State of North Carolina Department of Health and Human Services

Division of Health Benefits (NC Medicaid)

North Carolina Medicaid Electronic Health Record Incentive Program Implementation Advance Planning Document-Update – FFYs 2019-2020

Submitted by:

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1 Executive Summary

This Implementation Advance Planning Document (I-APD) is being submitted by the North Carolina Department of Health and Human Services (NC DHHS), Division of Health Benefits (NC Medicaid) to request Federal Financial Participation (FFP) from the Centers for Medicare and Medicaid Services (CMS) for administrative costs to support design, development, testing, implementation, administration, and audit activities for the North Carolina Medicaid Electronic Health Record (EHR) Incentive Program authorized by the American Recovery and Reinvestment Act of 2009 (ARRA), (Pub. L. 111-5) enacted on February 17, 2009. The Health Information Technology (HIT) Incentive Program Title IV of this law established a program to promote the use of HIT and certified electronic health record technology (CEHRT) among Medicaid providers.

Centers for Medicare & Medicaid Services (CMS) is overhauling and streamlining the Electronic Health Record (EHR) Incentive Program. The goal is to move the program beyond requirements for meaningful use (MU) to increase focus on interoperability and improving patient access to health information. To better reflect this focus, effective April 24, 2018, CMS renamed the Medicaid EHR Incentive Program to the Promoting Interoperability Program (PIP). Please note, while the EHR Incentive Program is part of the Promoting Interoperability Program, we will still operate under the name NC Medicaid EHR Incentive Program.

This I-APD describes the activities and funding to implement and administer the program during Federal Fiscal Years (FFYs) 2019-2020.

NC DHHS has a vested interest in the progress of HIT both at the state and national levels and understands and accepts the responsibility to efficiently utilize available federal dollars for administration of incentive payments to Medicaid providers. NC DHHS commits to use the funds for the purposes of administering the incentive payments and enabling the meaningful use of CEHRT by Medicaid providers. NC DHHS agrees to continue development of appropriate oversight mechanisms, including detailed tracking of provider registration, attestation, and data collection, which will continue beyond implementation of CEHRT to ensure measurable operational value and improved patient care.

This I-APD describes the following areas pertinent to the NC Medicaid EHR Incentive Program implementation:

1. Results of the Medicaid HIT Planning Advanced Planning Document (P-APD);
2. Statement of needs and objectives with an overview of the current environment;
3. Summary of functional, technical, and interface requirements, including an overview of the alternatives analysis;
4. Summary of program management;
5. Proposed activity schedule;
6. Proposed budget, including personnel requirements; and,
7. Prospective cost allocation plan.

This I-APD was constructed and will be updated in parallel with the North Carolina State Medicaid HIT Plan (SMHP).

This I-APD update requests FFP $10,837,307 at 90 percent in HITECH funds for FFYs 2019-2020.

A total of $40,074,092 (FFP $36,066,682 at 90%) in HITECH (administrative and HIE) and MMIS funds was previously approved by CMS for North Carolina for FFYs 2011-2014. This amount contained $30,118,150

(FFP $27,106,335 at 90%) in administrative funding approved in a CMS letter dated December 27, 2010, and $1,712,196 (FFP $1,540,976 at 90%) in HIE support approved in a CMS letter dated March 1, 2012. CMS re-approved administrative funding for FFYs 2012-2013 in an amount not to exceed $12,079,732 (FFP $10,871,759 at 90%) in a CMS letter dated July 6, 2012. CMS re-approved administrative funding for FFY 2014 in an amount not to exceed $8,243,746 (FFP $7,419,371 at 90%) in a CMS letter dated August 14, 2013. Total project spend in FFY 2011 was $6,240,511 (FFP $5,616,460 at 90%). Total project spend in FFY 2012 was $3,315,286 (FFP $2,983,757 at 90%). Total project spend in FFY 2013 was $4,312,069 (FFP $3,880,862 at 90%). Total project spend in FFY 2014 was $2,258,018 (FFP $2,032,216 at 90%). Total project spend in FFY 2015 was $3,371,416 (FFP $3,034,274 at 90%). Total project spend in FFY 2016 was $4,065,724 (FFP $3,659,152 at 90%). Total project spend in FFY 2017 was $3,741,348 (FFP $3,367,213 at 90%). Total project spend in FFY 2018, as of June 15, 2018, was $2,448,793 (FFP $2,203,914 at 90%).

A separate HIE-IAPD regarding the NC HIEA was submitted April 4, 2017 and approved June 1, 2017.

Current HIT IAPDU Request Summary FFY 2019:

	State Share	Federal Share	Total Computable
HIT Activity			
Staff and Related Expenses	$370,397	$3,333,574	$3,703,971
Contracted Services	$230,205	$2,071,842	$2,302,047
Total HIT Activity	**$600,602**	**$5,405,416**	**$6,006,018**
MMIS and /or HIE Activity			
MMIS Activity from Appendix A	$0	$0	$0
HIE Activity from Appendix D	2019 HIE IAPD to be submitted separately by 12/31/18		
Program Total Cost	**$**	**$**	**$**

Current HIT IAPDU Request Summary FFY 2020:

	State Share	Federal Share	Total Computable
HIT Activity			
Staff and Related Expenses	$373,339	$3,360,049	$3,733,388
Contracted Services	$230,205	$2,071,842	$2,302,047
Total HIT Activity	**$603,543**	**$5,431,891**	**$6,035,435**
MMIS and /or HIE Activity			
MMIS Activity from Appendix A	$0	$0	$0
HIE Activity from Appendix D	2019 HIE IAPD to be submitted separately by 12/31/18		
Program Total Cost	**$**	**$**	**$**

2 Results of Activities included in the Planning Advance Planning Document (P-APD) and SMHP

2.1 P-APD Activity Summary

NC DHHS' Medicaid submitted a HIT Planning APD (P-APD), #20100122P-00, on January 22, 2010. This P-APD was approved by CMS on February 9, 2010, and included the following planning tasks:

1. Provider Outreach to include broad-brushed surveying and input from providers for assessment of provider readiness and "shovel ready" ideas for practical EHR and HIT applications within their professional environments;
2. Consumer Outreach to include focus groups of recipients and/or recipient family members to assess consumer specific educational needs and to develop ideas for consumer educational materials and tools;
3. Development of the North Carolina SMHP, beginning with an "As-Is" landscape assessment and baseline measurement of the current use of HIT in North Carolina to facilitate gap analysis for a "To-Be" vision and roadmap plan, inclusive of the activities necessary to deliver incentive payments to meaningful users of CEHRT who see the requisite Medicaid patient volume;
4. Development of the HIT I-APD to implement activities identified in the SMHP necessary to support the state's HIT "To-Be" vision; and,
5. Creation of a strategy to develop the necessary operational infrastructure support and program audit requirements to monitor results at each step of the operational plan.

The P-APD was officially closed out with CMS on September 26, 2011.

Table 1 below was taken from the P-APD, and outlines the HIT high-level task activities and deliverables. This table has been updated with actual activities completed during the planning phase of Medicaid HIT activities in 2010.

Task	Expected Deliverable	Actual Activity/Deliverable
Coordinate and Prepare SMHP	As part of the creation of the SMHP: 1. "As-Is" and "To-Be" HIT landscapes; and, 2. HIT roadmap outlining tasks and milestones to reach the "To-Be" condition over the next five years.	SMHP submitted to and approved by CMS.
Prepare an Environmental survey for current status of EHR and Health Information Exchange (HIE) capabilities within North Carolina	An acceptable estimate of the current state of the incidence and use of EHR and HIE within the state. This information will be the basis of the work to be done to achieve the end goal.	To determine the current status of North Carolina's "As-Is" HIT landscape, NC Medicaid developed and participated in two surveys of NC Medicaid providers. One pertained specifically to EHR usage and the second pertained to broadband availability and included questions on EHR use. As of Nov 1, 2010, 2,133 EHR surveys had been compiled. These surveys indicated that 49 percent of respondents currently used EHRs and an additional 14 percent planned to begin use within a year following survey completion. The broadband survey was not limited to Medicaid or healthcare providers; however, 1,136 of the respondents indicated that their establishments provided healthcare services. Of these, all but six had access to broadband internet connectivity, and

Task	Expected Deliverable	Actual Activity/Deliverable
		38-73 percent reported use of EHRs (variance based on practice type). Full survey results are described in the SMHP.
Create a methodology to administer the Medicaid EHR Incentive Program	Planning/implementation approach and technical architecture.	High-level definition of NC-MIPS was completed in July 2010, which included an alternatives analysis of software solutions. The selected approach is described in the SMHP and I-APD.
Identify best operational mechanisms for monitoring federal and state-specified meaningful use criteria. Document demonstration of achieving meaningful use at the provider level	A solution that is mainly automated in nature in order to minimize the human labor that is needed to monitor and report on each provider.	The operational strategy and monitoring of meaningful use is under development for implementation in Year 2. Year 1 of the EHR Incentive Program is limited to Adopt, Implement, and Upgrade of CEHRT.
Provider Education	A plan for high-level provider consumer education, to include: 1. Draft of the proposed training curriculum; 2. Draft of high-level samples of training aids and documentation for presentations; 3. Draft proposal on content of a web-based training program; and, 4. Media campaign plan for provider education.	The plan for provider consumer education is described in the SMHP. A provider website has been established for communications and questions regarding the Medicaid EHR Incentive Program, and a program FAQ document has been created. HIT announcements have been included in monthly Medicaid Bulletins, and information about the program can be found at three different websites: • NC Medicaid; • NCTracks (enrollment); and, • State HIT site.

Table 1 - P-APD High Level Task Activity

2.1.1 P-APD Funding Summary

Table 2 below summarizes approved, expended, and remaining P-APD funding. In summary, NC DHHS was more efficient in planning for HIT than originally estimated. For the planning phase of the project, the total cost was $847,012 (FFP $762,311 at 90%). NC DHHS completed the planning phase with $1,708,108 in unspent P-APD funds (FFP $1,537,297 at 90%).

Activity Type	FFY 2011 Approved P-APD		
	State	Federal	Total
State Employees	25,190	226,710	251,900
Contracted State Staff	23,760	213,840	237,600

Vendor (CSC)	196,372	1,767,348	1,963,720
Hardware & Software Costs	440	3,960	4,400
Direct Non-Personnel Costs (Rent, Supplies, Telephone, Travel)	19,510	75,590	95,100
Indirect Costs (Allocated Personnel, Furniture)	1,200	1,200	2,400
Total Project Costs	**$266,472**	**$2,288,648**	**$2,555,120**
	P-APD Expenditures to Date		
Activity Type	**State**	**Federal**	**Total**
State Employees	10,213	91,918	102,131
Contracted State Staff	50,804	457,239	508,043
Vendor (CSC)	22,707	204,362	227,069
Hardware & Software Costs	0	0	0
Direct Non-Personnel Costs (Rent, Supplies, Telephone, Travel)	977	8,792	9,769
Indirect Costs (Allocated Personnel, Furniture)	0	0	0
Total Project Costs	**$84,701**	**$762,311**	**$847,012**
	Remaining P-APD Funding		
Activity Type	**State**	**Federal**	**Total**
State Employees	14,977	134,792	149,769
Contracted State Staff	(27,044)	(243,399)	(270,443)
Vendor (CSC)	173,665	1,562,986	1,736,651
Hardware & Software Costs	440	3,960	4,400
Direct Non-Personnel Costs (Rent, Supplies, Telephone, Travel)	8,533	76,798	85,331
Indirect Costs (Allocated Personnel, Furniture)	240	2,160	2,400
Total Project Costs	**$170,811**	**$1,537,297**	**$1,708,108**

Table 2 - P-APD Funding Summary

IAPD Summary Funding Tables for FFYs 2017-2018:

EHR INCENTIVE PROGRAM: FFY 2017 -IAPD STATUS									
ACTIVITY TYPE	**APPROVED IAPD**			**IAPD EXPENDITURES**			**REMAINING IAPD FUNDING**		
	State	**Federal**	**Total**	**State**	**Federal**	**Total**	**State**	**Federal**	**Total**
HIT Implementation and Operation: Cost of In-house Activities	$345,863	$3,112,768	$3,458,631	$163,446	$1,471,010	$1,634,455	$182,418	$1,641,758	$1,824,176
HIT Implementation and Operation: Cost of Private Contractors Activities	$225,049	$2,025,439	$2,250,488	$210,689	$1,896,204	$2,106,893	$14,360	$129,236	$143,595
PROGRAM TOTAL	**$570,912**	**$5,138,207**	**$5,709,119**	**$374,135**	**$3,367,213**	**$3,741,348**	**$196,777**	**$1,770,994**	**$1,967,771**

EHR INCENTIVE PROGRAM: FFY 2018 -IAPD STATUS (as of 6/15/2018)									
ACTIVITY TYPE	**APPROVED IAPD**			**IAPD EXPENDITURES**			**REMAINING IAPD FUNDING**		
	State	**Federal**	**Total**	**State**	**Federal**	**Total**	**State**	**Federal**	**Total**
HIT Implementation and Operation: Cost of In-house Activities	$345,863	$3,112,768	$3,458,631	$108,012	$972,105	$1,080,117	$237,851	$2,140,663	$2,378,514
HIT Implementation and Operation: Cost of Private Contractors Activities	$231,927	$2,087,339	$2,319,266	$136,868	$1,231,808	$1,368,676	$95,059	$855,531	$950,590
PROGRAM TOTAL	**$577,790**	**$5,200,107**	**$5,777,897**	**$244,879**	**$2,203,914**	**$2,448,793**	**$332,910**	**$2,996,194**	**$3,329,104**

3 Statement of Needs and Objectives

3.1 Current Environment Summary

The North Carolina Medicaid EHR Incentive Payment System (NC-MIPS) was built in 2010-2011 and managed and housed at the Office of Medicaid Management Information Systems Services. North

Carolina implemented a replacement MMIS called the NC Transparent Reporting, Accounting, Collaboration, and Knowledge Management system (NCTracks). NCTracks went live in July 2013.

In 2013, NC-MIPS moved to state servers to achieve cost savings. Program management—including policy, outreach, monitoring, and oversight—is provided by the NC Office of Health Information Technology (NC OHIT) with support from NC Medicaid Budget, Hearings, and DHHS IT staff. For more about the Program's organization, see *Section C.1* in the NC SMHP. NC-MIPS is maintained in-house and began accepting Program Year 2018 attestations for Modified Stage 2 MU and Stage 3 MU in May 2018. (Note: all SMHP references in this document refer to version 4.3 unless otherwise specified.)

NC OHIT will continue working closely with the North Carolina Health Information Exchange Authority (NC HIEA) in FFYs 2019 – 2020. The NC HIEA was created in Session Law 2015-241 s. 12A.4 and 12A.5 in September 2015 to oversee and administer North Carolina's HIE. On February 29, 2016, the NC HIE transitioned from the Community Care of North Carolina (CCNC) / North Carolina Community Care Networks (N3CN) structure to the new statewide NC HIEA. Currently, the NC HIEA is in the process of establishing new HIE guidelines, services, and stakeholder agreements and is working diligently to onboard health care providers who want to connect for the first time.

NC's HIE IAPD update covering NC HIEA and NC HealthConnex funding will be submitted by December 31, 2018.

3.2 New System Needs, Objectives, and Anticipated Benefits

The staff of the NC Medicaid EHR Incentive Program plans and executes NC-MIPS development and enhancement efforts. The objectives of the NC-MIPS development effort—present and future—include the following:

- Enhance NC-MIPS to quickly accommodate state and federal program changes (ongoing);
- Enhance NC-MIPS to accommodate pre- and post-payment attestation validation workflow documentation (ongoing);
- Enhance NC-MIPS2 database to accommodate communication with the CMS Registration & Attestation (R&A) System, and thus synced federal and state program databases (ongoing); and
- Continue to improve and automate the system for optimal efficiency and cost containment (ongoing).

Tables within NC-MIPS2 database were created to store data elements required for the registration, attestation, and incentive payment calculations, providing a complete audit trail of all activities. A Service Oriented Architecture (SOA) was used to build NC-MIPS, ensuring easy integration with NCID in 2013 and other state systems as needed.

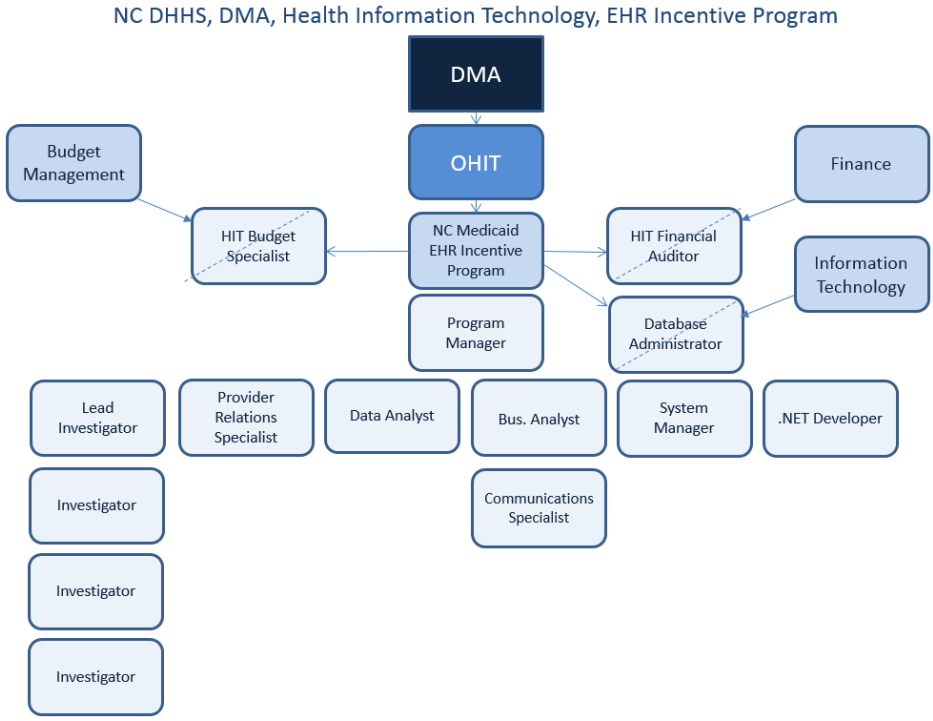
Past and future benefits of this approach include:

- A quick and flexible implementation of NC-MIPS (completed);
- Ability to meet an aggressive CMS testing schedule for the National Level Repository (NLR) interfaces (completed); and,
- Accelerated design, development, testing, and implementation by building the solution in overlapping iterative phases (ongoing).

For more on NC-MIPS activities, see *Section C.4* of the SMHP.

3.3 Program Management and Oversight Activities

As stated in the SMHP, the NC Medicaid EHR Incentive Program management and oversight, including policy and outreach around HIT efforts, is carried out by the NC Medicaid HIT Team in collaboration with various stakeholder organizations. For more information on the HIT Team structure and roles/responsibilities, please below.



Office of Health Information Technology (OHIT) Director

Responsible for developing a state plan for implementing and ensuring compliance with national HIT standards and for the most efficient, effective, and widespread adoption of HIT; identifying available resources for the implementation, operation, and maintenance of HIT; and monitoring HIT efforts and initiatives in other states and replicating successful efforts and initiatives in North Carolina. Works closely with NC HIEA in coordinating efforts toward legislatively mandated connections.

Roles and Responsibilities of the Program team

All team staff time is dedicated to the NC Medicaid EHR Incentive Program, HIT projects described in the SMHP, and developing other HIT/HIE projects, e.g., emPOWER and PULSE. Staff who contribute part-time complete timesheets to document accurate distribution of effort and funds. This timesheet data goes through a cost allocation program to charge the appropriate amount of payroll expenses to the correct cost centers. Where projects are eligible for various Federal Financial Participation (FFP) rates (i.e., 90 percent administrative, 100 percent incentive payments), this is specified in the last node of the cost center number such that the invoice reviewer codes the payment with the proper FFP funding.

Program Manager

Responsible for the overall planning, implementation, and management of the NC Medicaid EHR Incentive Program. Core responsibilities include: directing activities of the Program team toward federal EHR

Incentive Program goals, ensuring program compliance, and acting as the Program contact for CMS and other states.

Data Analyst

Designs and leads data analytics for the NC Medicaid EHR Incentive Program, including NC-MIPS metrics reporting, MMIS data warehouse research, and data synthesis for outward/upward distribution. Tracks and analyzes program performance metrics.

Communication Specialist

Crafts and executes the Communication Plan for the NC Medicaid EHR Incentive Program, including messaging, provider outreach, program website, articles, bulletins, and communication with key stakeholders and partners. Assists all other roles with external communication such as correspondence templates and training and internal documentation review.

Systems Manager

Responsible for tracking maintenance and enhancement projects for NC-MIPS and AVP, QA testing, facilitating communication between Program team and Information Technology Division staff, managing server maintenance and upgrade projects, and maintaining documentation related to program's servers, hardware, and software.

Senior .NET Developer

Serves as the lead technical resource for the NC Medicaid EHR Incentive Program in support of all maintenance and enhancement development for NC-MIPS and the attestation validation portal (AVP) including software building, release management, and developer testing including source code management.

Business Analyst

Responsible for creating all documentation used by developers for maintenance and enhancement of NC-MIPS and AVP including responding to CMS changes, updating system design and user documentation, and creating test cases and performing QA testing.

Budget Specialist

Part-time employee; manages the budget for the NC Medicaid EHR Incentive Program, monitors accuracy of incentive payments, provides regular financial reporting and forecasting to program manager, and conducts all CMS financial reporting related to the Program, including CMS 37 and 64 reports.

Financial Auditor

Part-time employee; serves as the subject matter expert for hospital payment calculations for the NC Medicaid EHR Incentive Program. Calculates payments for hospitals, creates policy around NC-specific hospital eligibility and attestation requirements, and conducts outreach with hospitals as necessary.

Provider Relations Specialist

Heads up the help desk for the NC Medicaid EHR Incentive Program. Responsible for overseeing the pre-payment validation process, including eligibility determination, provider outreach efforts, denials, and eligibility appeals and hearings.

Lead Investigator

Heads up the team of investigators who conduct pre- and post-payment validations and audits. Responsible for risk analysis, audit scheduling, representing NC Medicaid at audit-related meetings and hearings, and conducting validations and audits with the investigators.

Investigators

Conduct pre- and post-payment validations for professionals and pre-payment processes for hospitals; oversee recoupment of payment in the case of adverse post-payment review findings.

Activities covered in this I-APD for planning, support, and continued definition of the State's ongoing HIT efforts include:

- Updates to the SMHP and I-APD for scope and requirement changes and for subsequent phases, to include meaningful use capture and verification;
- Business process modeling for all phases of the project including provider support for registration and attestation, quality assurance, audit, appeals, payment processing, budget preparation and reporting, clinical oversight, and meaningful use data analysis;
- Support of the Program Help Desk and provider outreach efforts;
- Planning and execution of a state-level HIT/HIE conference;
- Hosting various HIT stakeholder meetings and workgroups;
- Continuous improvement of the quality assurance process used to validate incentive payments pre-payment;
- Program Integrity audits covering verification of eligibility, attestation data, and adopt, implement, or upgrade (A/I/U) and meaningful use requirements;
- Design and implementation of the appeals process for denial of incentive payments;
- Coordination with the NC HIEA to develop plans to achieve goals such as:
    - Ramp up connectivity between Medicaid providers and the NC HIE;
    - Capture and report clinical quality measure data to support incentive payment eligibility;
    - Design, develop, and implement essential public health interfaces to the NC HIE; and,
- Use of clinical data obtained through EHRs to impact Medicaid policy and patient care, including participation in the Medicaid Evidence-based Decision Project (MED Project) and the Drug Effectiveness Review Project (DERP); and,
- Conducting follow-up environmental scans to track EHR adoption and provider experiences statewide.

For more on HIT program activities, see *Section C* of the SMHP.

Updates to the SMHP and this I-APD will occur as needed; for example, an update is planned for programs that would fall under the Leveraging Medicaid Technology to Address the Opioid Crisis State Medicaid Director (SMD-180006).

3.4 Approved North Carolina HIT Projects and Anticipated Benefits

3.4.1 A New State HIT Website

NC DHHS has created a statewide HIT website to provide information on meaningful use and HIT in public health. The vision for the site is to show the progress of HIT activities within the state. The site will be designed as a central point of contact for HIT, with project summaries and links to serve as a reference for

parties interested in HIT and HITECH progress in NC. There are currently no associated costs for which we are requesting additional HITECH funds.

3.5 New North Carolina HIT Projects and Anticipated Benefits

3.5.1 MU^2 and the North Carolina Regional Extension Center

Completing Modified Stage 2 in 2018 and moving forward with Stage 3 of Meaningful Use, North Carolina recognizes that HITECH is about much more than just using certified EHR technology to collect and submit clinical data; it's about improving health outcomes. It is with this goal in mind that North Carolina proposes to leverage the North Carolina Area Health Education Centers' (NC AHEC) Regional Extension Center (REC) existing infrastructure and strong history of adult learning to continue the work done in Stage 1 and Stage 2 into Stage 3 of Meaningful Use, promoting the electronic exchange of health information to improve the quality and lower the cost of health care in North Carolina. NC believes these projects will approximate the federal objective of making "meaningful use of Meaningful Use," or MU^2.

The objectives tied to these initiatives are as follows:

- Help NC eligible professionals with Modified Stage 2 in Program Year 2018 and Stage 3 of Meaningful Use in Program Year 2019 and beyond;
- Expand the reach of AHEC consultants beyond primary care providers to community-based specialists;
- Continue to promote patient engagement through use of electronic patient portals;
- Remove vendor-specific barriers to the achievement of all stages of Meaningful Use;
- Bring NC Medicaid information into quarterly NC AHEC collaborative meetings at targeted AHEC locations to address Medicaid and safety net providers to inform them about DHHS and NC Medicaid HIT initiatives.

NC Medicaid believes the benefits of these initiatives are substantial and requests funding for participation in these projects in the amount of $$2,071,842 in 90 percent federal funding for FFY 2019 and $2,071,842 in 90 percent federal funding for FFY 2020. The total cost for FFYs 2019 and 2020, including 10 percent state match, will be $4,604,094.

For more detail on each objective, see *Section B.5.1* of the SMHP. Associated costs can be found in *Section 7.1, Table 11* of this I-APD under line item "NC AHEC."

3.5.2 HITECH Safety Net Providers and the North Carolina Office of Rural Health

The North Carolina Office of Rural Health (ORH) helps rural and underserved communities to develop innovative strategies for improving access, quality, and cost-effectiveness of health care. ORH heard the call to action of the Office of the National Coordinator for Health IT (ONC) regarding the Meaningful Use Challenge in critical access and small rural hospitals. Together with the AHEC, ORH has provided the expertise and leadership essential for realizing ONC's goal of 1,000 critical access and rural hospitals participating in the EHR Incentive Programs by the end of 2014.

Now, NC Medicaid has approved funding five (5) permanent FTE positions within the ORH: one (1) Rural HIT Program Manager, one (1) Rural Health Clinical Quality Improvement Specialist, three (3) Rural HIT Specialists, and one (1) Administrative Assistant to address the needs of the rural safety net providers in NC. ORH has also identified the need for an additional position to serve as a Telehealth Specialist to address telehealth needs across the state. The Rural Health IT Team will:

- Assess, inventory, anticipate, and prioritize safety net providers' technical, operational, organizational, clinical, hardware, applications, and funding HIT needs; identify services and resources for resolving any gaps and build out needed infrastructure, while keeping patient information protected and secure,
- Link multiple efforts such as broad band, Meaningful Use, HIE connectivity and use, development of quality dashboards, building infrastructure to use telehealth to expand access to key missing services (i.e. eye exams for rural diabetic patients, telepsychiatry, remote patient monitoring, etc.) Collaborate with key business partners to support the Department's programs and new initiatives
- Contribute to the development of expert knowledge, frameworks, and strategies for quality improvement (QI), analytics, and reporting
- Plan, conduct, arrange, and participate in trainings/webinars and/or identify qualified trainers for key topics (e.g., QI, EHR, MU, MACRA, NC HIE, and maximizing the use of clinical and claims data to improve the quality of patient care)
- Assist safety net providers in attesting to Meaningful Use and/or other value-based care initiatives
- When appropriate, link resources and assist with PCMH certification
- Serve as the primary contact for safety net providers participating in North Carolina's universal EHR platform (if developed)
- Develop, oversee, and monitor all contracts (i.e. HIE Participation Agreements)
- Serve as the subject matter expert and point of contact for telehealth efforts across North Carolina
- Collaborate with key stakeholders and report recommendations for telemedicine to the Joint Legislative Oversight Committee on Health and Human Services, due September 1, 2019

ORH has committed to providing the 10 percent state match required by the acceptance of 90 percent Federal Financial Participation (FFP). To meet the requirements above, the Rural HIT Team positions are budgeted at a combined annual salary and benefit package of $1,076,049 (benefits calculated at 28%). The total budget includes costs for staff travel, training events and materials, equipment, contractual support, software, and supplies totaling $378,832. The total funding request herein for FFYs 2019-2020 is $2,909,762 ($2,618,785 FFP + $290,976 ORH match). The funding request for FFY 2019 is $1,454,881 ($1,309,393 FFP + $145,488). The funding request for FFY 2020 is $1,454,881 ($1,309,393 FFP + $145,488). NOTE: More detail on the role that these five staff would play in engaging rural providers in HIT efforts is provided in the SMHP. Due to HR delays in creating and filling state positions, ORH's actual costs had been lower than the funding requested. In 2017, ORH was able to fill the first position. A second position was filled in 2018. ORH continues to work toward filling all positions for which funding is requested. Associated costs can be found in Section 7.1, Table 11 of this I-APD under line item "ORH."

3.5.3 MU^2 and the Medicaid Evidence-Based Decision and Drug Effectiveness Review Projects

NC Medicaid is requesting funding to continue participation in two initiatives coordinated by the Oregon Health Sciences University's Center for Evidence-based Policy. These are the Medicaid Evidence-based Decision Project (MED Project) and the Drug Effectiveness Review Project (DERP). The MED Project is a collaboration of 18 state agencies (Alabama, Alaska, Arkansas, Colorado, Louisiana, Michigan, Minnesota, Missouri, New York, North Carolina, Ohio, Oregon, Rhode Island, Tennessee, Texas, Washington, West Virginia, and Wisconsin), primarily Medicaid, with a mission to provide policy-makers the tools and resources to make evidence-based decisions. The DERP Project is a collaborative of state Medicaid and

public pharmacy programs that have joined forces to provide concise, comparative, evidence-based products that assist policymakers and other decision-makers facing difficult drug coverage decisions.

DERP is nationally recognized for its clinical objectivity and high-quality research. It focuses on specialty and other high-impact drugs, particularly those that have potential to change clinical practice. DERP reports evaluate efficacy, effectiveness and safety of drugs to ultimately help improve patient safety and quality of care while helping government programs contain exploding costs for new therapies. Many of these reports and activities dovetail with the clinical quality measures on which EPs and EHs must report for demonstrating Meaningful Use under the Medicaid EHR Incentive Program. Expanding availability of evidence-based resources provides North Carolina more robust sources of data and information on which to base sound decision-making around best practices.

NC Medicaid has participated for five years, 2014 through 2018, and believes the benefits of both MED and DERP are substantial. This update requests that funding continue for FFY 2019 and 2020. We request $95,500 for DERP and $153,000 for MED VI for a total of $248,500 ($223,650 FFP). For FFY 2020, we request $105,050 for DERP and $168,300 for MED VI for a total of$273,350 ($246,015 FFP).

For more detail on MED/DERP, see *Section B.5.3* of the SMHP. Associated costs can be found in *Section 7.1, Table 11* of this I-APD under line item "MED/DERP."

4 Statement of Alternative Considerations

In June and July of 2010, North Carolina OMMISS undertook an effort to develop a High-level Definition and Alternative Analysis of NC-MIPS. That document was the basis for much of the information noted above in terms of requirements, functionality, components, and high-level architecture. The conclusion of the analysis was that none of the other state or vendor efforts to create a state-level incentive payment solution were far enough along to either evaluate or estimate effort of trying to share components in order to meet a deadline of August 26, 2010 for CMS interface testing. Therefore, OMMISS decided to move forward with a fast-track design and development effort for NC-MIPS.

In the fall of 2011, NC Medicaid developed another alternatives analysis to examine systems and development options moving forward with Phase 3 and beyond of NC-MIPS. After careful consideration of the opportunities afforded by each approach, NC Medicaid and OMMISS decided to bring all NC-MIPS future development in-house at OMMISS/NC Medicaid and explore leveraging parts of Kentucky's incentive payment solution to enhance and improve the current NC-MIPS. After further research in early 2012, NC Medicaid found Kentucky's solution to be a whole-system replacement and opted to move forward instead with planned NC-MIPS enhancements.

In April 2012, NC Medicaid assumed management of technical development for NC-MIPS from OMMISS. By this time, the NC Medicaid HIT team was fully staffed and both organizations determined it would be more efficient and cost-effective to maintain and enhance NC-MIPS alongside other program staff. This cost savings is reflected in the sharp decrease in MMIS funds requested (largely in the vendor costs category) in Appendix A of this I-APD. The HITECH funding request in Section 7 of this I-APD was adjusted upward in the contract staff and hardware/software line items to accommodate these activities, but at a much lower overall cost.

5 Personnel and Contract Resource Statement

NC DHHS staffs HIT initiatives with state resources tasked in a combination of full and part time to projects. DHHS staff makes up all of personnel contributing to administration and oversight of the NC Medicaid EHR Incentive Program. NC Medicaid's Director, along with the Director of Health IT and the HIT Program Manager, provides executive project management support and represents the project to executive staff.

Additional DHHS staff in Program Integrity, Finance, Budget Management, and Information Technology, provides program support in the areas of outreach, policy, reporting, operations, management, and oversight.

Figure 1 depicts the organizational structure for the Medicaid HIT Program in the context of the NC Department of Health and Human Services.

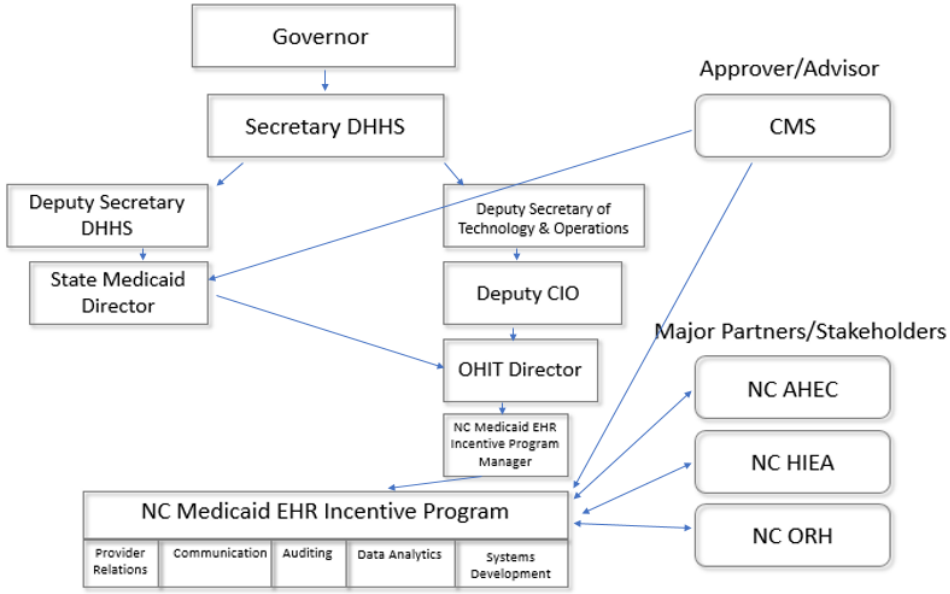


Figure 1 - North Carolina Medicaid HIT Organizational Structure

5.1 State Staffing Requirements

Resource requirements to administer the NC Medicaid EHR Incentive Program include a combination of NC DHHS full-time and part-time staff. **Table 3** below presents a list of state staffing requirements through FFY 2020. When short-term technical resources are needed for the NC-MIPS development effort at NC Medicaid, requisitions occur via the NC Statewide IT Procurement Short Term IT Staffing Contract. In FFY 2017, DHHS created state positions for two key technical resources to maintain the NC-MIPS system and eliminated reliance on contract employees.

	FFY2019			FFY2020		
State Staff Title	% of Time	Project Hours	Cost With Benefits	% of Time	Project Hours	Cost With Benefits
Administration Support	0.5%	66	4,780	0.5%	66	4,780
Hearings and Appeals	7.3%	1,673	58,748	7.3%	1,673	58,748
Financial/Accounting/Audit Support	7.3%	1,669	90,058	7.3%	1,669	90,058
Contracts/Purchasing Support	3.2%	766	31,240	3.2%	766	31,240
IT Security/MMIS/Facilities Support	0.6%	103	3,977	0.6%	103	3,977
HIT Program Manager	100.0%	2,080	132,654	100.0%	2,080	132,654
HIT .NET Developer/Bus & Tech Appl Spec	100.0%	2,080	132,041	100.0%	2,080	132,041
HIT Data Specialist/Bus Systems Analyst	100.0%	2,080	112,363	100.0%	2,080	112,363
HIT System Manager/Bus Systems Analyst	100.0%	2,080	120,595	100.0%	2,080	120,595
HIT Business Analyst/Bus System Analyst	100.0%	2,080	120,595	100.0%	2,080	120,595
HIT Communications Specialist	100.0%	2,080	71,729	100.0%	2,080	71,729
HIT Provider Relations Lead/Admin Off II	100.0%	2,080	89,065	100.0%	2,080	89,065
HIT Lead Investigator/Admin Off II	100.0%	2,080	89,065	100.0%	2,080	89,065
HIT Program Integrity Investigator	100.0%	2,080	80,158	100.0%	2,080	80,158
HIT Program Integrity Investigator	100.0%	2,080	80,158	100.0%	2,080	80,158
HIT Program Integrity Investigator	100.0%	2,080	75,705	100.0%	2,080	75,705
OHIT Director	100.0%	2,080	210,872	100.0%	2,080	210,872
OHIT Technology Lead	75.0%	1,560	119,760	75.0%	1,560	119,760
OHIT Project Manager	50.0%	1,040	53,449	50.0%	1,040	53,449
OHIT Communications Specialist/Webmaster	75.0%	1,560	106,227	75.0%	1,560	106,227
Grand Totals	14.19	33,396	1,783,240	14.19	33,396	1,783,239

Table 3 - State Staffing Requirements

State Staff Title	Description of Responsibilities
NC Medicaid	
Administration Support	Oversees NC Medicaid and Clinical Policy activities
Hearings and Appeals	Conducts impartial informal hearings and appeals for NC Medicaid EHR Incentive Program participants
Financial/Accounting/Audit Support	Provides budget and accounting support for Program participants and OHIT financials
Contracts/Purchasing Support	Provides support for Program and OHIT contracts and purchase orders
IT Security/MMIS/Facilities Support	Provides IT-related support including security and facility maintenance
HIT Program Manager	Oversees NC Medicaid EHR Incentive Program administration and coordinates related OHIT projects
HIT Data Specialist	Designs and leads HIT data analytics; completes CMS transactions and annual report
HIT Systems Manager	Manages server maintenance and upgrade; coordinates NC-MIPS/AVP enhancement; performs QA testing
HIT Communication Specialist	Crafts and executes HIT Communication Plan; including website & outreach
HIT Provider Relations Lead	Heads up help desk; conducts HIT outreach; performs pre-payment validations for Incentive Program
HIT Lead Investigator	Creates and implements pre- and post-payment audit processes for Incentive Program; risk analysis
HIT Program Integrity Investigator	Implements pre- and post-payment audit processes for HIT
OHIT	
OHIT Director	Coordinates HIT efforts in NC; works closely with NC HIEA and HIT stakeholders
OHIT Technology Lead	Advises on technology infrastructure decisions related to integrating state systems with the NC HIE
OHIT Communications/Webmaster	Designs, implements, and manages the enhanced state HIT website
OHIT Project Manager	Manages a diverse portfolio of state HIT initiatives

Table 4- State Staffing Job Descriptions

5.2 Contractor Staffing Requirements

In addition to state personnel, DHHS has in the past employed contractors for incentive payment system support. In 2017, DHHS streamlined technical staff and converted two key positions to state staff to manage updating and ongoing maintenance of NC-MIPS. As of July 2018, there are no contractors employed with the Program, though it is possible that contractors may be needed at some point within FFYs 2019-2020 if State staff attrition becomes an issue. If so, funds budgeted for State staff will be used to backfill with contractors.

5.3 HIT/HIE Contracts

In addition to the above state staff, NC Medicaid has engaged with the University of North Carolina at Chapel Hill Area Health Education Centers (AHEC) to perform a variety of support functions for the HIT Program. As of July 1, 2018, NC Medicaid has executed a contract extension for $2,302,047 for NC State Fiscal Year 2019 (7/1/18-6/30/19). An additional extension is anticipated for SFY 2020 to extend ongoing services through June 30, 2020. AHEC's work focuses on helping NC providers achieve MU and attest for the NC Medicaid EHR Incentive Program as well as other HIT activities. For details, see SMHP A.5.2. We are requesting $4,604,094 for 2019-2020 contracts with AHEC. For personnel resources, the contract includes part-time support from principal investigator, clinical director, HIT manager, project manager, business services coordinator, and programmer in AHEC main office for the state and up to 1.75 FTE technical assistance coach at each of NC's nine regional AHECs.

6 Proposed Activity Schedule

The high-level project plan for HIT-related program and system activities for FFYs 2019-2020 is shown below in **Figure 2**. More detail on these initiatives can be found in Section 3 of this I-APD and in North Carolina's SMHP.

Task	Start	Finish	FFY 2019	FFY 2020
NC-MIPS and Attestation Validation Portal (AVP)				
System updates as required by CMS	2011	ongoing		
Enhancement of NC-MIPS documentation	2013	ongoing		
NC-MIPS open for Prog Year 2018	05/2018	04/2019		
Prog Year 2018 validations (AVP)	05/2018	08/2019		
System updates for Program Year 2019	11/2018	04/2019		
NC-MIPS open for Prog Year 2019	05/2019	08/2020		
Prog Year 2019 validations (AVP)	05/2019	08/2020		
System updates for Program Year 2020	11/2019	04/2020		
NC-MIPS open for Prog Year 2020	05/2020	04/2021		
Prog Year 2020 validations (AVP)	05/2020	08/2021		
Program Oversight & Outreach				
Provider outreach via help desk	11/2010	ongoing		
Pre-payment validation outreach	02/2011	ongoing		
Enhancement of program website	2013	ongoing		
Enhancement and maintenance of MIPS2 db (SLR)	2013	ongoing		
Post-payment audting	02/2013	ongoing		
Prog Year 2018 audit awareness outreach	05/2018	08/2019		
Environmental scan	05/2019	05/2019		
SMHP and IAPD update	05/2019	07/2019		
Prog Year 2019 audit awareness outreach	05/2019	08/2020		
Annual HITECH conference	summer 2019			
Previous calendar year PV outreach for 2019	07/2019	07/2019		
Audit strategy update	07/2019	08/2019		
Environmental scan	05/2020	05/2020		
SMHP and IAPD update	05/2020	07/2020		
Prog Year 2020 audit awareness outreach	05/2020	08/2021		
Annual HITECH conference	summer 2020			
Previous calendar year PV outreach for 2020	07/2020	07/2020		
Audit strategy update	07/2020	08/2020		
Other Projects				
NC AHEC	2014	ongoing		
MED/DERP	2014	ongoing		
NC ORH	2017	ongoing		

Figure 2 - High Level Activity Schedule 2018-2020

In the first quarter of FFY 2019, the NC Medicaid Incentive Program will focus on implementing any Final Rule changes and conducting outreach to providers as well as updating NC-MIPS for Program Year 2019 Stage 3 MU. The second quarter of FFY 2019 will be dominated by processing Program Year 2018 attestations, including validations, outreach, and payment. In the third quarter of FFY 2019, we will close out Program Year 2018 and open Program Year 2019. Though outreach is always ongoing, we conduct special outreach projects in the fourth quarter to encourage participation and provide program updates.

7 Proposed Budget

7.1 Proposed HITECH Project Budget

This section details former projected budget and actuals for FFYs 2011-2017, actuals for FFY 2018 through June 15, 2018, and an estimated budget for FFYs 2019-2020 of the implementation phase of the NC Medicaid EHR Incentive Program. This section includes a summary of state and federal funding distribution and applicable planning assumptions.

Summary Table of Administrative HIT Funding Requested for FFY 2019:

Covers Federal Fiscal Year 2019							
	HIT CMS Share (90% FFP) HIT Administrative Funding	State Share (10%)	HIT CMS Share 90% FFP) HIE Funding	State Share (10%)	HIT ENHANCED FUNDING FFP TOTAL	State Share Total	HIT ENHANCED FUNDING TOTAL
	24C & 24D		24C & 24D				
FFY 2019	$5,405,416	$600,602	submitted separately		$5,405,416	$600,602	$6,006,018
TOTAL FFY 2019	$5,405,416	$600,602	submitted separately		$5,405,416	$600,602	$6,006,018

Summary Table of Administrative HIT Funding Requested for FFY 2020:

Covers Federal Fiscal Year 2020							
	HIT CMS Share (90% FFP) HIT Administrative Funding	State Share (10%)	HIT CMS Share 90% FFP) HIE Funding	State Share (10%)	HIT ENHANCED FUNDING FFP TOTAL	State Share Total	HIT ENHANCED FUNDING TOTAL COMPUTABLE
	24C & 24D		24C & 24D				
FFY 2020	$5,431,891	$603,543	submitted separately		$5,431,891	$603,543	$6,035,435
TOTAL FFY 2020	$5,431,891	$603,543	submitted separately		$5,431,891	$603,543	$6,035,435

State Proposed Budget for Administrative HIT Funding Requested for FFY 2019:

State Proposed Budget FFY 2019					
	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
State Personnel	1,604,916	0	0	178,324	1,783,240
Contracted State Staff	0	0	0	0	0
Hardware & Software Costs	82,215	0	0	9,135	91,350
Direct Non-Personnel Costs	68,400	0	0	7,600	76,000
Vendors/State Partners:					
NC AHEC/REC	2,071,842	0	0	230,205	2,302,047
ORHHC	1,309,393	0	0	145,488	1,454,881
MED & DERP Projects	223,650	0	0	24,850	248,500
HIT Conference	45,000	0	0	5,000	50,000
Total Project Costs	**$5,405,416**	**$0**	**$0**	**$600,602**	**$6,006,018**

State Proposed Budget for Administrative HIT Funding Requested for FFY 2020:

State Proposed Budget FFY 2020					
	90% Federal Share	**75% Federal Share**	**50% Federal Share**	**10% State Share**	**Total**
State Personnel	1,604,915	0	0	178,324	1,783,239
Contracted State Staff	0	0	0	0	0
Hardware & Software Costs	86,326	0	0	9,592	95,918
Direct Non-Personnel Costs	68,400	0	0	7,600	76,000
Vendors/State Partners:					
NC AHEC/REC	2,071,842	0	0	230,205	2,302,047
ORHHC	1,309,393	0	0	145,488	1,454,881
MED & DERP Projects	246,015	0	0	25,050	273,350
HIT Conference	45,000	0	0	5,000	50,000
Total Project Costs	**$5,431,891**	**$0**	**$0**	**$601,258**	**$6,035,435**

Contract Proposed Budget for FFY 2019:

AHEC Contract Proposed Budget FFY 2019	
Contractor Cost Category	Cost
Contract Personnel	$252,863
Travel	$10,734
Training conference	$5,208
Cell phones	$840
Subcontract with Regional AHECs	$2,032,402
Total	**$2,302,047**

Contract Proposed Budget for FFY 2020:

AHEC Contract Proposed Budget FFY 2020	
Contractor Cost Category	Cost
Contract Personnel	$252,863
Travel	$10,734
Training conference	$5,208
Cell phones	$840
Subcontract with Regional AHECs	$2,032,402
Total	**$2,302,047**

Tables 8, 9, 10 and 11 below summarize approved, expended, and remaining I-APD HITECH-only funds for FFYs 2011-2015. Note that the majority of expended funds for building NC-MIPS and launching the program in FFYs 2011-2012 are represented in **Tables 15 and 16** in Appendix A of this I-APD. Delays in hiring state staff and procuring vendor services (line items: State Personnel and Vendors) accounted for the largest planned but unexpended cost categories for FFYs 2011-2012.

	Approved I-APD FFY 2011		
Activity Type	**State**	**Federal**	**Total**
State Personnel	164,803	1,483,229	1,648,032
Contracted State Staff	21,600	194,400	216,000
Vendors	260,050	2,340,450	2,600,500

Hardware & Software Costs	2,500	22,500	25,000
Direct Non-Personnel Costs	16,400	147,600	164,000
Total Project Spend	**$465,353**	**$4,188,179**	**$4,653,532**
	I-APD Expenditures to Date		
Activity Type	**State**	**Federal**	**Total**
State Personnel	47,076	423,686	470,762
Contracted State Staff	0	0	0
Vendors	0	0	0
Hardware & Software Costs	100	900	1,000
Direct Non-Personnel Costs	100	900	1,000
Total Project Spend	**$47,276**	**$425,486**	**$472,762**
	Remaining I-APD Funding		
Activity Type	**State**	**Federal**	**Total**
State Personnel	117,727	1,059,543	1,177,270
Contracted State Staff	21,600	194,400	216,000
Vendors	260,050	2,340,450	2,600,500
Hardware & Software Costs	2,400	21,600	24,000
Direct Non-Personnel Costs	16,300	146,700	163,000
Total Project Spend	**$418,077**	**$3,762,693**	**$4,180,770**

Table 4 - I-APD HITECH Spending Summary, FFY 2011

Total project spend in FFY 2011, including HITECH and MMIS expenditures, was $6,240,511 (FFP $5,616,460 at 90%).

	Approved I-APD FFY 2012		
Activity Type	**State**	**Federal**	**Total**
State Personnel	184,211	1,657,900	1,842,111
Contracted State Staff	0	0	0
Vendors	270,050	2,430,450	2,700,500
Hardware & Software Costs	18,500	166,500	185,000
Direct Non-Personnel Costs	5,760	51,840	57,600
Total Project Spend	**$478,521**	**$4,306,690**	**$4,785,211**
	I-APD Expenditures to Date		
Activity Type	**State**	**Federal**	**Total**
State Personnel	35,087	315,781	350,868
Contracted State Staff	9,698	87,278	96,975
Vendors	0	0	0
Hardware & Software Costs	1,296	11,666	12,962
Direct Non-Personnel Costs	1,268	11,408	12,676
Total Project Spend	**$47,349**	**$426,133**	**$473,481**
	Remaining I-APD Funding		
Activity Type	**State**	**Federal**	**Total**
State Personnel	149,124	1,342,119	1,491,243

Activity Type	Approved I-APD FFY 2012		
	State	Federal	Total
Contracted State Staff	-9,698	-87,278	-96,975
Vendors	270,050	2,430,450	2,700,500
Hardware & Software Costs	17,204	154,834	172,038
Direct Non-Personnel Costs	4,492	40,432	44,924
Total Project Spend	**$431,172**	**$3,880,557**	**$4,311,730**

Table 5 - I-APD HITECH Funding Summary, FFY 2012

Total project spend in FFY 2012, including HITECH and MMIS expenditures, was $3,315,286 (FFP $2,983,757 at 90%). Costs incurred in the Contracted State Staff line item were due to a contractor budgeted with MMIS funds that were transferred under NC Medicaid in early FFY 2012.

As noted above, in previous versions of this I-APD, NC-MIPS was developed and maintained at OMMISS and utilized MMIS funding; for this reason, the MMIS funding request and spend was previously larger than the HITECH funding request. Over 2012 and into early 2013, NC transferred ongoing development, hosting, and maintenance activities associated with NC-MIPS and its operations to NC Medicaid, resulting in a transfer of contract staff from OMMISS to NC Medicaid and thus a reallocation of approved MMIS funding to the below HITECH categories. These changes have resulted in improved organizational efficiencies and overall cost savings to NC and CMS, as represented by the total funding request (HITECH and MMIS combined) for FFYs 2013-2014 related to state personnel, contract personnel, and hardware and software needs.

Activity Type	Approved I-APD FFY 2013		
	State	Federal	Total
State Personnel	107,998	971,984	1,079,982
Contracted State Staff	104,434	939,906	1,044,340
Hardware & Software Costs	15,639	140,753	156,392
Direct Non-Personnel Costs	4,884	43,959	48,843
Vendors/State Partners:			
N3CN	245,050	2,205,450	2,450,500
NC HIT Website	10,000	90,000	100,000
DPH	85,962	773,662	859,624
NC AHEC/REC	62,883	565,942	628,825
ORHHC	8,477	76,292	84,769
MED & DERP Projects	0	0	0
HIT Conference	206	1,858	2,064
PCG	18,600	167,400	186,000
HIT HIE	171,220	1,540,976	1,712,196
Total Project Costs	**$835,353**	**$7,518,182**	**$8,353,535**
Activity Type	**I-APD Expenditures to Date**		
	State	**Federal**	**Total**
State Personnel	77,097	693,873	770,970
Contracted State Staff	115,986	1,043,876	1,159,862
Hardware & Software Costs	1,154	10,384	11,538
Direct Non-Personnel Costs	1,815	16,331	18,146
Vendors/State Partners:			
N3CN	20,336	183,024	203,360
NC HIT Website	0	0	0
DPH	0	0	0
NC AHEC/REC	0	0	0
ORHHC	0	0	0
MED & DERP Projects	0	0	0
HIT Conference	0	0	0
PCG	0	0	0
HIT HIE	171,220	1,540,976	1,712,196
Total Project Costs	**$387,608**	**$3,488,464**	**$3,876,072**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	30,901	278,111	309,012
Contracted State Staff	-11,552	-103,970	-115,522
Hardware & Software Costs	14,485	130,369	144,854

Direct Non-Personnel Costs	3,069	27,628	30,697
Activity Type	**Remaining I-APD Funding**		
Vendors/State Partners:			
N3CN	224,714	2,022,426	2,247,140
NC HIT Website	10,000	90,000	100,000
DPH	85,962	773,662	859,624
NC AHEC/REC	62,883	565,942	628,825
ORHHC	8,477	76,292	84,769
MED & DERP Projects	0	0	0
HIT Conference	206	1,858	2,064
PCG	18,600	167,400	186,000
HIT HIE	0	0	0
Total Project Costs	**$447,745**	**$4,029,718**	**$4,477,463**

Table 6 - I-APD HITECH Funding Summary, FFY 2013

Total project spend in FFY 2013, including HITECH and MMIS expenditures, was $4,312,069 (FFP $3,880,862 at 90%).

On January 13, 2012, a separate I-APD to support Medicaid's fair share of NC HIE core services development and implementation was submitted to CMS. On March 1, 2012, CMS approved this request in the amount of $1,712,196 (FFP $1,540,976 at 90%) for FFY 2012 and FFY 2013. That amount has been added to the HIT HIE Approved line above.

Activity Type	**Approved I-APD FFY 2014**		
	State	**Federal**	**Total**
State Personnel	112,095	1,008,855	1,120,950
Contracted State Staff	61,152	550,368	611,520
Hardware & Software Costs	15,889	143,003	158,892
Direct Non-Personnel Costs	4,180	37,620	41,800
Vendors/State Partners:			
N3CN	228,540	2,056,860	2,285,400
NC HIT Website	10,000	90,000	100,000
DPH	86,212	775,912	862,124
NC AHEC/REC	249,863	2,248,770	2,498,633
ORHHC	8,477	76,292	84,769
MED & DERP Projects	24,366	219,291	243,657
HIT Conference	5,000	45,000	50,000
PCG	18,600	167,400	186,000
HIT HIE	0	0	0
Total Project Costs	**$824,375**	**$7,419,371**	**$8,243,745**
Activity Type	**I-APD Expenditures to Date**		
	State	**Federal**	**Total**

State Personnel	55,292	497,624	552,916
Contracted State Staff	52,617	473,557	526,174
Hardware & Software Costs	1,183	10,648	11,831
Direct Non-Personnel Costs	3,772	33,952	37,725
Vendors/State Partners:			
N3CN	82,480	742,320	824,800
NC HIT Website	0	0	0
DPH	0	0	0
NC AHEC/REC	0	0	0
ORHHC	0	0	0
MED & DERP Projects	30,457	274,115	304,572
HIT Conference	0	0	0
PCG	0	0	0
HIT HIE	0	0	0
Total Project Costs	**$225,802**	**$2,032,216**	**$2,258,018**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	56,803	511,231	568,034
Contracted State Staff	8,535	76,811	85,346
Hardware & Software Costs	14,706	132,355	147,061
Direct Non-Personnel Costs	408	3,668	4,075
Vendors/State Partners:			
N3CN	146,060	1,314,540	1,460,600
NC HIT Website	10,000	90,000	100,000
DPH	86,212	775,912	862,124
NC AHEC/REC	249,863	2,248,770	2,498,633
ORHHC	8,477	76,292	84,769
MED & DERP Projects	-6,092	-54,824	-60,915
HIT Conference	5,000	45,000	50,000
HIT HIE	0	0	0
Total Project Costs	**$579,973**	**$5,219,755**	**$5,799,727**

Table 7 - I-APD HITECH Funding Summary, FFY 2014

The above table contains actuals for FFY 2014.

Hardware & Software Costs include PC and printer equipment, NC-MIPS hosting costs, and DPH/HIE software and IT equipment.

*Direct Non-Personal Costs include items such as rent, supplies, telephone, travel, conference registration fees, professional development for staff, office furniture, etc.

Activity Type	Approved I-APD FFY 2015		
	State	Federal	Total
State Personnel	117,324	1,055,918	1,173,242
Contracted State Staff	126,256	1,136,304	1,262,560
Hardware & Software Costs	8,700	78,300	87,000
Direct Non-Personnel Costs	7,660	68,940	76,600
Vendors/State Partners:			
N3CN	248,540	2,236,860	2,485,400
NC AHEC/REC	249,863	2,248,770	2,498,633
ORHHC	8,477	76,292	84,769
MED & DERP Projects	24,366	219,291	243,657
HIT Conference	5,000	45,000	50,000
Total Project Costs	**$796,186**	**$7,165,675**	**$7,961,861**
Activity Type	**I-APD Expenditures to Date**		
	State	**Federal**	**Total**
State Personnel	70,443	633,988	704,432
Contracted State Staff	80,015	720,137	800,152
Hardware & Software Costs	73	656	729
Direct Non-Personnel Costs	4,838	43,544	48,382
Vendors/State Partners:			
N3CN	73,300	659,700	733,000
NC AHEC/REC	83,864	754,779	838,643
ORHHC	0	0	0
MED & DERP Projects	24,608	221,471	246,079
HIT Conference	0	0	0
Total Project Costs	**$337,142**	**$3,034,274**	3,371,416
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	46,881	421,930	468,810
Contracted State Staff	46,241	416,167	462,408
Hardware & Software Costs	8,627	77,644	86,271
Direct Non-Personnel Costs	2,822	25,396	28,218
Vendors/State Partners:			
N3CN	175,240	1,577,160	1,752,400
NC AHEC/REC	165,999	1,493,991	1,659,990
ORHHC	8,477	76,292	84,769
MED & DERP Projects	-242	-2,180	-2,422

HIT Conference	5,000	45,000	50,000
Total Project Costs	**$459,044**	**$4,131,401**	**$4,590,445**

Table 8 - I-APD HITECH Funding Summary, FFY 2015

I-APD HITECH Funding Summary for FFY 2016:

Activity Type	Approved I-APD		
	State	Federal	Total
State Personnel	117,324	1,055,918	1,173,242
Contracted State Staff	126,256	1,136,304	1,262,560
Hardware & Software Costs	8,700	78,300	87,000
Direct Non-Personnel Costs	7,660	68,940	76,600
Vendors/State Partners:			
N3CN	248,540	2,236,860	2,485,400
NC AHEC/REC	249,863	2,248,770	2,498,633
ORHHC	8,477	76,292	84,769
MED & DERP Projects	24,366	219,291	243,657
HIT Conference	5,000	45,000	50,000
Total Projected Costs	**$796,186**	**$7,165,675**	**$7,961,861**
Activity Type	**I-APD Expenditures**		
	State	**Federal**	**Total**
State Personnel	64,100	576,902	641,002
Contracted State Staff	59,842	538,582	598,424
Hardware & Software Costs	8,883	79,943	88,826
Direct Non-Personnel Costs	4,027	36,245	40,272
Vendors/State Partners:			
N3CN	71,856	646,707	718,563
NC AHEC/REC	177,789	1,600,098	1,777,887
ORHHC	0	0	0
MED & DERP Projects	20,075	180,675	200,750
HIT Conference	0	0	0
Total Expenditures	**$406,572**	**$3,659,152**	**$4,065,724**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	53,224	479,016	532,240
Contracted State Staff	66,414	597,722	664,136
Hardware & Software Costs	-183	-1,643	-1,826
Direct Non-Personnel Costs	3,633	32,695	36,328
Vendors/State Partners:			
N3CN	176,684	1,590,153	1,766,837
NC AHEC/REC	72,075	648,671	720,746
ORHHC	8,477	76,292	84,769
MED & DERP Projects	4,291	38,616	42,907
HIT Conference	5,000	45,000	50,000
Total Funding Remaining	**$389,614**	**$3,506,523**	**$3,896,137**

Table 9 - I-APD HITECH Funding Summary, FFY 2016

I-APD HITECH Funding Summary for FFY 2017:

Activity Type	Approved I-APD		
	State	Federal	Total
State Personnel	123,190	1,108,714	1,231,904
Contracted State Staff	126,256	1,136,304	1,262,560
Hardware & Software Costs	8,700	78,300	87,000
Direct Non-Personnel Costs	7,660	68,940	76,600
Vendors/State Partners:			
NC AHEC/REC	225,049	2,025,439	2,250,488
ORHHC	50,207	451,860	502,067
MED & DERP Projects	24,850	223,650	248,500
HIT Conference	5,000	45,000	50,000
Total Projected Costs	**$570,912**	**$5,138,207**	**$5,709,119**
Activity Type	**I-APD Expenditures**		
	State	**Federal**	**Total**
State Personnel	71,249	641,238	712,487
Contracted State Staff	49,438	444,940	494,378
Hardware & Software Costs	8,358	75,221	83,579
Direct Non-Personnel Costs	4,818	43,365	48,183
Vendors/State Partners:			
NC AHEC/REC	210,689	1,896,204	2,106,893
ORHHC	0	0	0
MED & DERP Projects	29,583	266,245	295,828
HIT Conference	0	0	0
Total Expenditures	**$374,135**	**$3,367,213**	**$3,741,348**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	51,942	467,475	519,417
Contracted State Staff	76,818	691,364	768,182
Hardware & Software Costs	342	3,079	3,421
Direct Non-Personnel Costs	2,842	25,575	28,417
Vendors/State Partners:			
NC AHEC/REC	14,360	129,236	143,595
ORHHC	50,207	451,860	502,067
MED & DERP Projects	-4,733	-42,595	-47,328
HIT Conference	5,000	45,000	50,000
Total Funding Remaining	**$196,777**	**$1,770,994**	**$1,967,771**

Table 14 – I-APD HITECH Funding Summary, FFY 2017

I-APD HITECH Funding Summary for FFY 2018:

Activity Type	Approved I-APD		
	State	Federal	Total
State Personnel	123,190	1,108,714	1,231,904
Contracted State Staff	126,256	1,136,304	1,262,560
Hardware & Software Costs	8,700	78,300	87,000
Direct Non-Personnel Costs	7,660	68,940	76,600
Vendors/State Partners:			
NC AHEC/REC	231,927	2,087,339	2,319,266
ORHHC	50,207	451,860	502,067
MED & DERP Projects	24,850	223,650	248,500
HIT Conference	5,000	45,000	50,000
Total Projected Costs	**$577,790**	**$5,200,107**	**$5,777,897**
Activity Type	**I-APD Expenditures**		
	State	**Federal**	**Total**
State Personnel	65,058	585,526	650,584
Contracted State Staff	9,788	88,092	97,880
Hardware & Software Costs	5,151	46,360	51,511
Direct Non-Personnel Costs	3,074	27,665	30,739
Vendors/State Partners:			
NC AHEC/REC	136,868	1,231,808	1,368,676
ORHHC	9,440	84,963	94,403
MED & DERP Projects	15,500	139,500	155,000
HIT Conference	0	0	0
Total Expenditures	**$244,879**	**$2,203,914**	**$2,448,793**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	58,132	523,188	581,320
Contracted State Staff	116,468	1,048,212	1,164,680
Hardware & Software Costs	3,549	31,940	35,489
Direct Non-Personnel Costs	4,586	41,275	45,861
Vendors/State Partners:			
NC AHEC/REC	95,059	855,531	950,590
ORHHC	40,766	366,898	407,664
MED & DERP Projects	9,350	84,150	93,500
HIT Conference	5,000	45,000	50,000
Total Funding Remaining	**$332,910**	**$2,996,194**	**$3,329,104**

Table 15 – I-APD HITECH Funding Summary, FFY 2018 as of June 15, 2018

HITECH funds are requested for FFYs 2019-2020 as described below.

Activity Type	FFY19				
	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
State Personnel	1,604,916	0	0	178,324	1,783,240
Contracted State Staff	0	0	0	0	0
Hardware & Software Costs	82,215	0	0	9,135	91,350
Direct Non-Personnel Costs	68,400	0	0	7,600	76,000
Vendors/State Partners:					
NC AHEC/REC	2,071,842	0	0	230,205	2,302,047
ORHHC	1,309,393	0	0	145,488	1,454,881
MED & DERP Projects	223,650	0	0	24,850	248,500
HIT Conference	45,000	0	0	5,000	50,000
Total Project Costs	**$5,405,416**	**$0**	**$0**	**$600,602**	**$6,006,018**
Activity Type	**FFY20**				
	90% Federal Share	**75% Federal Share**	**50% Federal Share**	**10% State Share**	**Total**
State Personnel	1,604,915	0	0	178,324	1,783,239
Contracted State Staff	0	0	0	0	0
Hardware & Software Costs	86,326	0	0	9,592	95,918
Direct Non-Personnel Costs	68,400	0	0	7,600	76,000
Vendors/State Partners:					
NC AHEC/REC	2,071,842	0	0	230,205	2,302,047
ORHHC	1,309,393	0	0	145,488	1,454,881
MED & DERP Projects	246,015	0	0	25,050	273,350
HIT Conference	45,000	0	0	5,000	50,000
Total Project Costs	**$5,431,891**	**$0**	**$0**	**$601,258**	**$6,035,435**

Table 10 - Proposed HITECH Budget, FFYs 2019-2020

7.1.1 Total Funding Request

A HITECH project cost of $12,041,516 (FFP $10,837,307 at 90%) is estimated to support the Medicaid EHR Incentive Program for FFYs 2019-2020. Project cost for FFY 2019 is $6,006,081 (FFP $5,405,416 at 90%) and FFY 2020 is $6,035,435 (FFP $5,431,891 at 90%). Incentive payment projections for FFYs 2019-2020 can be found in Appendix B of this I-APD.

The state share of this project will be satisfied with state appropriations and in-kind funding sources. NC DHHS certifies that it has available its share of the funds required to complete the activities described in this I-APD. The state requests approval to proceed with federal funding at the below levels.

	MMIS @ 90% FFP	HITECH @ 90% FFP	HITECH @ 100% FFP (Incentive Payments)	Total
FFY 2019	$0	$5,405,416	$15,223,510	$20,628,926
FFY 2020	$0	$5,431,891	$8,930,673	$14,362,564
Federal Share	$0	$10,837,307	$24,154,183	$34,991,490

Table 11 - Total Federal Funding Request, FFYs 2019-2020

Budget Assumptions

The following budget assumptions were made in compiling the projected cost of the NC Medicaid HIT Program:

- Only costs associated with activities and functionalities addressed in North Carolina's SMHP are included in this I-APD. To the extent possible, existing state staff is utilized. Travel costs have been included for various stakeholder and professional development meetings.
- Vendor/contractor costs represent a total solution cost (i.e., including travel, hardware, software, networking, etc.). Vendor costs were given by vendors as high-level, unbinding estimates.
- Provider incentive payments have been requested on the CMS-37 report and were approximately $343 million for FFYs 2011-2018 (the program's first eight years). The amount of funding requested for incentive payments in FFYs 2019-2020 is $24,154,183 (100% FFP) – $15,223,510 for FFY 2019 and $8,930,673 for FFY 2020.

The federal fund request for FFY 2019 is $20,628,926 ($5,405,416 in 90% FFP and $15,223,510 in 100% FFP). The federal fund request for FFY 2020 is $34,991,490 ($5,431,981 in 90% FFP and $8,930,673 in 100% FFP).

The total FFP for incentive payments for FFY 2019 is $ 15,223,510 and $8,930,673 for FFY 2020, totaling to $ 24,154,183.

8 Cost Allocation Plan for Implementation Activities

8.1 Prospective Cost Allocation

NC is not receiving funding from other sources at this time; thus, the 90/10 FFP cost allocation method is the only one that applies to the HIT Program. The below table shows the 90% FFP cost allocation on a quarterly basis.

As specified in the Office of Management and Budget Circular A-87, a cost allocation plan must be included that identifies all participants and their associated cost allocation to depict non-Medicaid activities and non-Medicaid FTEs participating in this project, if any.

There are no non-Medicaid activities to report in this IAPDU, or any other cost that must be cost allocated.

	FFY 2019					FFY 2020				
State Cost Category - HITECH	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	**Total**	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	**Total**
State Personnel	$ 401,229	$ 401,229	$ 401,229	$ 401,229	**$1,604,916**	$ 401,229	$ 401,229	$ 401,229	$ 401,229	**$1,604,915**
Contracted State Staff	$ -	$ -	$ -	$ -	**$ -**	$ -	$ -	$ -	$ -	**$ -**
Vendors	$ 912,471	$ 912,471	$ 912,471	$ 912,471	**$3,649,885**	$ 918,063	$ 918,063	$ 918,063	$ 918,063	**$3,672,250**
Hardware & Sofware Costs	$ 20,554	$ 20,554	$ 20,554	$ 20,554	**$ 82,215**	$ 21,581	$ 21,581	$ 21,581	$ 21,581	**$ 86,326**
Direct Non-personnel Costs	$ 17,100	$ 17,100	$ 17,100	$ 17,100	**$ 68,400**	$ 17,100	$ 17,100	$ 17,100	$ 17,100	**$ 68,400**
Total Costs	**$1,351,354**	**$1,351,354**	**$1,351,354**	**$1,351,354**	**$5,405,416**	**$1,357,973**	**$1,357,973**	**$1,357,973**	**$1,357,973**	**$5,431,891**

Table 12 - Quarterly Incentive Program Administrative Costs (90% FFP)

9 Assurances, Security, Interface Requirements, and Disaster Recovery Procedures

9.1 Assurances, Security, and Disaster Recovery Procedures

NC DHHS confirms that it will adhere to the CMS required assurances identified from Federal regulations as marked below:

Procurement Standards (Competition/Sole Source)

- 42 CFR Part 495.348 ☑ Yes ☐ No
- SMM Section 11267 ☑ Yes ☐ No
- 45 CFR Part 95.615 ☑ Yes ☐ No
- 45 CFR Part 92.36 ☑ Yes ☐ No

Access to Records, Reporting and Agency Attestations

- 42 CFR Part 495.350 ☑ Yes ☐ No
- 42 CFR Part 495.352 ☑ Yes ☐ No
- 42 CFR Part 495.346 ☑ Yes ☐ No
- 42 CFR Part 433.112(b)(5) – (9) ☑ Yes ☐ No
- 45 CFR Part 95.615 ☑ Yes ☐ No
- SMM Section 11267 ☑ Yes ☐ No

Software & Ownership Rights, Federal Licenses, Information Safeguarding, HIPAA Compliance, and Progress Reports

- 42 CFR Part 495.360 ☑ Yes ☐ No
- 45 CFR Part 95.617 ☑ Yes ☐ No
- 42 CFR Part 431.300 ☑ Yes ☐ No
- 42 CFR Part 433.112 ☑ Yes ☐ No

Security and interface requirements to be employed for all State HIT systems

- 45 CFR 164 Securities and Privacy ☑ Yes ☐ No

9.1.1 HIPAA Compliance

NC DHHS requires its systems be fully HIPAA-compliant as mandated, including the Transaction and Code Sets Rule, Privacy Rule, Security Rule, as well as the National Provider ID and other rules that may be established. Contractors will be required to demonstrate HIPAA compliance.

9.1.2 Statewide Technical Architecture Compliance

Compliance with the North Carolina Statewide Technical Architecture (NCSTA) policies, standards and best practices as well as the all other Federal requirements and specifications as mentioned above, are mandatory for all solutions and implementations completed by this Department.

The NCSTA includes eight distinct technology domains including Application, Data, System Integration, Collaboration, Network, Security, Enterprise Management and Platform Domains. With NCTracks aligned with the CMS-defined MITA currently underway, the NC-MIPS application design addressed each of these domains separately during the design, development and implementation cycle.

9.1.3 Application & System Integration Domains

The NC-MIPS application components are implemented with an SOA and N-tier architecture design. The services infrastructure uses standards-based .NET elements that allow seamless service process integration and data sharing with other organizations and agencies. SOA is a well-suited framework for building an architecture that is flexible, agile, and able to take advantage of new technologies. The design lends itself especially well to application integration efforts due to its flexibility to accommodate both batch and real-time integration from external and internal systems.

Section 3 of the I-APD provides further details on the application and system requirements, but it can be noted here that the NC-MIPS application design considers the following as primary integration or interface points with other state and CMS applications:

- CMS R&A: The NC-MIPS application uses CMS defined messaging formats and the prescribed secure file transfer protocol to integrate with the CMS Registration & Attestation System.
- Provider Enrollment, Credentialing and Verifications Application: The Enrollment, Credentialing and Verifications Application (EVC) system serves as the authoritative source for the state's provider base information. This solution is currently running on a .NET/MS SQL Server architecture. The NC-MIPS application leverages the same technologies to establish real-time interfaces with the EVC database.
- MMIS: Once NCTracks is made operational, the NC-MIPS application will have a close coupling with its databases, and will use secure ODBC/JDBC access methods.

9.1.4 Data and Security Domains

NC-MIPS utilizes a Microsoft SQL Server platform to take advantage improved integration, data processing and analysis. The design includes all data, at rest, in use, and in motion, to be protected from unauthorized access and unauthorized disclosure by multiple layers of the security structure. Stored data (at rest) will be kept in controlled-access buildings or rooms, where access is restricted to authorized users and all access events are logged. Where appropriate and authorized by design, stored data can also be encrypted to render unusable any data obtained illegitimately from the servers.

Direct server access will not be allowed to networked users; only authorized technical staff will be able to access the servers for support and maintenance purposes. Networked access to servers (data in use) will be indirect; users will first be authenticated by a tier of access control servers (authorization and authentication services) and requests for information (data, reports, etc.) will be fulfilled by middle-tier servers which will accept the queries and retrieve appropriately authorized data from the file and data servers.

Transmitted data (in motion) will be encrypted, either by message layer security or transport layer security (TLS). Messages can be directly encrypted by clients/users before transmission, or the transport itself can be encrypted using Virtual Private Network (VPN) or Transport Layer Security (TLS/SSL) methodologies. The intent will be to enable end-to-end consistency in the encryption technologies eliminating conflicting protocols, encryption keys and mechanisms. All encryption mechanisms will be FIPS 140-2 approved, such as the Federal Advanced Encryption Standard (AES). Data transmitted in response to authorized requests will be copies of the data/file/report; no single-copy, original source data will be transmitted.

User provisioning, authorization and access control for the NC-MIPS application is based on Roles Based Access Control design, Single Sign-on and User provisioning workflows.

9.1.5 Collaboration & Platform Domains

The NC-MIPS application is a web-based solution that complies with the Section 508 Web accessibility standards as well as W3C standards. The Section 508 compliance is measured through the use of HiSoftware's AccVerify compliance testing and reporting tool. W3C compliance is measured through the use of Adobe and Total Validator tools. For provider and public facing user interfaces, the NC-MIPS application is design to be compatible with modern browsers whose usage exceeds 500,000 users nationally and at least two percent of the traffic to the NC DHHS home Web site. As of the writing of this document the top four browsers by market share include Internet Explorer, Firefox, Safari, and Google Chrome.

9.1.6 Network and Enterprise Management Domains

The NC-MIPS networked components are protected by intrusion detection and intrusion prevention technologies (e.g., network access control devices, firewalls, host intrusion prevention systems (HIPS)). Requirements include logs of network and server activities to be collected, stored and reviewed for anomalous or unauthorized activities.

Server administration includes change management (patches and system upgrades) and active monitoring of all processes and protection technologies 24 hours a day, 7 days a week.

For system failure and disaster recovery purposes, the design includes redundancy and fail-over capabilities where possible. All data storage devices are configured at a minimum RAID Level 5 configuration to facilitate the replacement of damaged storage units without loss of data. The design includes all databases and data stores to be fully backed up at least once a week with daily incremental back-ups during the week (depending on size/amount of the data). The backed-up data will be encrypted, and the back-up media will be stored off-site and rotated on a designed and tested pattern to ensure recoverability of the data. Servers, workstations, and storage media which reach out-of-service limitations will be deactivated and any internal storage media will be "wiped" clean and/or destroyed before external disposal.

The NC-MIPS solution was hosted by the CSC Albany Data Center, but for easier access and cost savings purposes, moved to North Carolina Information Technology Services (ITS) servers in 2013. Staff within the NC-MIPS Help Desk will utilize an incident response plan that details recognition of problems and authorized response activities to reduce the effects, control the spread, determine the root cause, and document the details of all detected incidents. The incident response plan will feed into the business continuity/disaster recovery plan if an incident, or several incidents, reaches the pre-determined threshold for initiating a plan to relocate to an alternate data center requiring the restoration of the most recent data backups.

9.2 Interface Requirements

As depicted documented in the CMS "HITECH Interface Control Document," there are six interfaces between CMS and the state:

1. Interface B-6: CMS to state to send registration data;
2. Interface B-7: State to CMS for state to update CMS on registration status;
3. Interface C-5: CMS to state to send attestation information for dually eligible EHs;
4. Interface D-16: State to CMS to check for duplicate payments and exclusions;
5. Interface D-17: NLR to state to send dually eligible hospital cost report data;
6. Interface D-18: State to CMS to update CMS with state incentive payment data;

Extensible Markup Language (XML) is used as the communication protocol for interfacing with CMS through a Gentran mailbox. NC-MIPS also interfaces with the current EVC and will interface with NCTracks through web services. NC-MIPS accesses historical claims data from the legacy MMIS data warehouse (DRIVE) through asynchronous batch calls (or other comparable protocols). Relevant claims data fields are stored in the NC-MIPS database. NC-MIPS accesses data for sanctions or recoupments owed to the state via API calls or other comparable protocols.

Figure 3 below depicts NC-MIPS' system architecture components.

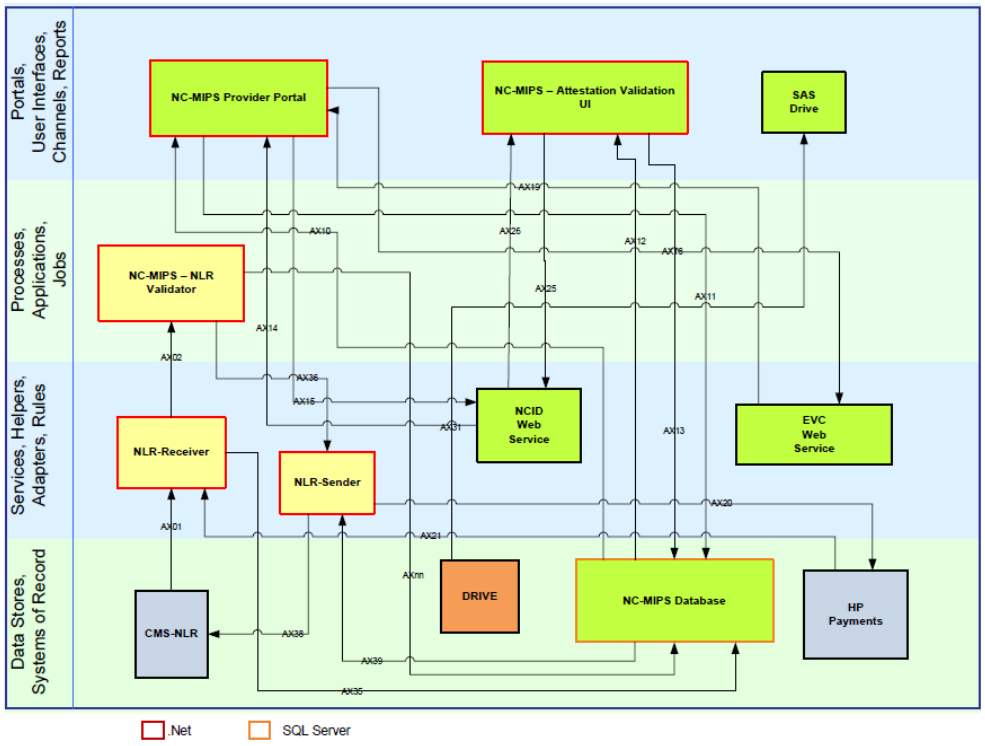


Figure 3 - NC-MIPS System Architecture Components (SAC)

Appendix A: MMIS Expenditures

This section details former budgets for the implementation phase of the NC Medicaid EHR Incentive Program.

Note that there is no MMIS funding request for FFY 2019-20, as system and operations activities related to the NC Medicaid EHR Incentive Program were brought in-house to NC Medicaid during FFYs 2012-2013 and have been supported from FFY 2014 and beyond with HITECH funds.

The below is a summary of state and federal funding distribution.

Tables 17 and 18 below summarize approved, expended, and remaining MMIS-only I-APD funds for FFYs 2011-2012.

	Approved I-APD		
Activity Type	**State**	**Federal**	**Total**
State Personnel	64,645	581,809	646,454
System Hardware & Software	0	0	0
Supplies / Miscellaneous	650	5,850	6,500
Contract Personnel	31,680	285,120	316,800
Contract Services	400,915	3,608,231	4,009,146
Total Project Spend	**$497,890**	**$4,481,010**	**$4,978,900**
	I-APD Expenditures to Date		
Activity Type	**State**	**Federal**	**Total**
State Personnel	15,517	139,650	155,167
System Hardware & Software	0	0	0
Supplies / Miscellaneous	1,084	9,758	10,842
Contract Personnel	57,930	521,373	579,303
Contract Services	502,244	4,520,193	5,022,437
Total Project Spend	**$576,775**	**$5,190,974**	**$5,767,749**
	Remaining I-APD Funding		
Activity Type	**State**	**Federal**	**Total**
State Personnel	49,129	442,158	491,287
System Hardware & Software	0	0	0
Supplies / Miscellaneous	-434	-3,908	-4,342
Contract Personnel	-26,250	-236,253	-262,503
Contract Services	-101,329	-911,962	-1,013,291
Total Project Spend	**($78,885)**	**($709,964)**	**($788,849)**

Table 13 - I-APD MMIS Funding Summary, FFY 2011

Total project spend in FFY 2011, including HITECH and MMIS expenditures, was $6,240,511 (FFP $5,616,460 at 90%). OMMIS was not able to hire state staff as planned and instead saw overages in the areas of contract personnel and services.

	Approved I-APD		
Activity Type	**State**	**Federal**	**Total**
State Personnel	261,006	2,349,056	2,610,062
System Hardware & Software	155,145	1,396,308	1,551,453
Supplies / Miscellaneous	5,000	45,000	50,000
Contract Personnel	52,930	476,373	529,303
Contract Services	55,333	498,000	553,333
Total Project Spend	**$529,414**	**$4,764,737**	**$5,294,151**

Activity Type	Approved I-APD		
	State	Federal	Total
Activity Type	**I-APD Expenditures to Date**		
	State	**Federal**	**Total**
State Personnel	84	757	841
System Hardware & Software	2,880	25,916	28,796
Supplies / Miscellaneous	643	5,790	6,433
Contract Personnel	104,336	939,019	1,043,355
Contract Services	176,238	1,586,142	1,762,380
Total Project Spend	**$284,181**	**$2,557,624**	**$2,841,805**
Activity Type	**Remaining I-APD Funding**		
	State	**Federal**	**Total**
State Personnel	260,922	2,348,299	2,609,221
System Hardware & Software	152,265	1,370,392	1,522,657
Supplies / Miscellaneous	4,357	39,210	43,567
Contract Personnel	-51,406	-462,646	-514,052
Contract Services	-120,905	-1,088,142	-1,209,047
Total Project Spend	**$245,233**	**$2,207,113**	**$2,452,346**

Table 14 - I-APD MMIS Funding Summary, FFY 2012

Total project spend in FFY 2012, including HITECH and MMIS expenditures, was $3,315,286 (FFP $2,983,757 at 90%). OMMIS was not able to hire state staff as planned and instead saw overages in the areas of contract personnel and services.

Tables 19, 20, 21, and 22 below summarize MMIS-only I-APD funds for FFYs 2013-2014.

	FFY 2013			FFY 2014		
Contractor Staff Title	**% of Time**	**Project Hours**	**Cost With Benefits**	**% of Time**	**Project Hours**	**Cost With Benefits**
NC-MIPS/NCTracks Project Manager	0.75	1,560	148,606	0.00	0	0
Operations Manager	0.40	832	80,622	0.00	0	0
Total	**1.15**	**2,392**	**$229,228**	**0.00**	**0**	**$0**

Table 15 - MMIS Budget – Contractor Personnel

Contractor Staff Title	Description of Responsibilities
NC-MIPS/NCTracks Project Manager	FFY 2013: Oversee NC-MIPS Operations Team and Help Desk FFY 2013-2014: Manage OMMISS and CSC relationship in relation to NC-MIPS/ NCTracks integration
Operations Manager	Provide overall management support and escalate appropriate issues to OMMISS and CSC executive management

Table 16 - MMIS Contractor Personnel Job Descriptions

FFY 2013					
State Cost Category	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
State Personnel	0	0	0	0	0
System Hardware	4,500	0	0	500	5000
System Software	4,500	0	0	500	5000
Training	0	0	0	0	0
Supplies	4,500	0	0	500	5000
Total Costs	**$13,500**	**0**	**0**	**$1,500**	**$15,000**
FFY 2014					
State Cost Category	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
State Personnel	0	0	0	0	0
System Hardware	0	0	0	0	0
System Software	0	0	0	0	0
Training	0	0	0	0	0
Supplies	0	0	0	0	0
Total Costs	**$0**	**0**	**0**	**$0**	**$0**

Table 17 - MMIS Proposed State Budget

FFY 2013					
Cost Category	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
Contract Personnel	206,305	0	0	22,923	229,228
Contract Services	613,805	0	0	68,201	682,006
Total Costs	**$820,110**	**0**	**0**	**$91,124**	**$911,234**
FFY 2014					
Cost Category	90% Federal Share	75% Federal Share	50% Federal Share	10% State Share	Total
Contract Personnel	0	0	0	0	0
Contract Services	0	0	0	0	0
Total Costs	**$0**	**0**	**0**	**$0**	**$0**

Table 18 - MMIS Proposed Contract Budget

For the reasons described in *Section 7* of this document, the total MMIS project cost for the items described in this document for FFYs 2013-2014 is $926,234 (FFP $833,610 at 90%). The $92,624 state share of this project will be satisfied with MMIS state appropriations and in-kind funding sources.

MMIS actuals for FFY 2013 were $435,997. MMIS actuals for FFY 14 through April 30, 2014 were $4,261.

No additional MMIS funding has been requested since 2014. After 2014, the needs of the program were best met with HITECH funds. The state continues to review State Medicaid Director Letters and will request MMIS funding if that source is determined to be the most appropriate for future work.

Appendix B: Estimates of Provider Incentive Payments by Quarter

Projected Medicaid Incentive Payments – 100% FFP HITECH Funding

The total payout of Medicaid incentives through FFY 2018 was approximately $343 million, including $141 million to EHs and $202 million to EPs, and we estimate $24 million in incentive payouts for FFYs 2019-2020. These estimates are to be included in the CMS-37 report, but may change depending on such variables as EP participation, readiness for Stage 3, and the impact of healthcare reform on the Incentive Programs. Estimates for FFYs 2019 and 2020 are based on trends from previous FFYs. Note that while the number of incentive payments shown in **Tables 23 and 24** are estimates, the numbers for FFY 2011-17 and through the third quarter of FFY 2018 reflect actuals.

FFY 2011					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	1	1
EP	0	0	2	53	55
EP - Pediatric	0	0	0	0	0
FFY 2012					
	Q1	Q2	Q3	Q4	Total
EH	20	0	9	6	35
EP	194	555	281	537	1567
EP - Pediatric	16	24	17	12	69
FFY 2013					
	Q1	Q2	Q3	Q4	Total
EH	19	22	14	5	60
EP	494	607	718	370	2189
EP - Pediatric	24	11	23	17	75
FFY 2014					
	Q1	Q2	Q3	Q4	Total
EH	12	21	16	16	65
EP	534	606	788	360	2288
EP - Pediatric	18	6	28	33	85
FFY 2015					
	Q1	Q2	Q3	Q4	Total
EH	-2	35	27	7	67
EP	221	526	1334	197	2278
EP - Pediatric	3	2	47	18	70
FFY 2016					
	Q1	Q2	Q3	Q4	Total
EH	6	3	15	13	37
EP	94	206	1156	500	1956
EP - Pediatric	2	4	23	27	56
FFY 2017					
	Q1	Q2	Q3	Q4	Total
EH	0	1	10	3	14
EP	272	1118	1086	79	2555
EP - Pediatric	2	26	53	4	85
FFY 2018					
	Q1	Q2	Q3	Q4	Total
EH	0	0	1	*0*	1
EP	382	709	561	*76*	*1728*
EP - Pediatric	5	5	44	*2*	*56*
FFY 2019					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	0	0
EP	*401*	*738*	*585*	*47*	*1771*
EP - Pediatric	*3*	*3*	*23*	*1*	*30*
FFY 2020					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	0	0
EP	*235*	*433*	*344*	*26*	*1038*
EP - Pediatric	*2*	*2*	*14*	*1*	*19*
Totals for FFYs 2011-2020					
EH					280
EP					17425
EP - Pediatric					545
Grand Total					18250

Table 19 - Incentive Payments by Number per Quarter

FFY 2011					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	275,226	275,226
EP	0	0	42,500	1,126,250	1,168,750
EP - Pediatric	0	0	0	0	0
FFY 2012					
	Q1	Q2	Q3	Q4	Total
EH	17,582,908	0	8,391,282	2,533,126	28,507,316
EP	4,122,500	11,793,750	5,971,250	11,411,250	33,298,750
EP - Pediatric	226,672	340,008	240,839	170,004	977,523
FFY 2013					
	Q1	Q2	Q3	Q4	Total
EH	12,870,317	15,596,546	8,539,106	3,724,893	40,730,862
EP	9,796,250	11,164,750	12,154,809	5,746,000	38,861,809
EP - Pediatric	289,008	138,837	266,341	198,339	892,525
FFY 2014					
	Q1	Q2	Q3	Q4	Total
EH	5,932,315	12,571,703	9,860,636	8,182,029	36,546,683
EP	7,140,806	7,730,136	10,790,750	5,418,750	31,080,441
EP - Pediatric	153,006	59,502	260,676	340,011	813,195
FFY 2015					
	Q1	Q2	Q3	Q4	Total
EH	-1,111,740	11,474,846	7,312,161	2,812,228	20,487,495
EP	2,962,250	6,587,500	15,023,750	2,962,250	27,535,750
EP - Pediatric	42,501	11,334	334,349	119,006	507,190
FFY 2016					
	Q1	Q2	Q3	Q4	Total
EH	4,429,160	1,492,144	2,849,969	3,515,677	12,286,950
EP	1,564,000	2,847,500	12,261,250	5,282,750	21,955,500
EP - Pediatric	28,334	39,668	138,841	170,009	376,852
FFY 2017					
	Q1	Q2	Q3	Q4	Total
EH	0	64,287	1,563,098	371,920	1,999,305
EP	4,224,500	11,849,000	12,533,250	709,750	29,316,500
EP - Pediatric	19,834	164,342	393,851	22,668	600,695
FFY 2018					
	Q1	Q2	Q3	Q4	Total
EH	0	0	46,355	0	46,355
EP	3,234,250	6,074,514	4,751,500	646,000	14,706,264
EP - Pediatric	28,335	28,335	249,348	11,334	317,352
FFY 2019					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	0	0
EP	3,408,500	6,273,000	4,972,500	399,500	15,053,500
EP - Pediatric	17,001	17,001	130,341	5,667	170,010
FFY 2020					
	Q1	Q2	Q3	Q4	Total
EH	0	0	0	0	0
EP	*1,997,500*	*3,680,500*	*2,924,000*	*221,000*	8,823,000
EP - Pediatric	*11,334*	*11,334*	*79,338*	*5,667*	107,673
Totals for FFYs 2011-2020					
EH					140,880,191
EP					221,800,264
EP - Pediatric					4,763,015
Grand Total					367,443,470

Table 20 - Incentive Payments by Dollar Amount per Quarter

Appendix C: Grants or Other Funding

There are currently no other funding sources for the program outlined in the request.

Appendix D: FFP for HIE

On January 13, 2012, a separate I-APD to support Medicaid's fair share of NC HIE core services development and implementation was submitted to CMS. On March 1, 2012, CMS approved this request in the amount of $1,712,196 (FFP $1,540,976 at 90%) for FFY 2012 and FFY 2013.

In July 2017, NC Medicaid and HIEA received approval for an HIE IAPD to accelerate onboarding to NC HealthConnex in an amount not to exceed $45,146,310 at 90 percent federal financial participation ($40,631,679 federal share) for federal fiscal years 2017-2019. The federal funding supplements staffing costs, provides training and education resource funds, and invest significant funds in integration costs. An update to the HIE IAPD is planned for 2018. HIE funding is not included in the HIT IAPD.

Appendix E: Center for Medicare and Medicaid Services Seven Conditions & Standards

Yes ☑ **No** ☐ **Modularity Condition.** Use of a modular, flexible approach to systems development, including the use of open interfaces and exposed API; the separation of business rules from core programming; and the availability of business rules in both human and machine-readable formats.

Modularity in the Medicaid Electronic Health Record Incentive program is achieved in several ways:

- In order to adjust to the upcoming MMIS system replacement, a modular, decoupled approach was seen as necessary from the outset. The provider-facing NC Medicaid EHR Incentive Payment System (NC-MIPS) and back-end Attestation Validation Portal (AVP) are modular and separate from NC's MMIS to allow for fast updates as CMS changes are released for the program. NC-MIPS and AVP are maintained inhouse with program staff, so changes do not require the costly and time-consuming change request procedures for MMIS through CSRA, the fiscal agent for NC DHHS.
- The software is built using best practice design patterns such as separating the data, business, and presentation layers within the application.
- The solution leverages data from documented, well-defined interfaces to communicate with other systems (CMS R&A, enrollment/credentialing, payment, claims data, authentication, I certification number verification, etc.). Where possible, new technologies supporting more flexible interfaces (XML, web services, etc.) are used.
- Attestations, attestation validation, and meaningful use all benefit from leveraging metadata driven rules for processing.

For a software development life cycle, the key components of the NC-MIPS approach are to:

- Generate finalized business requirements through frequent short meetings between the business and development teams.

- Implement some SCRUM tactics to ensure a strong development process, avoid pitfalls commonly associated with the waterfall approach, and realize other benefits of agile development.

Yes ☑ **No** ☐ **MITA Condition.** Align to and advance increasingly in MITA maturity for business, architecture, and data.

As a decoupled solution relying on data mastered in multiple other systems, the Medicaid Electronic Health Record Incentive Solution is architected to participate as a data consumer and producer within a larger service-oriented architecture. The solution aligns with the state's MITA goals.

Yes ☑ **No** ☐ **Industry Standards Condition.** Ensure alignment with, and incorporation of, industry standards: the Health Insurance Portability and Accountability Act of 1996 security, privacy and transaction standards; accessibility standards established under section 508 of the Rehabilitation Act, or standards that provide greater accessibility for individuals with disabilities, and compliance with Federal civil rights laws; standards adopted by the Secretary under section 1104 of the Affordable Care Act; and standards and protocols adopted by the Secretary under section 1561 of the Affordable Care Act.

Taking advantage of industry standards is a key goal of the Medicaid Electronic Health Record Incentive Solution. Attention to industry standards is specifically included in all phases of the software development process including requirements gathering/design, development, system integration testing, and user acceptance testing. Particular attention is being paid to section 508 of the Rehabilitation Act. No software will be released without achieving compliance for the user interface. Each failure to comply with an applicable standard will result in a critical bug being logged for immediate remediation.

Yes ☑ **No** ☐ **Leverage Condition.** Promote sharing, leverage, and reuse of Medicaid technologies and systems within and among states.

North Carolina's Medicaid Electronic Health Record Incentive Solution is being built to both leverage capabilities from other states and to be leveraged by other states. We also have been using CMS's program portals to review material from other states. North Carolina's approach to attestation validation and reporting may be of interest to some states.

Yes ☑ **No** ☐ **Business Results Condition.** Support accurate and timely processing of claims (including claims of eligibility), adjudications, and effective communications with providers, beneficiaries, and the public.

A guiding principle in developing the Medicaid Electronic Health Record Incentive Solution is to have clear communication with the provider community on requirements and status. A second principle is to reduce the administrative time for processing attestations through bringing together the disparate data sets required for attestation validation, providing the ability to monitor the overall attestation validation process, and allowing flexibility in data capture during validation to support process management and improvement.

Yes ☑ **No** ☐ **Reporting Condition.** Produce transaction data, reports, and performance information that would contribute to program evaluation, continuous improvement in business operations, and transparency and accountability.

The approach to North Carolina's Medicaid Electronic Health Record Incentive Solution is consistent with the more recent best practices of building the monitoring and support of the solution into the

solution itself. By maintaining a centralized activity log, the solution is able to provide stakeholders (providers, management, and program operations) insight into current or historical activity. A separate audit log maintains detailed information that can be used for troubleshooting or performance analysis. Together, both logs may be used for reporting metrics or derived key performance indicators allowing SLAs to be monitored and corrective actions to be developed as necessary.

Yes ☑ **No** ☐ **Interoperability Condition.** Ensure seamless coordination and integration with the Exchange (whether run by the state or federal government), and allow interoperability with health information exchanges, public health agencies, human services programs, and community organizations providing outreach and enrollment assistance services.

North Carolina's Medicaid Electronic Health Record Solution is designed and executed with reuse in mind. It is intended to be a system with suitable exposure to multiple enterprise service buses, including but not limited to both the NC Health Information Exchange and the NC Division of Department of Health and Human Services buses.

Appendix F: Acronyms and Abbreviations

Acronyms and Abbreviations	
A/I/U	Adopt, Implement, or Upgrade
API	Application Programming Interface
ARRA	American Recovery and Reinvestment Act
AVP	Attestation and Validation Portal
BAA	Business Associate Agreement
CMS	Centers for Medicare and Medicaid Services
CSC	Computer Sciences Corporation
NC DHHS	North Carolina Department of Health and Human Services
DHB	Division of Health Benefits (NC Medicaid), formerly Division of Medical Assistance
DRIVE	Former MMIS Data Warehouse
EH	Eligible Hospital
EHR	Electronic Health Record
EP	Eligible Professional
EVC	Enrollment, Verification, and Credentialing
FFP	Federal Financial Participation
FFY	Federal Fiscal Year
HIE	North Carolina Health Information Exchange
HIPAA	Health Insurance Portability and Accountability Act
HIT	Health Information Technology
HITECH	Health Information Technology for Economic and Clinical Health
I-APD	Implementation Advance Planning Document
IC	Informatics Center
ITS	North Carolina Information Technology Services
MITA	Medicaid Information Technology Architecture
MMIS	Medicaid Management Information System
MS SQL	Microsoft Structured Query Language
MU	Meaningful Use
MU^2	Meaningful use of Meaningful Use
NC AHEC	North Carolina Area Health Education Center
N3CN	North Carolina Community Care Networks
NC-MIPS	North Carolina Medicaid Incentive Payment System
NCTRACKS	NC Transparent Reporting, Accounting, Collaboration, and Knowledge Management System
NLR	National Level Repository
OMMISS	Office of Medicaid Management Information System Services
ONC	Office of the National Coordinator
ORH	Office of Rural Health
P-APD	Planning Advanced Planning Document
PCG	Public Consulting Group
REC	Regional Extension Center
SMD	State Medicaid Director
SME	Subject Matter Expert
SMHP	State Medicaid HIT Plan

Acronyms and Abbreviations	
SOA	Service Oriented Architecture
XML	Extensible Markup Language