Grant Application

General Information

Grant Project Title	Dare-Tyrrell-Hyde Regional Emergency Communications Center (DTH-RECC) – Hyde County Radio Communications & Simulcast Paging System
Grant Fiscal Year	2016
Project Director	Emergency Services Director
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Grant Program	E-911 Consolidation
Grant Type	Consolidation
PSAP Applicant, Based upon Grant Type	Hyde County Emergency Mangement

Project Description

Required for all grant types, this should be a thorough, concise, and complete description of the proposed project.

Please outline project goals and objectives.

Dare, Tyrrell, and Hyde counties each operate county-wide Public Safety Answering Points (PSAPs). In late 2013, the three counties and their respective 911 agencies recognized the need to develop a plan that would allow for a joint PSAP serving the three counties and address the growing needs of their respective stakeholders and their emergency communications needs. The county governments and 911 agencies, with representatives from the three PSAPs, began to address the possibility of consolidating the three existing county PSAPs into one multi-county consolidated and unified 911 communications center.

In March, 2014, Mission Critical Partners, Inc. (MCP) was selected to assist in the consolidation evaluation, to determine an appropriate PSAP facility and to prepare a future plan for consolidation. The evaluation cost $53,000 and the preliminary work shows a commitment towards consolidation on the part of the counties' governing bodies and PSAPs. In addition, a tract of land owned by Dare County has been selected as the primary site for a consolidated communications center. This site will be provided at no cost for the communications center and once again shows a commitment for consolidation. The overall goal of PSAP consolidation is to improve the delivery of emergency services to the citizens and visitors of the counties and the greater Outer/Inner Banks region in northeast North Carolina.

This project will accomplish this goal through the following objectives:

• Enhanced 911 intercommunications and data sharing
• Reduced response time for all emergency services disciplines
• Realization of Next Generation 9-1-1 (NG9-1-1) capabilities (current PSAPs are not NG9-1-1-compatible)
• Enhanced law enforcement, fire and emergency medical services (EMS) mutual aid and interoperability
• Consistency in operations when all communications center staff are trained to the same industry standards
• Adoption of dispatch protocols for all emergency service disciplines
• Adoption of a comprehensive quality assurance (QA) program
• Development of the communications center using current International Organization for Standardization (ISO) standards, National Fire Protection Association (NFPA) 1221 standards, National Emergency Number Association (NENA) standards, and North Carolina Sheriff's Education and Training Standards (NCCJETS)
• Capabilities to meet or exceed all applicable industry standards including those being proposed by the 911 Board
• Upgraded, enhanced or replaced 911 infrastructure to meet or exceed current industry standards (much of the current infrastructure at both PSAPs is at end-of-life, or approaching end-of-service, and cannot be upgraded)
• Increased Dare, Tyrrell, and Hyde counties' PSAP call capacity will be realized for future regional growth and the possible inclusion of one or more additional counties or dispatch agencies in this regional PSAP
• Common geographic information system (GIS) mapping for cross-training
• Greater ability to meet growing needs for emergency services

MCP's report determined that none of the existing communications centers could serve as a venue for a consolidated communications facility. None of the PSAPs have the capacity for expansion nor were they adequate to accommodate the functions and features of all the equipment associated with emergency call processing and dispatch.

During the 2015 PSAP Grant cycle, Dare County submitted a consolidation grant application and were awarded the funds to construct the Regional Emergency Communications Center (RECC). Therefore, this project seeks funding for a new communications system to improve deficiencies in the current Hyde County communications infrastructure and provide a transport for emergency communications between the DTH-RECC and Hyde County emergency responders. Dare-Tyrrell-Hyde Regional Emergency Communications Center (DTH-RECC) – Hyde County Radio Communications and Simulcast Paging System has been chosen as the project title for this grant application. As part of this grant application, the following documents will be added as attachments:

• Dare-Tyrrell-Hyde Executed Resolution of Support – Hyde County
• Map – Current Hyde County VHF Repeater Locations
• Map – Current NCSHP VIPER Sites in the DTH-RECC Region
• Map – Hyde County System Overlay
• Map – Proposed DTH-RECC Infrastructure Design
• Hyde County Communications System Integration Narrative
• Gately Communications – Budgetary Quote – Hyde County Communications System Integration
• Hyde County Proposed Project Budget Worksheet

Please provide an implementation strategy and work plan, including a timeline.

During the construction and up-fitting of the new three-county consolidated communications center, the existing PSAPs will continue operations as normal. There will be appropriate infrastructure and systems equipment transfer based on a migration plan with limited disruption of service worked out by the three counties with MCP's assistance. Much of the existing infrastructure is at end-of-life and/or is also at end-of-service and will need to be replaced; as such, existing operations can continue with little to no disruption to current services.

The Dare-Tyrrell-Hyde RECC will be thoroughly tested prior to going on-line. In addition, all current, and any new, PSAP employees will undergo training at the new communications center. Following completion of all testing and training, the consolidated communications center will be transitioned to operations and brought on-line incrementally, with Dare County, the primary agency, being cutover based on an agreed upon transition and cutover plan worked out by the three counties with MCP's assistance. This process will conclude with Tyrrell and Hyde Counties migrating after Dare County has transitioned to operations at the new facility.

Once the consolidated communications center is operational, all employees will fall under the umbrella of Dare County Communications (with Tyrrell and Hyde Counties in the RECC). The timeline from ground-breaking to being fully staffed and operational is expected to be completed within 30 months. In anticipation of consolidation, Tyrrell and Hyde Counties have agreed to adopt the standards used by Dare County's 911 Communications Center (i.e., IAED dispatch protocols for EMS, fire, and law disciplines and NCCJETS). This ongoing standardization among the three current PSAPs will benefit the RECC implementation strategy.

Please identify the interface or compatibility between existing equipment and/or software and that which you intend to purchase.

Currently, there are only limited compatibility issues and none are anticipated to remain as the three PSAPs transition to the RECC. As confirmed by the assessment, with MCP support, there will be limited and planned infrastructure transfer from the Dare County PSAP and the complete transition of Tyrrell and Hyde Counties, as a condition of consolidation. The majority of each PSAPs' existing infrastructure is currently at end-of-life or at end-of-service. For example, computer aided dispatch (CAD), customer premise equipment (CPE), logger and other call processing and dispatch telecommunications systems will be hardware/software refreshed or replaced in the RECC.

The Voice Interoperability Plan for Emergency Responders (VIPER), a statewide radio system used extensively for mutual aid and hurricane/disaster response, will help ensure a smooth transition to a consolidated communications center as it is used day to-day by Fire, EMS, and Law Enforcement agencies in Hyde County. Additionally, the NCSHP has approved use of the current VIPER system infrastructure to provide a transport for the proposed simulcast paging system.

Statement of Need

Required for all grant types, this statement should reference the relationship of the grant project to NCGS §62A-47(b),(c) and the current funding priorities established by the Grant Policy and Procedures and include evidence of any financial need.

Please indicate how your PSAP or group of PSAPs meets the statutory criterion of serving a rural or high cost area.

Hyde County meets the definition of "rural" as contained within North Carolina General Statutes; G.S. 53A-37(5) defines a rural area as any county in North Carolina which does not include within its boundaries a city, as defined by G.S 160A-1(2), with a population greater than one percent (1%) of the population of North Carolina. The United States Census Bureau estimates that the population of North Carolina in 2013 was 9,752,073 (1% = 97,521).

As defined by the North Carolina Development Tier Designation Statute (§143B-437.08), as it provides specific guidelines for calculating annual tier rankings. This process assigns each county to a designation of Tier 1 (most distressed), Tier 2, or Tier 3 (least distressed). Assuming there are no ties in rankings, North Carolina will have 40 Tier 1, 40 Tier 2, and 20 Tier 3 counties each year. In the event of a tie for the final position as a Tier 1 or Tier 2 county, both counties will be placed in the lower tier. Tier rankings take into account four factors:

• Adjusted property tax base per capita for the most recent taxable year (2014-2015)
• Percentage growth in population for the most recent 36 months for which data are available (July 2009 – July 2012)
• Median household income for the most recent twelve months for which data are available (2012)
• Average unemployment rate for the most recent twelve months for which data are available (September 2012 – August 2013)

NOTE: The years in parentheses for each variable indicate the years that are used to rank counties for 2014 tier designations. Each county is ranked from 1 to 100 on each variable, making the highest possible Distressed County Sum 400, and the lowest 4. After calculating the Distressed County Sum, counties are then ranked from most distressed (1) to least distressed (100) in order to determine their Distressed County Rank.

Additional tier ranking criteria based on the Development Tier Designation statute specifies the "automatically qualifying criteria" below for Tier 1 status. Tier 1 "Automatic Qualifiers", such as Hyde County must:

• Be Tier 1 for at least two consecutive years
• Be a county with less than 12,000 people, such as Hyde County, or
• Be a county with a population between 12,000 and 49,999 AND a poverty rate of 19 percent or greater.

Hyde County, a Tier 1 county and one of North Carolina's least populous counties, has a poverty rate of 23.3 percent and unemployment rate of nearly percent eight percent. Hyde County encompasses 612.70 square miles and has a population of 5,152 (excluding prisoners at the Hyde County Correctional Institute); this results in 8.41 persons per square mile. Additionally, Hyde County has no incorporated towns. By both statutory criteria, Hyde County constitutes a rural area.

The rural status of Hyde County is further supported by North Carolina agricultural statistics, provided by the National Agricultural Statistics Service (NASS) of the U.S. Department of Agriculture (USDA) in cooperation with the North Carolina Department of Agriculture and Consumer Services (NCDA & CS), with corn, soybean and wheat production ranking in the top one-fourth of North Carolina counties.

Please identify funding priorities, their impact on operational services, and consequences of not receiving funding.

This new communications infrastructure is a funding priority as it is not fundable through traditional 911 funds. Due to the seasonal population's impact and economic challenges faced by Hyde County, no funds are available for this emergency communications system through the county's annual budget process.

Hyde County has been designated Tier 1 by the North Carolina Department of Commerce, indicating it is one of the 40 most distressed counties in the state; therefore, without funding, consolidation will be on hold for the foreseeable future. In addition, regardless of funding for this project, much of the infrastructure in the PSAPs will have to be replaced in order to meet the mandates requiring NG9-1-1 capabilities. Although this equipment could possibly be obtained with 911 funds, it would be more economical to place this equipment in one consolidated communications center built with project funds.

Failure to obtain funding for this project would result in potentially replacing infrastructure in the Hyde County PSAP. This is not a prudent use of 911 funds but it is the reality facing the PSAP without this project. In addition to the economic realities, it is also important not to lose sight of both the community and the seasonal tourism demands of the county. Without project funding, the PSAP will continue to operate, resulting in the transferring of 911 calls, delayed response times, stresses from seasonal demands, a lack of standardization, and other inherent problems of the current system. The RECC, with grant funding, will provide a better service for its citizens and tourists in their time of need.

Please provide a copy of your PSAP's long-term or strategic technology plan and identify how the project fits within it.

Although Hyde County does not have a strategic technology plan, this project addresses many of our short-term and long-term deficiencies. For example, much of the major E911 infrastructure is at/near end-of-life and due to have the software/hardware refreshed (at about a 5-year cycle) and/or replaced between 2015 and 2017. The RECC project addresses these needs and similar end-of-life systems issues for the consolidation of Hyde County, by replacing the aging infrastructure within a single consolidated communications center, the RECC.

Due to the lack of infrastructure and the inadequate paging coverage, the Hyde County Emergency Services Department has been seeking funding sources to upgrade the communications system in Hyde County. Minor upgrades have been installed over the past four years, but the proposed partnership with the North Carolina State Highway Patrol will provide access to a transport mechanism and infrastructure that could not have been realized through our individual efforts. Also, the post 9/11 communications grants, that at one time were prevalent, have all but disappeared. Without financial assistance, the ailing infrastructure will continue to degrade and systems failures will become more frequent.

Please identify the likelihood of completing the project without grant funding, the availability of other funding source(s) for the project, including 911 fund balance, the percentage of grant funding being requested in relation to total project costs.

Due to the tightening county operating budget, decreasing tax base/revenues, and difficult economic times, there is no likelihood that this project will be completed without grant funding. No other funding sources have been identified that could fund a project of this nature. The current unreconciled 911 fund balance for Hyde County is $171,876, based on current operations/anticipated funding, to be only $117,876 in 2017, when the 30-month project will end.

In addition, it has already been established in this application that Hyde County spends more for 911 than they receive from the annual 911 fund. The project budget will include the 2017 anticipated fund balance, which is not sufficient to fund this project. However, if there were to be any additional surplus after ongoing operations, these funds will be dedicated to the project.

Consolidation Project Governance Plan

This study is required for all consolidation projects. Consolidation projects involve combining two or more PSAPs into a single primary PSAP with an integrated management structure that serves the same populations and jurisdictions prieviously served by such independent PSAPs. In addition to providing this governance plan, the localities that govern the PSAPs involved in the consolidation must provide interlocal agreements in support of consolidation, copies of which must be attached to the application submission.

Indicate how a consolidation would take place and improve service.

The consolidation would take place by integrating the operations of the Hyde County Sheriff's Office 911 Center directly into the Dare County 911 Communications Center and creating a unified administrative entity under Dare County 911 Communications. This consolidated RECC would be housed in a new facility in Dare County, which would improve redundancy, intercommunications and service delivery to the citizens, tourists and emergency responders.

Based on an assessment by MCP and Moseley Architects, an architectural design group subcontracted through MCP that specializes in the area of public safety, a concept plan and an anticipated budget for this facility, located on a site in Dare County, has been developed to support this grant application. The concept plan supports the ten positions noted in the staffing assessment. Thus, consolidation would begin with the building of a new PSAP facility (that could support, ideally 9-10 operator positions) at a selected Dare County site to house the RECC. A technology review by MCP further supports the replacement of end-of-life technology and the migration of limited equipment to this new facility.

A project management team, working under leadership from the County Managers with support from the Dare County 911 Communications Director, supported by a second contract phase for technology procurement and integration with MCP, would be utilized to ensure all deadlines are met, project reports submitted, etc. Purchases will be made according to established procurement guidelines, with Dare County acting as the grant recipient, host agency and the fiduciary agent for the project. All NC 911 Board funds from the successful grant and the counties' fund balances (not needed or deemed critical to current operations) will be utilized to purchase infrastructure and other fundable expenses for the new RECC. This includes 911 funds in the current fund balance, as well as the anticipated awarded grant funds accrued during the estimated 30-month life of the project. Management of these funds by Dare County is supported by a joint resolution executed by the counties in 2014 to assure administrative and management support for consolidating the PSAPs. The resolutions of agreement both support that all 911 funds go directly to the joint project administered by Dare County. The resolutions support consolidation, submittal of the 911 Board grant application, integrated management and facilitation and finance of the consolidation with administration from Dare County. Therefore, no further County Board action(s) will be needed by the governing bodies in regards to the sharing of these resources.

Once operational, the RECC will provide the citizens of the counties, tourists, as well as emergency responders with improved services for decades to come. Tangible economies of scale, such as costs associated with supporting a single RECC and joint facility rather than two distinct operational entities will be realized. The result will be an overall improvement to the delivery of service, as well as a more efficient operation. Advantages of a consolidated RECC include the following:

- Command and control falls under the administrative management of Dare County 911 Communications
- Standardized standard operating procedures (SOPs)
- Seasonal/surge events are more effectively able to be handled with spikes in workloads (call volume, dispatch volume)
- Improvements in coordinating and dealing with large-scale disaster events (i.e., seasonal hurricanes, etc.)
- Coordination and managing events that involve crossing jurisdictions
- Staffing able to draw from a larger geographic applicant pool better absorb absenteeism
- Standardized training and regular ongoing skills improvement
- Management of telecommunications staff certification and recertification
- Cross-training of staff in law enforcement, fire, and emergency medical dispatch (EMD)
- Ability to institute and to execute and maintain a comprehensive quality assurance (QA) program
- Standardization of management information systems (MIS) and records management systems (RMS)
- Two-county (adjacent) candidate recruit pool and more consistent and regular entry- level training programs
- Improved and standardized human resourcing
- Joint management to better mitigate attrition

Indicate how the consolidated PSAP should be organized and staffed.

As noted in the resolutions, the proposed RECC would remain an agency of Dare County government (Dare County 911 Communications) within the administrative control of the Dare County Sheriff and Manager. The Dare County 911 Communications Director, in addition to functioning as the grant Project Manager, will remain as the RECC-Dare County 911 Communications Director under the Dare County Sheriff. The Hyde County Sheriff will work closely with the Dare County Sheriff. The user agencies in the counties and stakeholders have equal access to this management, regardless of whether they reside in Dare County or Hyde County. The day-to-day governance of this entity would be focused on access to the Dare County 911 Communications Director. Thus, user agency issues, dispatch protocols, SOPs, hiring and training, incident management, etc. will be administered in this manner.

This management within the administration of Dare County 911 Communications, under the Dare County Sheriff and Dare County Manager, will work closely with the Hyde County Sheriff and Hyde County Manager under their statutory authority, to handle overall management issues, such as policy, budget, recruitment, contracts, maintenance, and personnel issues referred by the Dare County 911 Communications Director, with the ability to report directly through this hierarchy to the elected officials with responsibility to set/maintain the SOPs used to process calls and dispatch agencies in both counties. This will allow input to be provided for the policies, governance and financial operation of the RECC, including administration for day-to-day operations that deal directly with user operational issues.

It is also to be noted that a small, targeted project team, including the Hyde County Sheriff, will be named by Dare County to support the Dare County 911 Communications Director as the grant project is implemented. Project decisions or issues that cannot be resolved would be passed up through the Dare County 911 Communications Director to the Dare County Manager.

The day-to-day operations of the RECC will support both counties' law enforcement agencies, volunteer fire/rescue services and EMS and will coordinate securing mutual aid with the State, federal and local agencies currently interacting with the PSAPs. The RECC would be led by the Dare County 911 Communications Director and Dare County 911 Communications administrative staff (Assistant Director and supervisors) to oversee staff of the RECC. Procedures will be revised to address a variety of management/operations topics from the PSAPs and Hyde County's desire to consolidate.

Based on MCP's staffing assessment, it is anticipated 25 total telecommunicators would be necessary to staff the RECC. These staffing levels were developed using a modeling formula accepted and used by the National Emergency Number Association (NENA) as part of their Communications Manager Certification Program. Job descriptions will be updated for each position and telecommunicator staff from each PSAP will be integrated into the RECC based on the employee's seniority, training, qualifications and other factors as developed by the administration. Payroll and benefits would be administered by Dare County. Transferred employees would not lose their seniority. In addition, the scheduling of staff will be based upon a priority/peak staffing model to ensure adequate staffing when needed.

Indicate what services the consolidated PSAP should perform.

Note: As required by law and best practices, all telecommunicator staff will be hired, trained, annually in-serviced, and managed using the NCCJETS criteria, including EMD.

The RECC will have nine call answering and dispatch work stations dedicated to emergency call processing, with additional workstations available for predictable busy periods, training/staffing requirements for seasonal demands, or situations where call volume spikes.

There will be two to four dispatcher positions available to law enforcement, with additional dispatch positions available for peak/seasonal periods, special events, or any other situation that causes a spike in law enforcement dispatch workloads. All law enforcement-capable dispatch positions must be capable of processing National Law Enforcement Telecommunication System (NLETS) queries as well as any other federal, state or local on-line queries germane to law enforcement.

Also, there will be two to three dispatch positions available to fire and EMS, also with additional dispatch positions for peak/seasonal periods, special events, or any other situation that causes a spike in fire or EMS workloads.

In addition to an initial anticipated 911 call volume over 25,000, the RECC would also answer non-emergency calls of an administrative nature for both counties, estimated at over 61,000 calls, including citizen requests for information or to access agencies after normal business hours. Outbound call volume is estimated at over 22,000 calls. This projects an annual call processing of over 109,000 calls.

Other services will be performed that are internal to the RECC, including two positions for training, QA, information technology/system updates/maintenance, etc. These positions will also be able to process 911 calls should seasonal or situation demands require.

Any problems that arise among the user agencies in the RECC will be referred to the Dare County 911 Communications Manager. If the problem cannot be resolved, then the matter will be referred to the Dare County Sheriff for resolution. The Dare County Sheriff will have direct access to the Hyde County Sheriff should his/her input be needed to address any issues.

In summary, the RECC will provide the following services:

• Phone answering to include emergency and non-emergency calls
• Transferring or making phone calls
• Law enforcement dispatching
• Fire dispatching
• EMS dispatching
• Emergency services' paging
• County agency call-out
• Coordination with Emergency Management
• Interoperable communications for all public safety agencies in North Carolina
• Coordination with other mutual aid, state and federal agencies
• Maintenance of telecommunications systems
• Technical systems operation and upgrade
• IT planning and development for Dare County 911 Communications
• Disaster/weather-related functions
• National Crime Information Center (NCIC)/NLETS operations
• QA operations
• Recruitment, orientation, training and standards/certification functions
• Strategic communications solution on the VIPER statewide 800 megahertz (MHz) radio system

These services will be provided through the new consolidated RECC to those agencies previously served by the three existing PSAPs. However, citizens and many other agencies will enjoy the benefits of a consolidated PSAP. These law enforcement agencies include the Dare County Sheriff's Office, Tyrrell County Sheriff's Office, Hyde County Sheriff's Office, Duck Police Department (PD), Southern Shores PD, Kill Devil Hills PD, Kitty Hawk PD, Nags Head PD, and Manteo PD; plus the National Park Service, North Carolina (NC) Forestry Service, United States (US) Fish/Wildlife Service, NC Marine Fisheries, NC Wildlife, US Coast Guard and NC Parks. Any costs associated with these agencies will be absorbed by the RECC.

Dare County has 19 Fire/EMS agencies, including Kitty Hawk Volunteer Fire Department (VFD), Kill Devil Hills VFD, Nags Head VFD, Roanoke Island VFD, Buxton VFD, Avon VFD, Salvo VFD, Dare Regional Airport, Station 22, Stumpy Point Fire Department (FD), Frisco Fire Prevention Association, Manns Harbor VFD, Southern Shores VFD, Duck VFD, Colington VFD, Chicamacomico Banks FD, Dare County EMS (eight stations), Hatteras VFD, and Hatteras Island Rescue Squad, and an Ocean Rescue.

Tyrrell County VFD has six stations (Columbia, Frying Pan, Alligator, Gum Neck, Scuppernong, and Kilkenny) with 66 firefighters, and Washington -Tyrrell County EMS (Plymouth). These agencies will also benefit from the RECC and will not be required to provide funding for the consolidated PSAP.

Hyde County has six volunteer fire departments, including Engelhard VFD, Fairfield VFD, Ponzer VFD, Scranton VFD, Swan Quarter VFD, and Ocracoke VFD. Each volunteer fire department also provides medical first responder services to assist Hyde County EMS. The Hyde County Emergency Medical Service (EMS) has two stations one centrally located on the mainland and another on Ocracoke Island.

In addition to administrative phone calls and citizen non-emergency requests for information or assistance, other ancillary agencies that have calls currently answered by both Dare and Tyrrell counties' 911 centers and staff call-out after hours include Animal Control, Probation and Parole, Social Services, Water Department, and Chapel Hill Poison Control.

Indicate how consolidated PSAP policies should be made and changed.

The daily operations of the RECC will be administered by the Dare County 911 Communications Director. The Director, working for the Dare County Sheriff, will have the authority, with support from the Hyde County Sheriff, to make and enforce policy with guidance and direction from the Sheriffs and County Managers. This authority is derived from the Dare County Government, both the Dare County and Hyde County Managers and Sheriffs, as resolved by resolution in conjunction with the RECC. Administration in turn is further established through intergovernmental work and practice between two Sheriffs. All Dare County 911 Communications revised policies, as they incorporate procedures from Hyde County, will meet or exceed NCCJETS and applicable industry standards including those established by NENA and the NC 911 Board.

The call handling processes and human resource recruitment and training procedures and policies will be addressed first and will be established by both County Managers and be in place prior to the physical migration and consolidation with Hyde County.

The Dare County 911 Communications Director and Hyde County Sheriff will initially draft revisions to these first procedures, obtaining policy support from both County Managers. Subsequent policy reviews will be made by the Dare County 911 Communications Director, in consultation with the various stakeholders involved in consolidation. Future changes will be made by the Dare County 911 Communications Director with support from the Hyde County Sheriff and the County Managers to remain in compliance with industry standards and user requirements.

Indicate how the consolidated PSAP should be funded exclusive of grant funding.

Once operational, all operating expenses will be funded by the participating counties (Dare/Tyrrell/Hyde). The first year's operational expenses will be funded based on the resolution agreement that is in place since early 2014. Based on the staffing study, after applying each County's available NC 911 Board fund balances, based on this agreement.

There are additional considerations outside of call volume. One is incident volume and personnel accountability. Dare County will now be responsible for the safety of Hyde County emergency responders. While the call volume is low, incident volume is higher. Currently, it is not known whether Hyde County will be dispatched by developed RECC procedures requiring a single staff person as they are now or whether the responsibilities will be split among Dare County's dispatch positions. The answer could mean that another position is warranted (which will require the same amount of people Hyde County currently employs).

There are also transition costs such as training on fire, EMS, law enforcement; developing RECC policies and procedures; combined CAD system data (response packages and units); mapping/geographic information system (GIS); public education; and technical personnel to work with the local exchange carrier (LEC) for 911 migration, etc.

MCP will further review these costs during Phase 2 and it can be anticipated that MCP would recommend limiting Hyde County to their current operational costs up to and including the first two years of operation in the RECC and then after the first full year is over, evaluating the actual data to determine the impact to Dare County and, if necessary, reevaluating the compensation from Hyde County to Dare County, limiting to the current Hyde County 911 budget (maximum) unless there is a drastic increase in call/incident volume.

The actual cost of operations will be as accrued after cutover and migration, but can be estimated in advance and be based the projections of costs made as a result of the MCP assessment. As indicated, approved 911 fundable expenses will continue to be funded through the 911 fund balance.

After the first operational fiscal year, all expenses from that previous fiscal year will be audited and reviewed by the County Managers. These expenditures will then be divided among the counties based on the percentage of dispatched 911 calls from that fiscal year. This formula, based on percentage of dispatched 911 calls, will be used for all future operational expenses.

The County Managers, with the authority of their respective Commissioner Boards, will review and approve all RECC costs annually and will have the financial authority over the RECC budget, with this authority established through resolution and intergovernmental agreements established prior to consolidation.

Emergency services in both counties will continue to fund their respective agency equipment and subscriber equipment, as was the practice before consolidation.

Indicate what changes or improvements should be made to inter-communications among the local governments participating in the consolidation in order to better support operations.

The governing bodies of Dare, Tyrrell, and Hyde counties each passed the same resolution supporting consolidation. Intergovernmental agreements concerning operations, technology, and equipment are being developed as needed, or are in place pending consolidation. These serve as demonstrations that the governments involved have cooperated and continue to do so.

Once operational, all existing intergovernmental agreements will be examined and updated as needed by the Sheriffs and their County Managers. There will also be meetings of both governments (Boards/Managers), as needed. These meetings will ensure collaboration and cooperation continues.

The fact that the existing RECC will be housed in one facility and under one administration will also assist with communications among the various stakeholders across county boundaries and service areas.

Although not involved directly in the governance of the RECC, the County Emergency Management Agencies and Homeland Security Task Forces will continue to be active and have representation within each local government involved, acting as an informal body to improve communications and cooperation among disaster response agencies co-located in the consolidated RECC facility.

Discuss sustainability of the consolidation project during the proposed term of the project, and for the foreseeable future.

All 911 funds not currently (at grant award) needed or deemed critical to legacy operations in the counties will be utilized to support the project and purchase infrastructure and other fundable expenses for the new RECC. This includes 911 funds in the current fund balance as well as the anticipated funds accrued during approximate 30-month life of the construction/migration project.

Once operational, both counties will realize some operational/anticipated savings. Duplicate training, recruitment, operations, and maintenance costs within these expenditures will not be necessary and the counties will no longer need to independently fund (but can share) software/hardware refreshes in a consolidated RECC.

Other areas of cost benefitting from consolidation will also experience operational savings. For example, Hyde County, from simply not having the direct staffing, 911 administration/management and agency-specific supporting infrastructure, utilities and upkeep associated with housing 911 Communications in Hyde County will save annual operating funds. These savings can be contributed to address future end-of-life procurements and/or outfitting a back-up PSAP for the RECC in future budgets.

Regional Initiative Enhancement/Replacement Project

Required for all Regional Initiative Enhancement/Replacement project types. Regional initiative enhancement/replacement projects are regional approaches which provide for shared use of the components that support E-911, such as equipment, resources, and/or co-location of technology. Such projects may involve two or more primary PSAPs.

What is the relationship of participating PSAPs to the initiative? Provide MOUs between PSAPs identifying each participant PSAP's responsibilities to the project.

N/A

Identify intended collaborative efforts

N/A

Identify how resource sharing will take place.

N/A

Indicate how the initiative impacts the operational or strategic plans of the participating agencies.

N/A

Financial Data

Current 911 Fund Balance	$171,876.00
Amount Requested	$1,266,886.60
Total Project Cost	$1,266,886.60

Budget and Budget Narrative

A budget and budget narrative must be supplied for all types of projects, as well as a copy of the applicant agency's approved FY 2012 PSAP budget.

List planned expenditures.

Dare-Tyrrell-Hyde Regional Emergency Communications Center (DTH-RECC) – Hyde County Radio Communications and Simulcast Paging System. Quote from Gately Communications, Co. (Appendix 1)
• Initial estimated project cost, based upon quote provided by Gately Commmunications, Co. $987,376.00
• Project Quote Add-On Revision (4/8/2015) - Rose Bay to Engelhard Microwave Hop $75,000.00
• Project Contingency (10%) $106,237.60
• Consultative and Professional Services (estimated) $98,273.00

Total Project Cost $1,266,886.60

Provide a budget narrative that briefly explains the reason for each requested budget item.

The requested Radio Technology is necessary to allow proper radio integration of Hyde County's radio network into the Dare-Tyrell Regional Emergency Communications Center (RECC). The project is intended to accomplish several key objectives that will ultimately improve the Public Safety radio network in Hyde County. Some of these improvements include:

• The addition of radio hardware and software,
• Sharing access to the Highway Patrol's VIPER network,
• Aligning radio frequencies, by discipline, used by the public safety agencies across Hyde County (Law, EMS, Fire),
• Providing Simulcast capability across the system,
• Enabling responders to communicate "county-wide" within their assigned frequencies to/from the Communications Center, and amongst agencies on the same frequency band,
• Adding additional and new radio infrastructure at designated repeater sites,
• Creation of a Five (5) repeater site ring that will serve Hyde County while providing pathway redundancy, and connectivity to the new RECC,
• Formation of a new Microwave Hop from Hatteras to Ocracoke,
• Microwave will be used to route IP traffic from the RECC out to the five repeater sites,
• Overcome existing limitations regarding radio coverage to Ocracoke from the mainland site through routing radio transmissions to other repeater sites. This cannot be accomplished under the existing configuration.
• Back-up radio capability on VHF will be added through re-purposing of EMS repeaters located at the Mattamuskeet and Ocracoke sites.

There are many other features of the proposed radio configuration for Hyde County. These can be reviewed in the included documentation that also contains a description of work as proposed by the Vendor which supplied the quote. (Appendix 1)

NOTE: The Rose Bay to Engelhard Microwave Hop is not included within the Budgetary Quote as provided by Gately Communication, Co. This task was identified as a need after the Quote was submitted to Hyde County. This Hop will be designed to address weakness in signal paths that currently exist between these two sites. The design of this pathway will be similar to that of the Hatteras to Ocracoke sites.

A ten percent (10%) Contingency has been included with the Project Total Cost to be used to address any overages encountered, or for any required changes to the system design in order to ensure that all technical needs are resolved.

The overriding reason this technology is being requested is that the proposed project would make a reality adding much needed upgrades and enhancements to Hyde County's Public Safety radio network, and enable Hyde County public safety agencies to be supported by the RECC. The completion of this project would produce a more robust Radio system that incorporates the latest versions of this technology that are prudent for application within the overall system design. Accomplishing this integration would represent a significant "step forward" in terms of capability and interoperability.

Included with this document is a description of component pricing for the Radio design.

Consultative and Professional Services

Hyde County desires to retain MCP to provide program management support through the completion of the project. The support from MCP addresses technology integration, procurement support, migration planning, grant reporting, developing a detailed timeline, coordinating with other technical procurement/contractors and their subcontractors, and managing grant requirements. Costs estimates are based on support provided by MCP from similar support provided to other project grant recipients. Professional Services fees relating to MCP's work will be funded within the Grant Award, provided an award is received.

State how you will follow applicable procurement law, rules, and policies.

Hyde County and the Hyde County Finance Director will act as the fiduciary agent for this project. Therefore, the responsibility of ensuring all applicable procurement laws, rules, and policies are followed will fall on Hyde County's Finance Director. This will be accomplished by following existing county procurement policies which are in accordance with Article 8 of the North Carolina General Statutes, specifically G.S. 143-129, which establishes the procedures for formal bidding and G.S. 143-131, which establishes the procedures for the informal bid process.

In addition, the documenting of all project expenses, payments, etc. will be in accordance with Generally Accepted Accounting Principles, as set forth by the Financial Accounting Standards Board. The project will also comply with any additional requirements that may be set forth in a project contract.

If the project will have ongoing expenses, such as monthly recurring charges, describe plans and specific sources for future/long-term funding and demonstrate how the project will be sustained in the future without additional 911 Grant Program funding.

This project will entail ongoing expenses throughout the life of the system. Those portions of the system that may be eligible, or become eligible to be funded through monies allocated from the North Carolina 911 Board, will be sustained accordingly. Other costs relating to the maintenance and upgrading of equipment, hardware, and software utilized within the radio system will be financially supported through funds supplied by the participating counties. The mechanism for how these monies are supplied toward the support of this portion of the overall system will be governed by the funding matrix in place at that time, including any funding responsibilities of each participating County as are applicable.

The County's operating budget, and any other available funding sources may be used to sustain this project outside of 911 Grant Program funding.

Evaluation

All applications must include evaluation information. The final report shall include an evaluation demonstrating that the equipment or services funded by the grant have been purchased, installed/implemented, and are performing as expected.

Explain how your evaluation will measure the achievement of the goals and objectives identified in the Project Description with a timeline for meeting short, intermediate, and long term goals.

The evaluative portion of this project should follow the timeline for Technology Tasking that was presented by Dare-Tyrell Counties in their Grant Application. The timeline would then be adjusted to the operating timeline schedule as it exists at that point-in-time should a Grant Award be received by Hyde County. Appropriate adjustments to the timeline will be coordinated with all stakeholders to ensure that task alignment is identified. Following this step, responsibilities will be determined and assigned within the Project Team. The evaluation system adopted for this project should be eventually included into the overall RECC project evaluation schema.
The Technology Tasking timeline includes the following:
• Establish equipment/systems parameters/review budgets – Month 3
• Finalize requirements – Month 5
• Develop RFPs or statements of work (SOWs) for vendors – Month 10
• Issue RFPs/SOWs – Month 13
• Evaluate vendor responses/select vendors – Month 15
• Procure systems – Months 16-24
• Install equipment – Month 25
• Test/accept systems – Month 27
• Train for cutover/migration plan – Month 28
• Complete migration plan – Month 29
• Cutover to new system – Month 30

Describe how evaluations will be conducted, including performance parameters which must be met in order to meet acceptance criteria.

The Project Team may consist of the following: Hyde County's Project Manager, selected staff, MCP, parties representing the RECC, and other stakeholders will assist in conducting and or writing evaluations. Evaluations will be conducted at routine intervals that will be determined by the Project Team based upon the milestones that are deemed appropriate. These intervals can be adjusted in accordance with the needs of the project, or to meet any required or requested report to the NC 911 Board or other governing entity.
Acceptance criteria will include such items as:
• Meeting or exceeding industry accepted parameters for performance
• Field testing from various pre-determined sites within the area covered by the radio system. This is to include "known" areas where existing difficulties are experienced in transmitting or receiving radio signals. Participants conducting testing should include: system engineers, technical staff, installation technicians, representatives from the public safety disciplines served, and MCP.
• Once the system has been in operation for a designated time period, the system will be tested in the "live" environment so that performance data gathered during implementation and integration can be measured against "live" operational usage. This will provide insight whether any adjustments are warranted in order to optimize the system.
• The above mentioned items should contribute to the evaluation assessment. Other performance criteria may be developed to address specific concerns as warranted.

Identify how data will be collected and presented.

The Hyde County Project Manager will be responsible for collecting data relating to the project during all integration-related phases. It is anticipated that the data will be collected on a project evaluation form with commercial off-the-shelf (COTS) software (Microsoft Excel or Word) and collated by MCP, who will assemble the data using software/reports utilized to collate and analyze the data.
The exact data to be collected will be determined by the Hyde County Project Manager and the grant contract, but should include data on the following:
• Schedule
• Accuracy and Completeness
• Design Issues
• Coordination and Cooperation
• Testing Outcomes
• Readiness to migrate
• Safety

COUNTY OF HYDE

Board of Commissioners
Barry Swindell, Chair
Earl Pugh, Jr., Vice-chair
Benjamin Simmons
John Fletcher
Dick Tunnell

30 Oyster Creek Road
PO Box 188
SWAN QUARTER, NORTH CAROLINA 278
252-926-4400
252-926-3701 Fax

Bill Rich
County Manager

Fred Holscher
County Attorney

Lois Stotesberry, CMC, NCCCC
Clerk to the Board

RESOLUTION SUPPORTING THE APPLICATION FOR A GRANT FROM NORTH CAROLINA 911 BOARD

WHEREAS, the current Public Safety Answering Points or PSAP's providing service and answering 911 calls for Dare/Tyrrell/Hyde Counties are handled through a system financed, in part, from 911 funds provided by the North Carolina 911 Board under G.S. 62A-46(c); and,

WHEREAS, Dare, Tyrrell and Hyde Counties currently operate PSAP's; and,

WHEREAS, Dare, Tyrrell and Hyde County governments, have recommended the consolidation of 911 communication services throughout Dare/Tyrrell and Hyde Counties in an effort to establish an integrated management structure to better each County's populations; and,

WHEREAS, the North Carolina 911 Board will soon commence a grant cycle which will include the E-911 Consolidation Program intended to provide funding for those jurisdictions seeking to consolidate 911 emergency services; and,

WHEREAS, the Dare County Board of Commissioners, Tyrrell County Board of Commissioners and the Hyde County Board of Commissioners support the consolidation of the existing PSAP's into an integrated management structure and by this Resolution intend to authorize and to support an application for grant funding under the E-911 Consolidation Program adopted by the North Carolina 911 Board.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of Dare County, Tyrrell County and Hyde County each being a government body located in North Carolina, that:

1. Individually and jointly each of the governmental bodies expresses its support for the consolidation of communication services (PSAP's) into a single PSAP as recommended, and

2. To facilitate and finance, or partially finance, the consolidation of communication services, the application for a grant under the E-911 Consolidation Program is authorized and may be submitted to the North Carolina 911 Board when the applications for funding become available, and

3. In order to facilitate the application and granting process, the application shall be submitted and any grant funds received shall be administered with Dare County acting as the lead agency for such purposes or as a joint effort by three (3) or more of the governmental bodies, as may be required by the E-911 Consolidation Program Guidelines; and

This Resolution is adopted by each of the governmental bodies set out below, but executed in counterparts pursuant to authority duly given by official action of the governing body on the date indicated below.

Adopted this the 2nd day of September, 2014, in Hyde County, North Carolina.

Barry Swindell, Chairman

ATTEST:

Lois Stotesberry, Clerk to the Board

BOARD OF COMMISSIONERS, HYDE COUNTY, NORTH CAROLINA

Appendix 1

Description of Work and Budgetary Quote

Hyde County Paging and Radio system integration to Dare 911

(800 Mhz VIPER Radio Dispatch for Hyde Public Safety Agencies)

Furnish and install (4) APX-7500 700/800 Consolettes at Dare 911 to dispatch on existing Hyde County Local VIPER Talk groups for Hyde Sheriff, Fire, EMS and EM departments. These (4) control Stations will be connected to Dare County MCC-7500 consoles at new dispatch center (or) possibly be located at Existing Dispatch Center as the Dare "Master site" equipment may remain at Existing 911 center. APX-7500 consolettes will be installed in rack with (4) dedicated 800 yagi antenna systems located either on existing penthouse or tower at new Dare 911 Center. Two (4 channel) CCGW (Enhanced) will be installed to interface MCC-7500 consoles to the (4) APX-7500 consolettes and also allow interface with the recorder at Dare 911. (2) APX7500 800 Mhz Consolettes with (1) CCGW will be installed at Stumpy Point Site for back-up. One antenna system would be directed toward Ocracoke and the other toward Mainland sites. Should VIPER system go to Site Trunking, these remote located Consolettes would allow Dare 911 to communicate with each tower site individually to assure communications with Hyde County Agencies..

(VHF Simulcast Paging System for Hyde Fire and EMS)

License new VHF simulcast paging frequency for Hyde County Fire / EMS. Furnish and install (5) new VHF GTR-8000 Paging transmitters along with TRAK 9000 time syncs and new DB-264 Base antenna systems at (5) Tower sites for Hyde County Paging. Sites include: Ponzer VIPER Tower, Rose Bay VIPER Tower, Ocracoke Water Tank, Englehard VIPER Tower and Stumpy Point VIPER Tower. Use of existing Dare County and VIPER microwave will be utilized to pass IP traffic from Dare 911 (MCC-7500 Consoles) to all (5) locations. Page Tones will be sent by IP thru microwave / Fiber connection to East Lake Prime site to CCGW to MLC-8000 Simulcast Controller. TRAK 9000 will be installed to provide Time sync to controller. Signal will be converted to T1 format and will be distributed to the (5) sites by way of VIPER Microwave. Each site will receive the simulcast paging traffic from VIPER Microwave and convert signal back to IP where the MLC8000 simulcast control equipment will engage GTR-8000 Motorola Stations for Simulcast Page out at the (5) remote sites. Note: Hyde EMS and Hyde Fire Departments will all be paged on same system. Existing EMS VHF repeaters at Ocracoke and Mattamuskeet will be left in place and used as back up VHF systems. (2) existing VHF MTR-3000 Stations (Hyde Fire East and Fire West) will be reprogrammed and installed at Stumpy Point Tower site and will be interfaced to the new CCGW at that site for control from Dare 911. This will allow back-up VHF operation thru EMS repeaters at Mattamuskeet and Ocracoke sites.

(Microwave system)

(1) Microwave Hop will be furnished and installed between Ocracoke Water tank and Hatteras Island Water tank to provide connectivity from Ocracoke to Hatteras and over existing Dare County PTP-800 microwave to Buxton US Cell Tower where the existing VIPER microwave currently terminates. Shared usage of this new HOP will be provided to VIPER. VIPER will in turn allow Hyde County to use their microwave Transport throughout mainland Hyde County for new VHF simulcast paging system.

Assumptions:

Microwave path was done on a desktop model and may be found to be different in the field. Path is not guaranteed until confirmed physically.

That all identified sites will be able to accept proposed loading without modification. Towers are heavily loaded and may not pass rev G without structural enhancements.

Hyde Co will confirm that the water tanks will accept the new microwave dishes. Any structural reports or modifications on water tanks, if needed, will be the responsibility of the Hyde County.

Dare County has agreed to allow voice/ data traffic over their PTP microwave system

NOTE: VIPER approvals have been given by Marty Randall (VIPER Network Specialist).

NOTE:: Structural Analysis will be done on all Towers as needed. Estimated cost of Structural Reports is $3,500.00 per site. Additional to the quote.

NOTE: Structural enhancements that may be required is NOT included in this quote and would be in addition to quoted amount .

NOTE: Simulcast paging is being proposed primarily from existing sites. Therefore VHF paging coverage is not guaranteed but will conform closely to coverage maps based on final site locations.

Appendix 1

Budgetary Quote *Gately Communication, Co.*

Hyde County Communications

Atten: Justin Gibbs

320 West Lake Drive
Kill Devil Hills, NC 27948
(252) 441-2066 Fax: 441-0913
Submitted By: **Warren Bell**
3-27-2015

Job Reference: Hyde County Radio and Page System Integration to Dare 911

>File FCC license for (5) site VHF simulcast Paging System (Ponzer, Rose bay, Ocracoke, Englehard, Stumpy Point) Modify existing Hyde County EMS License for Back up	(5,500.00)
>File FCC license for (1) PTP800 Microwave Hop Ocracoke Water Tank to Hatteras Water Tank	(1,500.00)
>Site Drawings, Coverage Maps, Load Studies, Eng fees	(45,000.00)
>Electrical	($ 15,000.00)
>Build Out (1 Hop) PTP-800 Microwave System (Ocracoke to Hatteras)	($ 75,000.00)
>Build Out (5 site) VHF Simulcast Paging System (Turn Key) Includes Trak 9000 or equivalent Time Syncs at each site	($ 456,150.00)
>Motorola CSSI (System Staging and Integration)	($ 45,000.00)
>Furnish and install (4) APX-7500 Consolettes (700/800 Mhz) (Dare 911) Includes: (2) CCGW, (4) yagi antenna systems with integration to Dare 911 Furnish and install (2) APX-7500 Consolettes (700/800 Mhz) (Stump Point) Along with (2) existing MTR-3000 VHF (Old Hyde Fire East & West Repeater) Includes: (1) CCGW, (2) 800 and (2) VHF Yagi antenna systems Also Includes: (1) CCGW & (1) TRAK 9000 at (East Lake Prime site) for Paging	($ 158,726.00)
>VIPER Interface Equipment (Includes: Switches, Routers, RAD (T1 to IP) Converters at each site, TENSR Channel banks, misc Network equipment)	$ 120,000.00)
>Warranty wrap (1st year) (24/7) response to system issues	($ 18,000.00)
>Advance replacement on Microwave Components (Does NOT include Tower Climbs)	($ 7,500.00)
>Recommended Spare Boards / Modules	40,000.00)

Total ($ 987,376.00)

Notes:

- **Quoted prices are strictly Ball Park figures for Budgetary purposes.**
- **Tax & shipping NOT included in quote (Charged separately if applicable)**
- **Proposed System will share VIPER microwave for connectivity to sites.**
- **Bandwidth upgrades may be required by VIPER or Dare County and will be in addition to quote.**
- **Numbers are contingent on all towers being able to pass necessary load studies and necessary frequencies being issued by Fcc .**

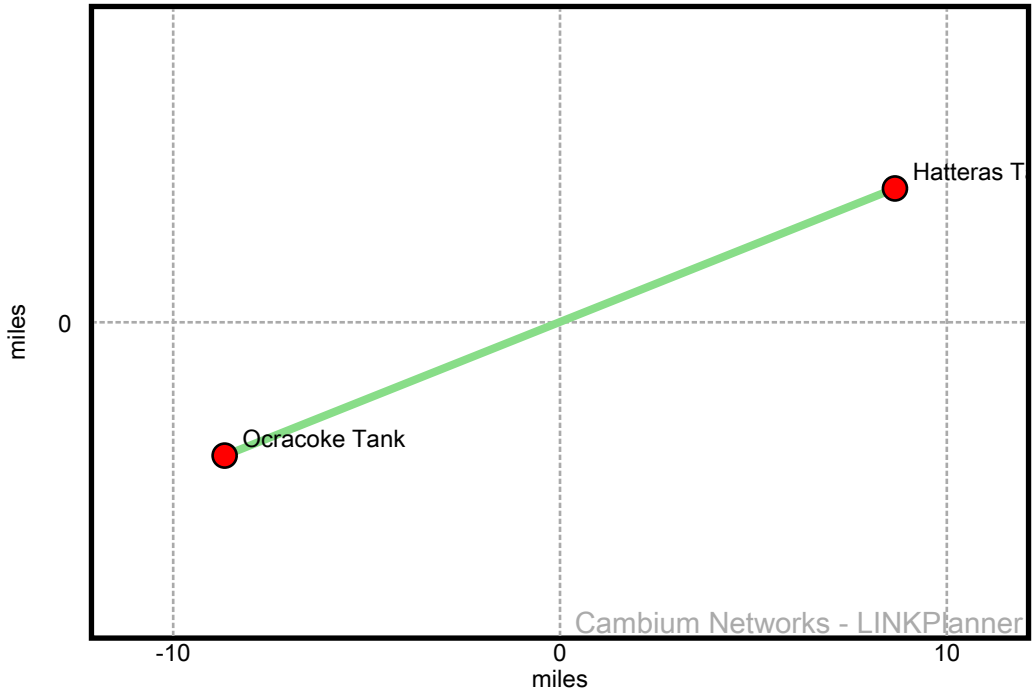
Note: Microwave Hops are required for reliable Paging in Hyde County.

Project Hatteras to Ocracoke
LINKPlanner Proposal Report

27 March 2015

Danny Pattersonb
Organization: Gately Communication
Phone: 757-826-8210
Email: dpatterson@gately.com

center = 35:10:01.9N 075:49:50.8W



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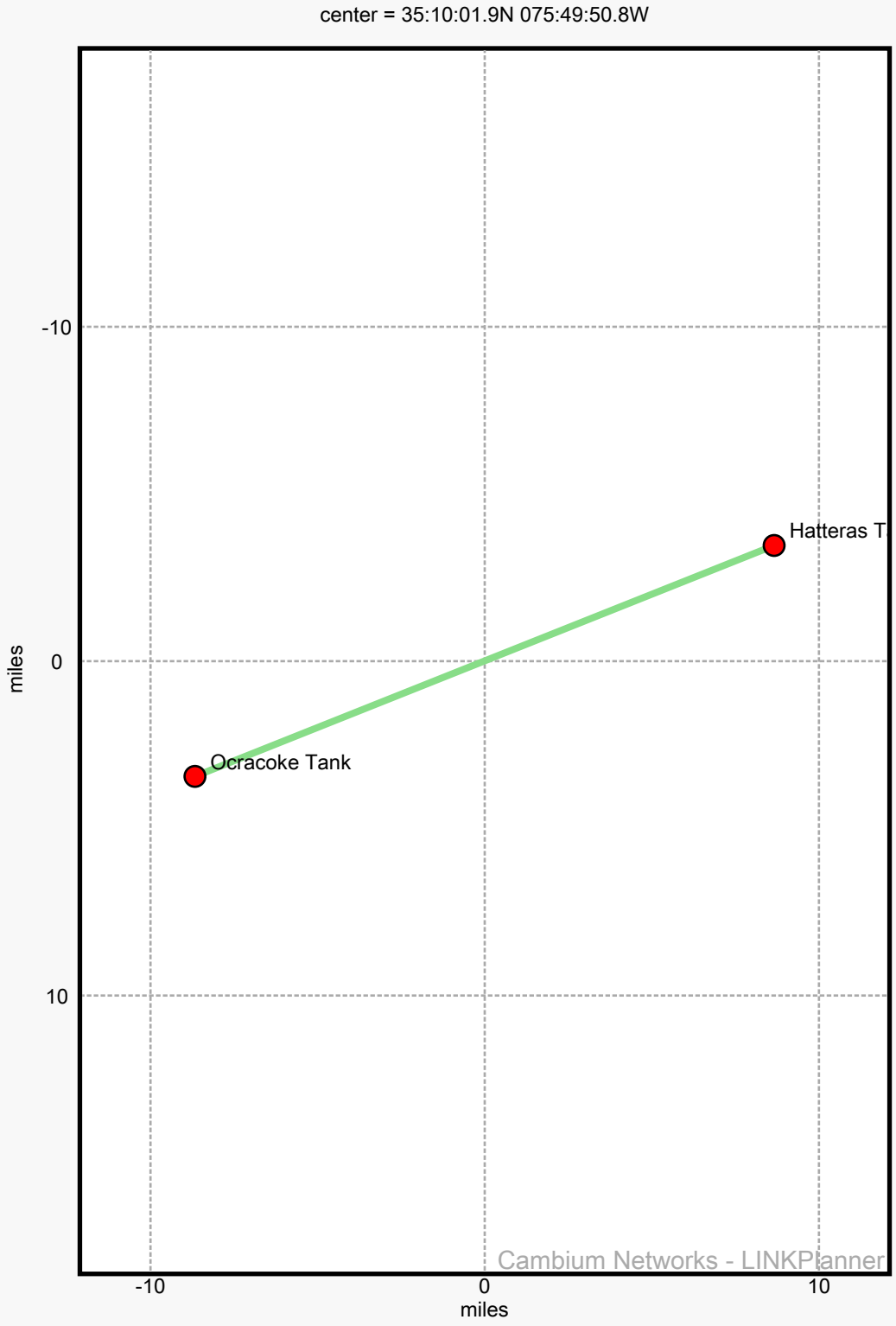
1. Project Summary

Project: Hatteras to Ocracoke

Description: Hatteras to Ocracoke

General Information	
Customer Name	Hyde County
Company Name	Gately Communication Co.
Address	
Phone	
Cell Phone	
Email	dpatterson@gately.com

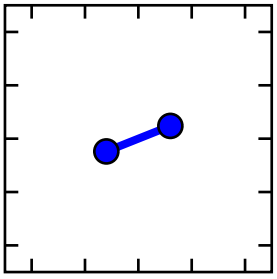
Network Map


center = 35:10:01.9N 075:49:50.8W
-10
0
10
miles
Hatteras T
Ocracoke Tank
Cambium Networks - LINKPlanner
-10
0
10
miles

Link name	Product	Local antenna	Remote antenna	Max aggregate IP throughput (Mbps)
Hatteras Tank to Ocracoke Tank	PTPL6800 with ODU-A	Cambium Networks 6ft HP Antenna 85010089021 - Direct	Cambium Networks 6ft HP Antenna 85010089021 - Direct	199.99

Part Number	Qty	Description
(no part number)	2	Unspecified Lower 6 GHz ODU (invalid TX frequency selection). Please select a TX frequency
(no part number)	2	Unspecified Mains Lead (set the region in the Bill of Materials options)
01010419001	2	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
07009304001	2	Hoisting Grip for CNT-400 cable
30010194001	2	50 Ohm Braided Coaxial Cable - 75 meter
85010089021	2	6' HP Antenna, 5.925 ~ 7.125 GHz, Single Pol, Mot Interface
WB3480	2	PTP800 Modem 1000/100BaseT with Capacity CAP 10 Mbps
WB3542	2	PTP800/PTP810 Modem Capacity CAP - 100 Mbps (per Unit)
WB3616	2	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)
WB3622	2	AC-DC Power Supply Convertor (no lead cable included). Converts 110/230V to 48V.
WB3657	2	LPU END KIT PTP800 (1 kit required per Coaxial cable)

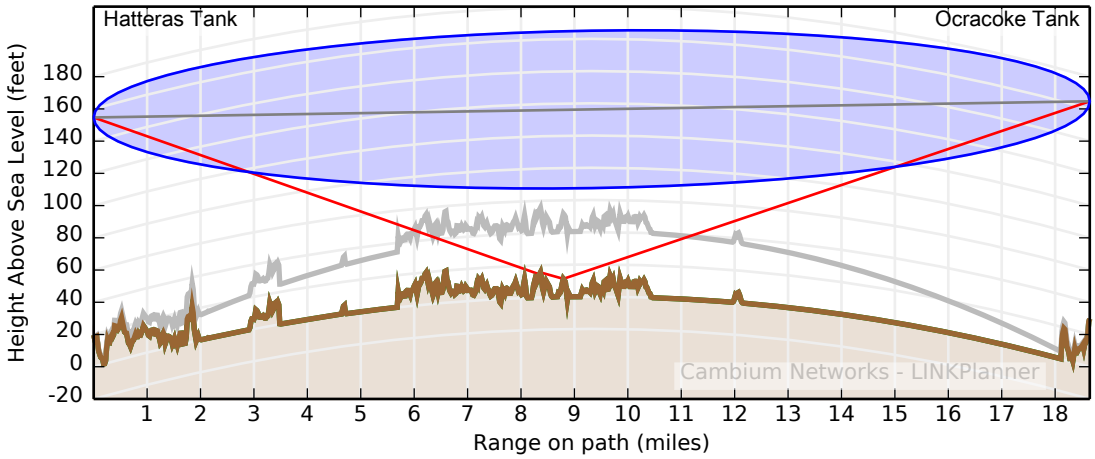
Hatteras Tank to Ocracoke Tank



Equipment: Cambium Networks PTPL6800 with ODU-A - 1+0

Cambium Networks 6ft HP Antenna 85010089021 - Direct @ 135 ft

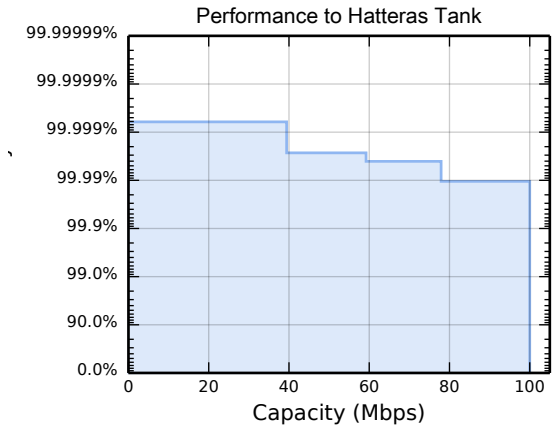
Cambium Networks 6ft HP Antenna 85010089021 - Direct @ 135 ft

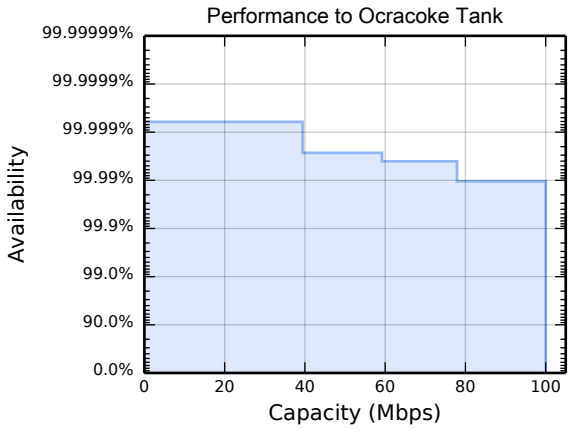


	Performance to Hatteras Tank	Performance to Ocracoke Tank
Mean IP	100.0 Mbps	100.0 Mbps
IP Availability	99.9994 % for 1.0 Mbps	99.9994 % for 1.0 Mbps

Link Summary			
Link Length	18.648 mi.	System Gain	183.26 dB
Band	Lower 6 GHz	System Gain Margin	45.14 dB
Regulation	FCC	Mean Aggregate Data Rate	200.0 Mbps
Modulation	Adaptive	Annual Link Availability	99.9988 %
Bandwidth	30 MHz	Annual Link Unavailability	6.4 mins/year
Total Path Loss	138.12 dB	Prediction Model	ITU-R

Performance Charts





Climatic Factors, Losses and Standards			
dN/dH not exceeded for 1% of time	-311.25 N units/km	Annual 2-way Availability	99.9988 %
Area roughness 110x110km	1.89 metre	Annual 2-way Unavailability	6.4 mins/year
Geoclimatic factor	8.28e-04	Rain Availability	100.0000 %
Fade Occurrence Factor (P0)	5.78e-01	Rain Unavailability	0 secs/year
Path inclination	0.10 mr	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	66.66 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	137.81 dB	Propagation	ITU-R P.530-12
Gaseous Absorption Loss	0.31 dB	Rain Rate	ITU-R P.837-5
Link Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9
Excess Path Loss	0.00 dB		

Part Number	Qty	Description
(no part number)	2	Unspecified Lower 6 GHz ODU (invalid TX frequency selection). Please select a TX frequency
(no part number)	2	Unspecified Mains Lead (set the region in the Bill of Materials options)
01010419001	2	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
07009304001	2	Hoisting Grip for CNT-400 cable
30010194001	2	50 Ohm Braided Coaxial Cable - 75 meter
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WB3616	2	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)
WB3622	2	AC-DC Power Supply Convertor (no lead cable included). Converts 110/230V to 48V.

(continued)

Part Number	Qty	Description
WB3657	2	LPU END KIT PTP800 (1 kit required per Coaxial cable)

Disclaimer

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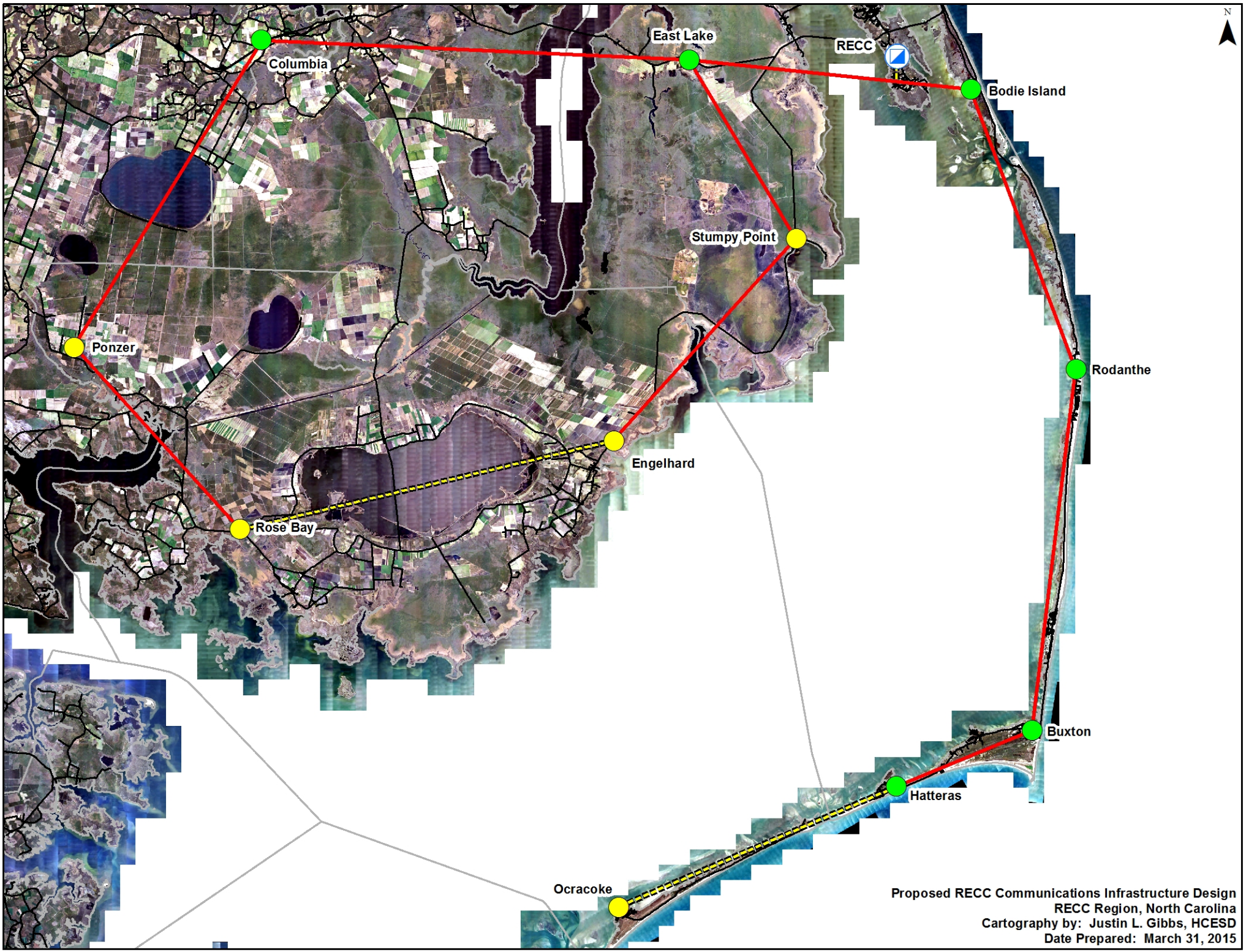
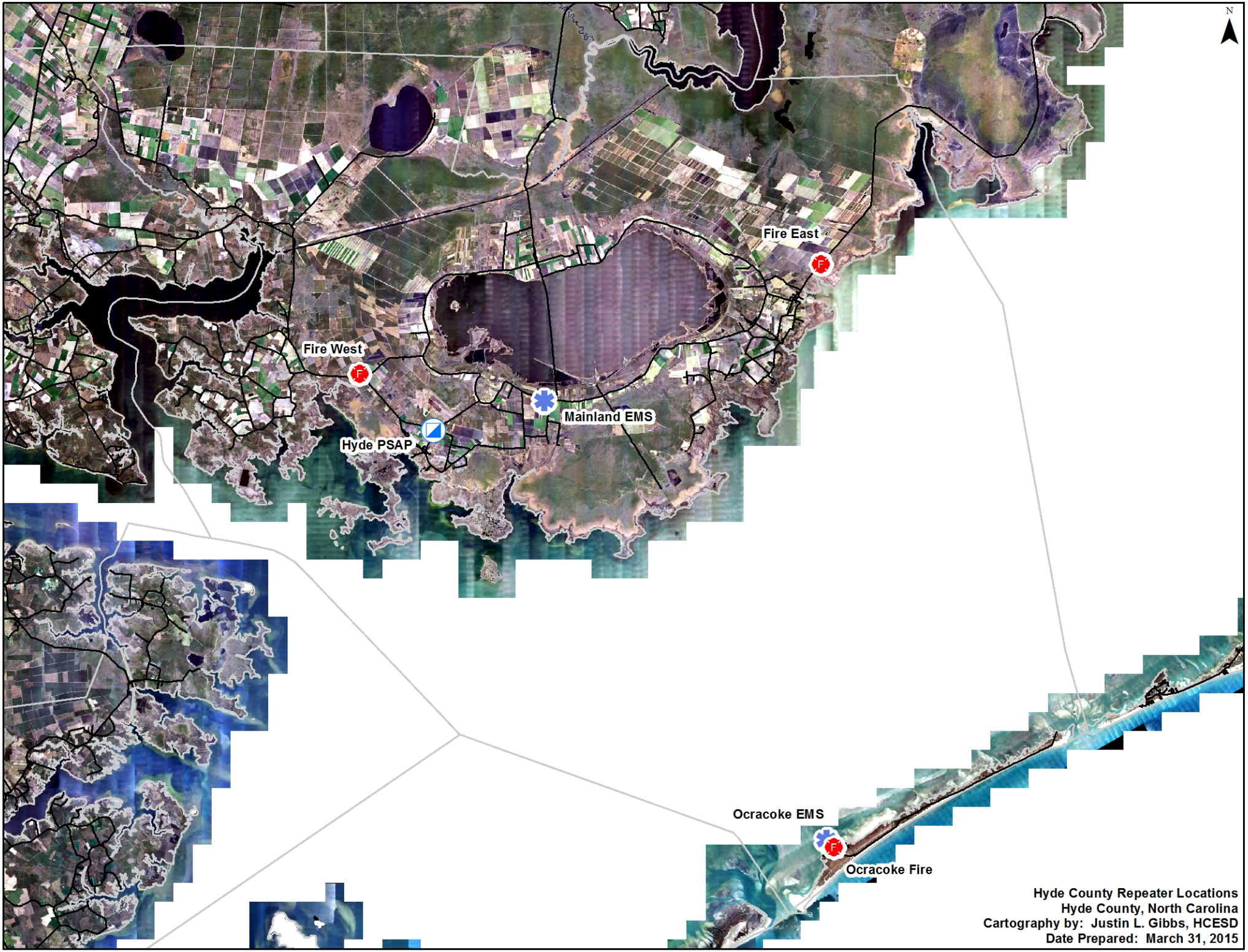
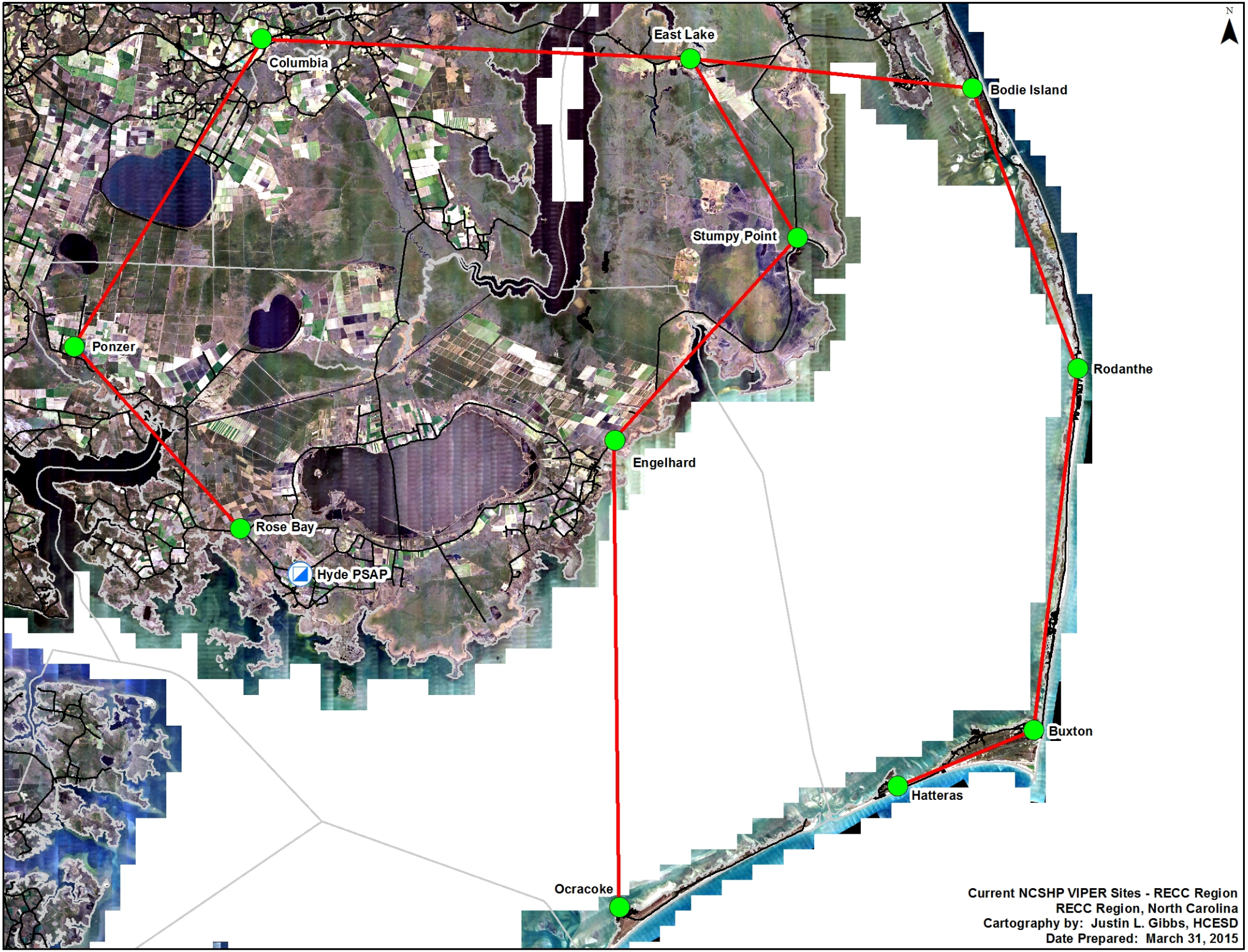


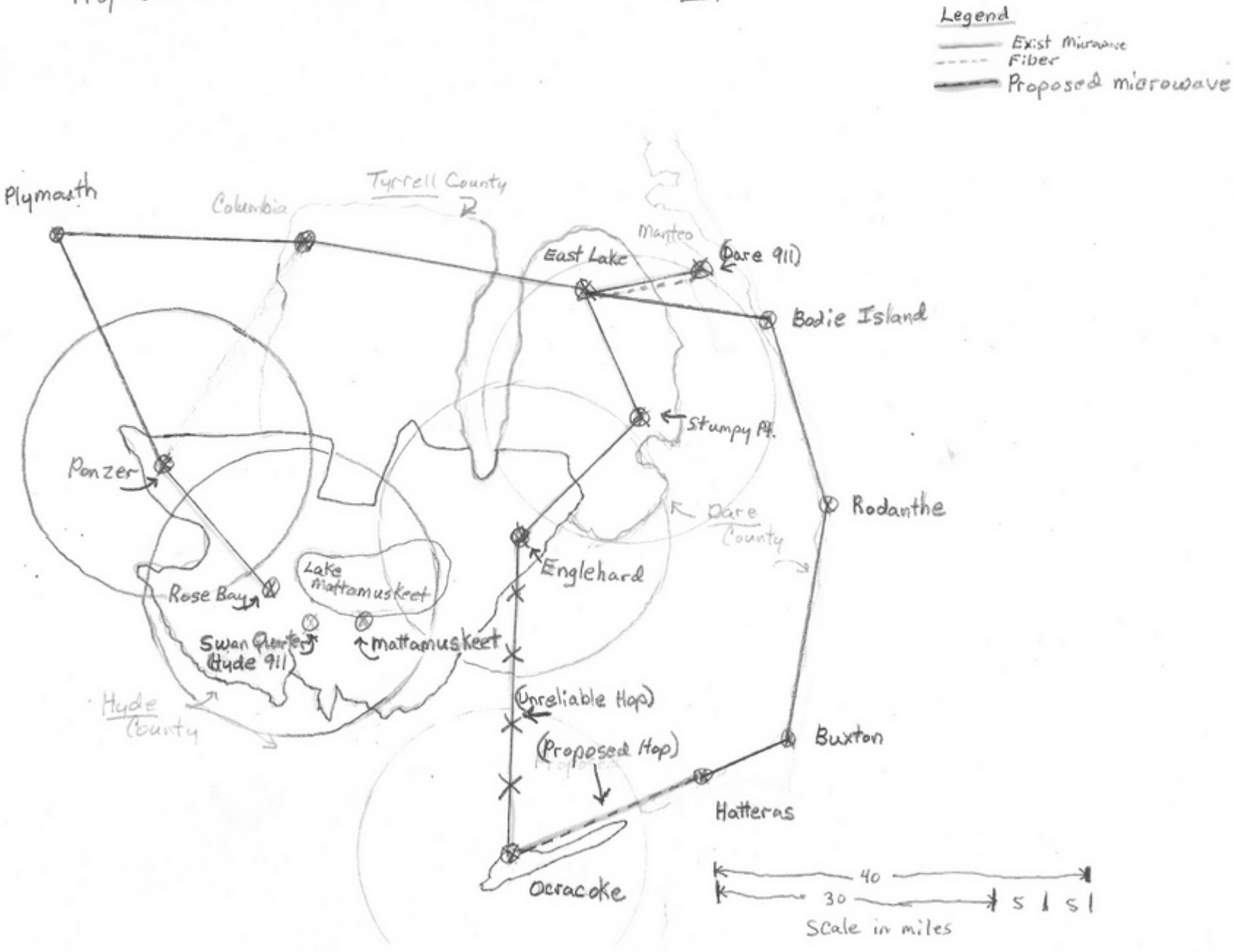
Proposed RECC Communications Infrastructure Design
RECC Region, North Carolina
Cartography by: Justin L. Gibbs, HCESD
Date Prepared: March 31, 2015



Hyde County Repeater Locations
Hyde County, North Carolina
Cartography by: Justin L. Gibbs, HCESD
Date Prepared: March 31, 2015


N
Columbia
East Lake
Bodie Island
Stumpy Point
Ponzer
Rodanthe
Engelhard
Rose Bay
Hyde PSAP
Buxton
Hatteras
Ocracoke
Current NCSHP VIPER Sites - RECC Region
RECC Region, North Carolina
Cartography by: Justin L. Gibbs, HCESD
Date Prepared: March 31, 2015

Proposed (5) Site VHF Simulcast Page System (Hyde Fire / EMS)



Appendix 2

Hyde County 911 Fund Information

HYDE COUNTY

2014-2015 BUDGET - **EXPENSES**

ACCT #	ACCOUNT NAME	2010-2011 ACTUAL EXPENDITURES	2011-2012 ACTUAL EXPENDITURES	2012-2013 ACTUAL EXPENDITURES	2013-2014 APPROVED BUDGET	2013-2014 AMENDED BUDGET	2013-2014 AS OF 1/31/2014	2014-2015 DEPARTMENTAL APPROVED
747200.0000	**E-911**							
.1100	TELEPHONE SYSTEM MAINTENANCE				8,000.00	8,000.00	7,937.56	8,000.00
.1101	TELEPHONE REPAIR COSTS				7,000.00	7,000.00	4,880.75	5,000.00
.1102	NON-RECURRING TELEPHONE COSTS				34,000.00	34,000.00	33,177.34	7,319.06
.1103	TELEPHONE SERVICE PROVIDER COSTS				25,000.00	25,000.00	9,758.60	34,000.00
.1400	TELECOMMUNICATOR FURNITURE				2,000.00	2,000.00		
.1500	HARDWARE & SOFTWARE MAINTENANCE				15,000.00	15,000.00		10,000.00
.1501	HARDWARE & SOFTWARE REPAIR COSTS				5,000.00	5,000.00	2,390.75	4,000.00
.1502	NON-RECURRING HARDWARE & SOFTWARE COSTS				3,000.00	3,000.00	2,085.96	2,500.00
.1503	HARD AND SOFTWARE OPERATIONAL				2,000.00	2,000.00	200.00	1,500.00
.9800	TRAINING				2,500.00	2,500.00		
.9900	FUNCTIONAL COSTS				25,592.58	25,592.58		25,592.58
TOTAL	**E-911**	**-**	**-**	**-**	**129,092.58**	**129,092.58**	**60,430.96**	**97,911.64**