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	May	28	**9111 Board Meeting**	TBD	Pokey Harris
Thursday	June	3	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	June	10	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	June	17	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Thursday	June	24	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Friday	June	25	**911 Board Meeting**	TBD	Pokey Harris
Thursday	July	1	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	July	8	Technology Committee Meeting 10:00am	TBD	David Newberry
Thursday	July	22	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Thursday	July	22	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	July	23	**911 Board Meeting**	TBD	Pokey Harris
Thursday	August	5	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	August	12	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	August	19	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Thursday	August	26	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Friday	August	27	**911 Board Meeting**	TBD	Pokey Harris
Thursday	September	2	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	September	9	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	September	16	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Thursday	September	23	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Friday	September	24	**911 Board Meeting**	TBD	Pokey Harris
Thursday	October	7	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Tuesday	October	14	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	October	21	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Thursday	October	21	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
Friday	October	22	**911 Board Meeting**	TBD	Pokey Harris
Thursday	November	4	Standards Committee Meeting 10:00am to 12:00pm	TBD	Tina Garder/Stephanie Conner
Thursday	November	11	Technology Committee Meeting 10:00am to 12:00pm	TBD	David Newberry
Thursday	November	18	Education Committee Meeting 10:00am to 12:00pm	TBD	Angie Turbeville
Thursday	November	18	Funding Committee Meeting 1:00pm	TBD	Kristen Falco/Sarah Templeton
	November		**No 911 Board Meeting This Month**		
Friday	December	3	**911 Board Annual Work Session and Meeting**	TBD	Pokey Harris

Tab 15 f)

Other Board Matters for Discussion

(Roll Call Vote if Applicable)

Tab 16

Other

Adjourn