



Online Testing
Technology Readiness Analysis
Phase II
For
Aiken County School District

Overview of Aiken County School District



Aiken County School District is located in the western part of the state with the District Office located in Aiken, SC. As of November 2016, the district is comprised of 39 schools and a career center, serving approximately 25,000 students. Test scores for students in grades 3-8 in the district were below the state average in all areas in 2016 for SC Ready and SCPASS and leadership is working aggressively to take the appropriate measures to enhance the learning experience and increase student achievement rates in 2017.

Key Data Points

- Dr. Sean Alford has served as Superintendent for 2 years
- District Poverty Level is 61%
- Teacher Retention Rate is 91%
- Breakdown of schools:
 - 19 Elementary Schools, grades PK-5
 - 1 Elementary/Middle School, grades PK-8
 - 9 Middle Schools, grades 6-8
 - 1 Middle/High School, grades 6-12
 - 6 High Schools, grades 9-12
 - 3 Charter Schools, grades PK-8, grades 3-8, grades 9-12
 - Approximately half of the schools in the district are over 50 years old

Participating District Personnel

Name of District Staff Member	Roles/Responsibilities
Dr. Andrew Cox	Director of Technology
Kate Olin	Director of Accountability & Assessment
Don Pencille	Network Coordinator
Michelle Everhart	Lead Technology Specialist

Purpose of This Analysis

The purpose of this analysis is to provide an independent evaluation of the ability of Aiken County School District to organize and conduct online testing for their students starting in the spring of 2017. Federal online testing guidelines will take effect in 2018 but South Carolina's legislature has implemented plans for all districts to begin formal online testing in March of 2017. This proactive technology analysis will benchmark a district and their schools in several key areas and provide a technology readiness score that will ultimately lead to a roadmap of detailed tasks and deliverables that are necessary to improve any of the deficient areas.

The four specific objectives of this analysis are:

1. Analyze the strengths and weaknesses of the school district and quantify their ability to carry out the online testing activities in 2017 and beyond while documenting any major gaps in "readiness."
2. Work with the district to identify recommendations to bridge the gap between where the district is and where they need to be in terms of technology readiness to carry out these activities.
3. Collaborate with the district to put in place a blueprint for completing any tasks (or procurements) necessary to achieve "technology readiness."
4. Identify opportunities for the district to collaborate with other state agencies and/or school districts to share fixed costs.

Analysis Background

During the 2015 budget planning period, Superintendent Molly Spearman championed the General Assembly to consider the request of reserving a portion of the K-12 Technology Initiative funds for the purpose of providing technology technical assistance to rural and less affluent districts of need. After funds were allocated through the Proviso, the Superintendent's office called together a small Advisory Task Force to begin exploration of a plan of action to implement the initiative. The Task Force included South Carolina Department of Education (SCDE) staff, representation from rural school districts, legislative representation, and private sector.

The Proviso states:

"1.94. (SCDE: Technology Technical Assistance) Of the funds appropriated for the K-12 Technology Initiative, the department is authorized to withhold up to \$350,000 in order to provide technology technical assistance to school districts."

The purpose and spirit of the Proviso is for the SCDE to provide technology-consulting services ("technology technical assistance") to school districts that would otherwise struggle in securing such services and resources. In particular, consulting services would initially focus on evaluating the state of technology, in participating districts, as it relates to readiness for standardized, online assessments beginning in 2017 and the capacities to offer quality computing based instruction, including Wi-Fi availability for support of instruction.

Proposed District Participants:

While there are a substantial number of rural-based districts in the South Carolina public school system, funds allocated for the first year's initiative were not adequate to offer high quality, and much needed, external, independent consulting services to all districts of need. Therefore, it was recommended that initial focus be placed on the plaintiff districts involved in the lawsuit between districts and the state (Abbeville vs. South Carolina.) and any other rural districts identified by the State Superintendent's office. There were initially at least 30 districts involved in the state suit and about 9 remained by the end of the suit. All of the original Abbeville Law Suit districts were given the opportunity to participate in the Online Testing Technology Readiness Analysis. In late 2016 the Legislature approved additional funding to provide this study to the remaining school districts in the state.

Proposed Consulting Resources/Partners:

The South Carolina Department of Education did not have adequate staffing to fully offer technology consulting services of this magnitude. Therefore, it was suggested that SCDE seek and secure external, independent contracted services to facilitate this initiative. The state interviewed several industry-consulting resources and opted to leverage a lead consultant who helped the state with the analysis and writing of the Educational Technology Plan for years 2014-2017. Robert Cardelli was contacted in late 2015 and the consultant team was finalized and officially began work the second week of November 2015.

Initial Outcomes:

As a result of the initiative, each participating district receives a personalized report detailing the consultants' findings and recommendations as to the district's technology readiness for state and other online assessments, 1:1 computing, and enhanced Internet connectivity (Wi-Fi) for the support of instruction in their schools. A blueprint outlining specific steps the district and their schools need to focus on is presented to the district's superintendent as part of the final report.

Evolution of Online Testing Requirements

No Child Left Behind legislation required states to measure students' progress in reading and mathematics annually in grades 3-8 and at least once in grades 10-12 by 2005-2006. The *Every Student Succeeds Act* (ESSA) maintains the requirement that each state implement "a set of high quality student academic assessments in mathematics, reading or language arts, and science" (114th Congress, 2015, p. S.1177-24) among its provisions. Further, mathematics and reading or language arts assessments will be administered in each of grades 3-8, and at least once in grades 9-12.

Beginning in the 2014-2015 school year, learners faced a new testing challenge in that their assessments of learning will be via online testing of the Common Core standards. Assessments are being developed by organizations such as PARCC, DRC, ACT and SBAC. Tests may take learners from 8-10 hours to complete and must be integrated into the school's daily and weekly calendar of events to complete the necessary activities. (Doorey, 2014; Gewertz, 2013). Online testing has posed concerns about required technology, sufficient bandwidth, computerized test security, learners' technology skills, and new forms of test anxiety.

States Must Become Familiar with Updated Legal Policies for Computerized Testing

Computerized testing raises new issues that require updating of test security laws and policies, as policies written for standardized testing administered via paper-and-pencil are no longer sufficient. ACT has a highly relevant report in this regard: [The End of Erasures: Updating Test Security Laws and Policies for Computerized Testing](#) by Michelle Croft (2014).

Croft (2014) outlined many concerns, noting that computerized testing does not eliminate cheating and test piracy. Such practices just take on different forms. Unique risks include such things as educators logging in to tests to view questions or change student responses, computer hacking, keystroke logging, printing, emailing, or storing test information in a computer outside the test delivery system. There is a greater risk of students accessing the Internet and other programs during testing. There is great concern about students using their own devices for testing and who has administrative privileges. Technology staff and teachers need to consider how testing workstations need to be positioned and secured so that students can't see what's on the monitors of others.

Croft (2014) recommended that states update their state statutes and regulations to reflect the shift to computer-administered assessments, concentrate efforts on controlling test access, and ensure that there is a single test security section within the updated manual that contains answers for any question that a test administrator has about test security. For example, policies should consider how student login information is secured. There should be rules on how tests are reactivated if disrupted. Additionally, these rules should emphasize having more than one proctor aid in the reactivation, and most importantly, proctors should maintain a log of all reactivations to provide documentation in the event of an investigation. Likewise, the technology should be secure and the testing window should be as short as possible to reduce the likelihood that items are compromised. Finally, states should implement steps to actively monitor test access issues through data reports to determine if there have been excessive logins or logins at times when testing should not occur (e.g., on the weekends), and have clear policies in place detailing how violations will be handled.

The test security section should also include an itemized list of what materials are secure (e.g., work folders, student authorization tickets with IDs and passwords, session rosters, scratch paper, reference sheets). "Information about who can access the test should be clearly articulated across the school and communicated to all proctors on the day of testing. In addition, there should be information on how to report test security concerns and possible violations, which can be applicable regardless of the testing format" (Croft, 2014, p. 4).

It is vital for states to adequately prepare districts and schools for the evolving testing requirements and to proactively ensure educators and students are familiar with any new policies regarding computerized test administration, including what they, test proctors, and students may and may not do. Having these policies and procedures in place is critical to the success of the testing process and the legal implications for violating any of these policies are potentially severe. Advance planning and communication is required to minimize the risks associated with testing. Any technological failures in the administration of the tests could spark an outcry to invalidate the results; especially considering that high-stakes test scores are factored into school grades, teacher salaries, and federal assistance to the state. The stakes are too high!



South Carolina's Testing Requirements

[ACCESS for ELLs®](#), (WIDA)

English language proficiency assessment for limited English proficient students. Complies with the requirements of the No Child Left Behind Act of 2001, 20 USC 6301 et seq. (2002).

Purpose: English language proficiency

Grades: K through 12

Testing Schedule: February 6–March 24, 2017

[ACT WorkKeys®](#), (WorkKeys)

ACT WorkKeys is a job skills assessment. The South Carolina Code of Laws, section 59-18-325, requires that all eleventh grade students take ACT WorkKeys®.

Subjects: Reading, Applied Mathematics, and Locating Information.

Grade: 11th Grade

Testing Schedule: March 22-April 19, 2017

[End-of-Course Assessment Program](#), (EOCEP)

End of Course Examination Program (EOCEP) is a statewide assessment program of end of course tests for gateway courses to meet federal accountability requirements.

Subjects: Algebra 1, English 1, Biology 1, and US History and the Constitution

Grade: 11th Grade

Testing Schedule: Dec 1, 2016 - Jan 27, 2017, May 1 - last day of School, June 19 - July 21, 2017

[South Carolina College and Career READY Assessments](#), (SC READY)

Statewide assessments in English language arts (ELA) and mathematics that will meet all of the requirements of Acts 155 and 200, the Elementary and Secondary Education Act (ESEA).

Subjects: English Language Arts and Mathematics

Grades: 3 through 8

Testing Schedule: April 7 – June 5, 2017

[South Carolina Palmetto Assessment of State Standards](#), (SCPASS)

SCPASS test items measure student performance on the South Carolina Academic Standards. The SCPASS test items are aligned to the standards for each subject and grade level.

Subjects: Science and Social Studies

Grades: 4 through 8

Testing Schedule: The last thirty (30) days of school

[The ACT®](#), (ACT)

The ACT test scores provide information about progress toward college readiness and are widely used by colleges in making decisions about admission. This test is required by The South Carolina Code of Laws, section 59-18-325, which specifies The ACT® test must be administered to all eleventh grade students.

Subjects: English, Reading, Mathematics, and Science, and Writing test (essay).

Grade: 11th Grade

Testing Schedule: February 28-March 14, 2017

Overview of Technology Readiness Analysis Team

A team of independent consultants has been hired by the State of South Carolina to conduct all aspects of this assessment. The objectivity that outside resources bring to the table has helped reduce the perception that “big brother” is searching for negative data points on a district’s leadership team. The use of third party resources has helped foster open and honest dialogue and allowed the district staff and consultants to collaborate in all aspects of the process. The team is comprised of the following individuals:

☐ **Rob Cardelli**

- Project Manager overseeing all facets of the analysis
- More than 20 years of education and government consulting expertise
- Personally worked with over 100 education customers including helping the Department of Education in South Carolina gather requirements and write the State’s Educational Technology Plan for years 2014-2017

☐ **Brenda Bryant**

- Former school teacher in Richland 2 school district
- Focusing much of her attention on the readiness of students and teachers along with professional development concerns

☐ **Bob Jones**

- Local I/T and Management Consultant with over 30 years of experience
- Focusing much of his efforts on the infrastructure, hardware, security and funding concerns
- Expert in data analytics and reporting

Participating Districts

The school districts that the state has identified as potential candidates for these optional readiness analysis studies have been prioritized into the following three categories:

- ❑ **Wave 1-** Includes the nine school districts that were still involved with the Abbeville Lawsuit at the time of the verdict
- ❑ **Wave 2-** Complete list of all districts participating in the Abbeville Lawsuit at any point in time over the last 20 years
- ❑ **Wave 3-** Other districts categorized as impoverished
- ❑ **Wave 4-** Remaining districts currently participating in the study

Wave 1

Wave 2

Wave 3

Wave 4

<ul style="list-style-type: none"> • Allendale • Dillon 3 • Dillon 4 • Florence 4 • Hampton 2 • Jasper • Lee • Marion • Orangeburg 3 	<ul style="list-style-type: none"> • Abbeville • Bamberg 1 • Bamberg 2 • Barnwell 19 • Barnwell 29 • Barnwell 45 • Berkeley • Chesterfield • Clarendon 1 • Clarendon 2 • Clarendon 3 • Florence 1 • Florence 2 	<ul style="list-style-type: none"> • Florence 3 • Florence 5 • Hampton 1 • Laurens 55 • Laurens 56 • Lexington 4 • Marlboro • McCormick • Orangeburg 4 • Orangeburg 5 • Saluda • Williamsburg 	<ul style="list-style-type: none"> • Calhoun • Colleton • Darlington • Edgefield 	<ul style="list-style-type: none"> • Aiken • Anderson 1 • Anderson 3 • Beaufort • Charleston • Cherokee • Chester • Greenville • Greenwood 52 • Horry • Lancaster • Lexington 1 	<ul style="list-style-type: none"> • Lexington 2 • Lexington/Richland 5 • Newberry • Oconee • Pickens • Spartanburg 1 • Spartanburg 2 • Spartanburg 4 • York 2
---	---	---	--	---	---

Plaintiff Districts

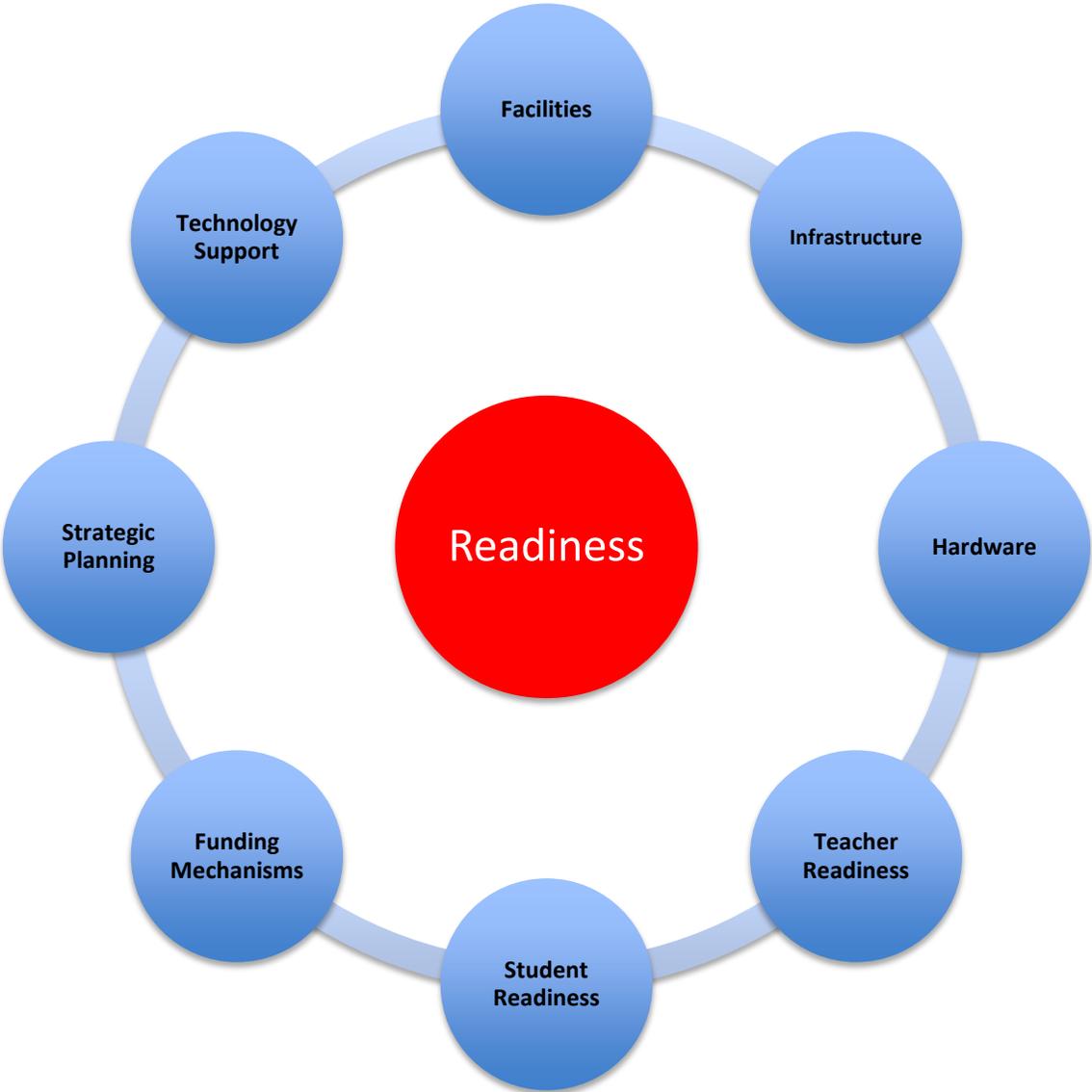
Analysis Methodology

The consultants worked with several of the districts, early in this process, to design and ultimately refine a methodology that allows for rapid data gathering with multiple collaboration opportunities for district staff to review the findings and edit the documentation to ensure the report accurately reflects the current state of the district. The consultants realize how busy the district staff are and created a methodology that is non-invasive in nature and flexible to allow the participants to work around their “day jobs” to reduce the impact on their daily operations.



Primary Areas of Focus

The technology analysis team identified several categories that are critical for a school district to achieve technical readiness for online testing. Within each category there are multiple variables that directly impact that category's degree of readiness. Accurately documenting these variables helps paint a picture of the overall level of readiness of the school district and also can be used to craft a blueprint for improving those deficient areas. The graphic shows the eight (8) categories currently being used to measure the degree of readiness. The following pages provide details surrounding the variables that are being analyzed during the analysis process.



Categories and Variables Being Measured

Note: These are generic categories and questions being asked are not specific to any one district. Each bullet point receives a score that is averaged for the overall section.

❑ Impact of Facilities

- How does the availability or lack of space impact the district's level of readiness?
- How does the age of the schools impact cabling, wireless, and ability to connect to the Internet?
- Does poor air conditioning or ventilation in server rooms, network closets, or computer rooms present a risk to the availability of the computers for testing?
- Are there situations where rodents chew through cables and bring down the district computer network? How long is the network down and what is the frequency of these events?
- Are there leaky ceilings, poor flooring, mold, or other environmental conditions that could impact the testing facility?

❑ Readiness of Infrastructure

- How does the amount of available network bandwidth impact the testing strategy?
- Are there any risks to testing due to the "up time" of the district (or school's) network?
- How many simultaneous testing machines can a district handle during any block of time?
- Does the district need additional wireless access points to conduct testing activities?
- Do the age and type of routers or switches impact the performance of the network and the ability of students to test in a given timeframe?
- Does the current wiring/cabling of the network impact the overall system performance? Is there anything that needs to be improved to enhance the testing experience?
- Is there any evidence that the security of the district's networks or computers could impact online testing?

❑ Readiness of Existing Hardware

- How does the number of available computers directly impact the district's ability to test?
- Is there a need to upgrade the available memory (RAM) in the testing computers? How much memory is currently in the testing machines and what (if any) performance issues have been witnessed?
- Are there any concerns over the size or quality of the testing monitors?
- Is there evidence that the different types of equipment being used for online testing directly impact the staff's ability to support the technology? Are there multiple products in use overcomplicating the support strategy and overall skills of the district staff?
- Do the current operating systems of the testing computers limit the ability to test? Are there any upgrades being planned and when will these take place?
- Are there adequate backup testing machines and/or accessories to ensure the necessary number of devices on the day of testing?
- Are there any procurements currently being contemplated and will they need to be amended to reflect changes to the testing strategy?

❑ **Teacher Readiness**

- Are the teachers adequately prepared for 2017 online testing requirements?
- Do the teachers require professional development training to educate them on how to better leverage technology?
- Do the teachers require assistance creating and conducting computer literacy classes for their students?
- Does the district have funding to offer computer literacy?
- What is the turnover rate of the teachers? How does the turnover rate impact the district's testing strategy?
- How do the teachers interact with the district technology staff?
- Are teachers aware of testing policies and are they properly prepared to manage testing cycles?
- Do the teachers need assistance in preparing their students for computer literacy?
- Are there any other concerns related to a teacher's knowledge or ability to assist with online testing?

❑ **Student Readiness**

- How does the level of computer proficiency of the student's impact online testing? Are there any concerns that students are not properly prepared to take a test on a computer?
- Does the district offer kindergarten through second grade computer classes?
- Is there any proactive analysis to identify disadvantaged students in a classroom with little to no computer literacy? What, if anything, is the district doing to help these potentially at risk students?
- Does the district allow students to check out computers to take home?
- How does a district manage situations where two different teachers leverage technology differently? Is there any analysis into the student's technology proficiency between these two scenarios?
- Does the district offer practice tests to allow the students to get familiar with the testing process and what is expected of them?
- Are students aware of testing policies and the implications?
- Is there any evidence from previous online testing cycles that students need assistance in specific areas? Examples might include: typing skills, knowledge of scrolling or potentially how to properly use a mouse.

❑ **Technology Support**

- How many resources are available at the district level and what are their roles and responsibilities?
- What are the main skills of the staff? Are there any skills missing in the support model?
- What functions are outsourced?
- What kind of help desk system is in place and how many ticket items are open?
- How many job duties does the staff have to perform?
- Does the district staff have any assistance from within the school?
- What would the impact be on the school's ability to test if a key resource were to call in sick or resign during the testing window?
- Are there any concerns about the availability of technology staff to support the testing process?
- Are policies and testing procedures documented and disseminated to all staff?
- Are students and their families made aware of the testing policies and schedule?
- Does the technology support team regularly communicate their needs to the administration and/or school board? What is the relationship between these parties?

□ **Funding Mechanisms**

- Does the district leverage all available e-Rate funds?
- How has the district utilized e-Rate funds in the recent past?
- Does the district have experienced grant writers?
- How have technology related grants been utilized in the recent past?
- Are there any funds from e-Rate or grants that have NOT been utilized but could be leveraged to help improve the overall readiness of the district for online testing?
- Who writes the e-Rate documentation and grants? Internal or external resources?
- Are there other sources of funds the technology staff has access to and for what are they used?
- How does the district determine how the funds will be utilized?
- Are there any situations where money earmarked for technology is denied and utilized for non-technical district needs?
- What is the role of the technology staff in setting budgets and preparing for online testing needs?
- Is there a formal mechanism for cross training multiple district staff in the rules, regulations and nuances of applying for e-Rate, grants or other funding sources?
- How are the district's funds allocated for student computer literacy being spent?

□ **Strategic Planning**

- Does the district have an up to date district wide strategic plan?
- Does the district have an up to date district technology strategic plan?
- Are the district's strategic plan and the TECHNOLOGY strategic plan properly aligned?
- What is the level of involvement of the local school board?
- Who is involved in strategic planning?
 - *Superintendent?*
 - *Teachers/Faculty?*
 - *I/T staff?*
 - *Local Vendors?*
- How does the district proactively plan for new technology acquisitions?
- How do the schools leverage district I/T staff?
- How are students or teachers leveraged?
- How are local technology vendors utilized?
- What is the level of involvement with the local "consortium"?
- How does the technology staff procure hardware or services?
- Is there a risk of "single point of failure" with the district staff member?
- Does the district need specific training in proper strategic planning?
- What is the role of the finance officer and their level of knowledge around I/T funding?
- What is the level of knowledge of your local state representatives in regard to your needs and funding challenges?
- What assistance is required from the state?

Overview of Readiness Rating Scale

To evaluate the readiness of a district in multiple areas the team created a rating scale to objectively measure how effectively (or ineffectively) a particular area rates compared to other districts. After each area has been given a score the analysis team compiles the statistics and averages them to derive a final readiness score for the district. To simplify the process the consultants used a scale of 1-5 that increases in increments of half a point. The following scale will be used to track future readiness decisions:

Rating	Description
1	The district is unable to prove they can successfully complete online testing in 2017.
2	The district could feasibly conduct testing in 2017 but there are multiple areas that need to be improved to make this happen and if they are not completed testing will more than likely be unsuccessful.
3	The district is able to meet the needs for online testing in 2017 but has several areas where they could improve and multiple risks exist that could significantly impact the overall health of the organization. If these issues are not addressed it's likely the district will deteriorate rapidly
4	The district is doing everything right within their power. There are some areas that are outside of their control that need to be addressed to help ensure the future stability of the district.
5	The district is prepared for 2017 and beyond. They do not have any measurable risks associated with Online Testing for 2017 or beyond. They can handle online testing for all grades and subjects.

Summary of Findings for Aiken County School District

Overall Readiness Score	3.1
--------------------------------	------------

Impact of Facilities

Readiness Score	2.7
------------------------	------------

Area of Focus	Observations	Recommendations
Availability of Testing Labs	<ul style="list-style-type: none"> Several schools in the district do not have sufficient lab space to complete online testing within the testing window. Since Aiken County is not a 1:1 district, every available device must be utilized to complete online testing. This includes devices in the Media Center and CATE labs. The district must also take devices from Full Circle classes where they are used in daily instruction. 	<ul style="list-style-type: none"> Disruptions to scheduled classes in computer labs and Full Circle classrooms need to be carefully managed to minimize negative impact to students. The district will need to purchase additional laptop carts to leverage in the classrooms for testing purposes.
Age of Buildings and Impact on Cabling and Wireless Connectivity	<ul style="list-style-type: none"> Approximately half of the buildings in the district are over 50 years old. There is cabling in the district over 25 years old that will need to be upgraded. The age of the buildings can present a challenge for running the necessary cabling. As old as the schools in the district are, they have been maintained as well as funding has allowed. 	<ul style="list-style-type: none"> More power supplies will be needed for laptop carts, as well as extra batteries for any schools that lack the power supplies.
Environmental Concerns (i.e. mold, air conditioning and ventilation concerns, excessive noise)	<ul style="list-style-type: none"> A small number of data closets have ventilation issues. 	<ul style="list-style-type: none"> Adequate HVAC should be a priority to ensure there are no issues with equipment overheating causing disruptions during testing.

<p>Condition of desks and chairs where students will be testing</p>	<ul style="list-style-type: none"> • There is evidence that some furniture may need to be replaced. This is not a major risk to testing but it does bear watching in the future to ensure students are not forced to sit for extended periods of time in rickety desks or chairs. 	<ul style="list-style-type: none"> • The district should not overlook the significance that desks and chairs have on the overall testing experience. A formal assessment of furniture should be conducted to ensure all furniture is in good shape and appropriately sized. • New desks, tables, and chairs will need to be purchased for labs and classrooms that will be used for online testing as warranted.
<p>Other Comments or Concerns</p>	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Infrastructure

Readiness Score	3.6
-----------------	-----

Area of Focus	Observations	Recommendations
Available Bandwidth to the district	<ul style="list-style-type: none"> Aiken County Schools has 2.5GB coming in from the state which they do not feel is sufficient. The district already has strict filtering in place and is disabling Windows updates in an effort to provide a sufficient amount of bandwidth during testing. 	<ul style="list-style-type: none"> With the demands of educational content online streaming increasing, and as the evolution of online testing grows, Aiken will need to conduct a formal internet load testing performance test to ensure the district's incoming bandwidth will handle all of their needs.
Disaster Recovery Solution	<ul style="list-style-type: none"> Aiken County has a Unitrends system that backs up nightly. Backup is stored offsite at 2 separate locations within the district. The district does not utilize a cloud solution for DR. 	<ul style="list-style-type: none"> The consultants recommend Aiken collaborate with their peers in other districts to obtain a discounted vendor contract for DR.
Stability of Networks Within The Schools	<ul style="list-style-type: none"> The district reports uptime of approximately 99%. Aiken has a backup internet circuit and redundancy wherever possible. Stability of the network is heavily monitored. 	<ul style="list-style-type: none"> No recommendations are needed in this area other than to continue to refresh infrastructure hardware and software to industry standards.
Available Bandwidth to the Schools	<ul style="list-style-type: none"> WAN varies from 150 mbps to 1GB, depending on the size of the school. 	<ul style="list-style-type: none"> Network performance testing should be conducted to ensure the available bandwidth can adequately handle the demands of online testing and streaming educational video content.
Wireless Networks <ul style="list-style-type: none"> Routers Access Points Bandwidth Switches 	<ul style="list-style-type: none"> The district has 1:1 wireless access points at all schools; however, WAPs are aging and need to be replaced. Routers and switches are being upgraded as funding becomes available. Much needed upgrades to the infrastructure have been delayed due to the unavailability of funding. The district will need to rely heavily on wireless for testing since they lack the available lab space. This is of great concern to the technology staff. 	<ul style="list-style-type: none"> A very real risk exists due to the need to proactively maintain the heart and soul of the infrastructure. With potentially challenging changes to the way districts such as Aiken leverage e-Rate coming in the near future, alternate funding mechanisms are needed to maintain the infrastructure.

Security Issues / Plans	<ul style="list-style-type: none"> • Aiken County has a strict filtering policy in place. • The district does not allow BYOD, thereby further protecting the network. • The district follows state guidelines for securing testing rooms. 	<ul style="list-style-type: none"> • Aiken should be considered a leader in the state in this area. No further recommendations are needed.
Other Comments or Concerns	<ul style="list-style-type: none"> • Aiken County utilizes many content rich programs on a daily basis that use a great deal of bandwidth. The technology department is already restricting usage of certain programs/websites and blocking Windows updates in order to provide adequate bandwidth for daily instruction. There is a great concern that the current bandwidth will not be sufficient for online testing. 	<ul style="list-style-type: none"> • The district should continue to collect technical data for DTO to substantiate the need for more bandwidth. • Formal internet load testing should be conducted as the demands of educational content streaming will continue to increase.

Hardware

Readiness Score	2.7
-----------------	-----

Area of Focus	Observations	Recommendations
Available Testing Devices	<ul style="list-style-type: none"> Aiken is not a 1:1 district. In addition to utilizing laptop carts where available, CATE labs are being used as well as Compass labs. Aiken purchases business class devices only. The district is utilizing every available device for testing, including devices in Full Circle classrooms, where these devices are used as a part of daily instruction. The consultants do not feel this is an acceptable practice. 	<ul style="list-style-type: none"> A formal assessment must be completed to determine how many additional devices are needed at each school to be able to complete online testing within the testing window. If funding is not available to purchase additional laptop carts, a short-term lease of testing carts/mobile labs could be a viable option.
Age and ability to upgrade computers	<ul style="list-style-type: none"> Device age ranges from new to 14 years old. In an effort to be fiscally responsible, the district has been purchasing refurbished desktops with a lifetime warranty. The district has been making an effort to standardize as new devices are purchased in order to streamline their support model. The technology staff repairs the majority of desktops. 	<ul style="list-style-type: none"> A consistent and well thought out technology refresh strategy should be created and approved by the superintendent and communicated and approved by the school board.
Available RAM (Memory) in testing computers	<ul style="list-style-type: none"> Desktops have 4GB of RAM. Laptops have 2GB-4GB. All new devices are being purchased with 8GB of RAM. 	<ul style="list-style-type: none"> The consultants recommend the district continue to purchase computers with at least 4 or 8 GB of RAM as they refresh their inventory.
Adequate replacement hardware	<ul style="list-style-type: none"> Aiken has a very small stock of replacement hardware for a district their size. There are 30 devices district wide available should machines go down during online testing. It is imperative that the district and schools have adequate machines for testing. 	<ul style="list-style-type: none"> Purchase and maintain a healthy supply of backup machines, batteries, keyboards and mice.

Support and Replacement Strategy	<ul style="list-style-type: none"> • In the past Aiken has refreshed devices as funding allowed, resulting in a wide array of devices in the district. • The district has recently implemented a five-year replacement cycle for hardware. There is a concern that funding will not be available for a complete change out as planned. 	<ul style="list-style-type: none"> • A formal strategic planning initiative is needed to review the current state situation and identify needs for the district in a variety of areas outside the scope of this assessment. The district staff has the skills to complete this assessment internally however, they don't have the time. The consultants recommend a formal plan be created to ensure infrastructure and computers are modernized on a consistent basis.
Other Comments or Concerns	<ul style="list-style-type: none"> • Currently Aiken has many older systems that meet the bare minimum requirements for state testing. If requirements for state testing continue to increase, the district fears they may have even fewer devices available for online testing. 	<ul style="list-style-type: none"> • Aiken, like many districts, has often been blindsided by changing testing specifications. The consultants feel that there should be more effort from the state to give districts adequate time to meet changing technical specifications.

Teacher Readiness

Readiness Score	3.0
-----------------	-----

Area of Focus	Observations	Recommendations
Technical Proficiency of Staff	<ul style="list-style-type: none"> Some teachers in the district either are not comfortable with technology or do not have access to technology in their classrooms. They often lack basic skills. Aiken has lost all 3 District Technology Trainers over the last year due to retirement or reassignment. 	<ul style="list-style-type: none"> The district would benefit greatly with the replacement of the District Technology Trainers. There are no resources available on staff to assume this role.
Teacher Retention	<ul style="list-style-type: none"> Aiken has a teacher retention rate of 91%. The majority of these teachers are either retiring or leaving the profession. 	<ul style="list-style-type: none"> The district has one of the higher teacher retention rates in the state. No recommendations are needed in this area.
Teacher Utilization of Technology	<ul style="list-style-type: none"> Like many districts, some teachers are unwilling to change the way they teach or do not feel comfortable with their technology skills to leverage technology in the classroom. In other cases, many teachers want to leverage technology but do not have ready/consistent access to technology for the entire class. Depending on the technology, minimum requirements are in place. Opportunities are provided for teachers to share their effective classroom use of technology through in-district conferences/workshops. 	<ul style="list-style-type: none"> More formal professional development is required to better prepare teachers. Infrastructure upgrades must be completed in order to support technology in the classroom.
Teacher Technology Literacy Development	<ul style="list-style-type: none"> The district offers a variety of workshop opportunities throughout the year, but they are usually held during planning periods, after school, or on in-service days. Teachers are currently involved in quarterly benchmark testing with MasteryConnect. This is preparing the teachers for online testing and identifying current issues. Most schools have a Technology Coach/Leader. These are classroom teachers who receive a stipend to assist other teachers. They do not receive formal training. 	<ul style="list-style-type: none"> Although the district recognizes the importance of professional development, they do not have the resources to provide optimal PD. The need for District Technology Leaders is easily quantifiable in a district of this size. Sharing a resource with neighboring districts is a common practice in other states.

Student Readiness

Readiness Score	3.3
-----------------	-----

Area of Focus	Observations	Recommendations
Availability of Computer/Typing Classes for K-2	<ul style="list-style-type: none"> • K-2 students have limited access to a computer lab and do not have formal computer literacy/keyboarding classes; however they do use Waterford in their daily instruction which does give them some keyboarding exposure. All elementary students are using TypingQuest. • Formal keyboarding curriculum begins in 3rd grade. • A student's computer proficiency level impacts their ability to accurately demonstrate content knowledge. The district is concerned that students need additional opportunities to practice with the online testing format to be prepared. 	<ul style="list-style-type: none"> • Keyboarding lessons need to start prior to the 3rd grade. Formal computer literacy and keyboarding activities are necessary to ensure 3rd graders are prepared for the testing requirements.
Level of Poverty/Home Exposure to Computers	<ul style="list-style-type: none"> • Aiken has a poverty index of 61%. Although this is lower than many districts in the state, there are many pockets of higher poverty within the district. • All but 1 elementary school qualifies for Title 1 funding. These students receive more exposure to technology. • At risk students are provided computer-assisted instruction; however, computer literacy is not the specific focus. 	<ul style="list-style-type: none"> • The fact that many of the district's students come from homes where heavy and consistent computer usage is unlikely only increases the need for formal computer literacy classes in the earlier grades. • The district has done an excellent job identifying students who are struggling and offering additional support.
English as a Second Language Concerns	<ul style="list-style-type: none"> • Aiken has a 6.4% LEP (Limited English Proficient) population. The district has a support system already in place, district-wide, for these students. Specific skills for technology or online assessment are addressed in this system. • The district delivered WIDA testing online this year and experienced no issues. 	<ul style="list-style-type: none"> • The consultants recommend the district staff continues to work closely with the schools to formally give the LEP students an opportunity to take a practice test to ensure they are adequately prepared for testing activities. Simulated testing will help identify any potential concerns in a proactive manner.

Availability of Sample Tests/ Has District already attempted online assessment testing?	<ul style="list-style-type: none"> • Teachers are offering the DRC online tutorial to students. • The link to practice testing is being sent home with students. • The district has participated in other online assessments in the past, such as MAP and EOC; however, they have discontinued MAP testing in the district. 	<ul style="list-style-type: none"> • The consultants strongly recommend the district continue administering sample online tests to help prepare students for online testing.
Other Comments or Concerns	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Funding Mechanisms

Readiness Score	2.7
-----------------	-----

Area of Focus	Observations	Recommendations
e-Rate Funding	<ul style="list-style-type: none"> Aiken uses an outside consultant to ensure full and complete use of e-Rate funding. In the past, the district only used e-Rate for telecommunications, but this year they have expanded it drastically to include cabling, switching, and wireless access points. They are currently using the funding to overhaul our entire network. The Director of Technology oversees the program, generally, with assistance from the Technology Coordinator, and the actual documentation is managed by the consultant. 	<ul style="list-style-type: none"> Ensure the district’s strategy for utilizing current and future e-Rate funds are documented in the strategic plan. Continue outsourcing the e-Rate management process. Recent changes in e-Rate funding should be reviewed to determine the impact on the district’s strategy for utilizing e-Rate and funding needs e-Rate will no longer be covering.
Grant Writing	<ul style="list-style-type: none"> Aiken does not have a dedicated grant writer. District staff with knowledge of the subject will assist as needed. The district is not currently receiving any technology grants. 	<ul style="list-style-type: none"> We recommend collaborating with neighboring districts to share a resource to assist in this area. This is a common solution in many states.
Technology Budget	<ul style="list-style-type: none"> The district technology budget for 2017-2018 is \$2,220,505.00. The amount is set by the Board, upon recommendation from the Superintendent. His recommendation is the product of requests, approved or denied, from the Director of Technology on a rolling five-year plan basis. 	<ul style="list-style-type: none"> With the loss of K-12 Initiative funds and changes to e-Rate, the district needs to closely monitor their sources of funding. These changes could hurt the support model almost immediately.
Other Comments or Concerns	<ul style="list-style-type: none"> There are no specific bonds/taxes allocated for technology, but there is a 10 year bond that was approved by the county voters that covers new equipment in renovated spaces at specific locations. The utilization of the funds is largely at the discretion of the Director of Technology. 	<ul style="list-style-type: none"> Aiken’s technology budget is on the low side for a district of its size. Districts of comparable size often have budgets of \$5 million to \$9 million, depending on their hardware needs. This makes it difficult for the district to consistently refresh their hardware according to industry standards.

Strategic Planning

Readiness Score	3.5
-----------------	-----

Area of Focus	Observations	Recommendations
Who is involved in strategic planning?	<ul style="list-style-type: none"> The Director of Technology oversees a large group of individuals, including teachers, principals, department heads, community members, and general staff, who develop the district's technology plan. That plan is included in the district's overall strategic plan, which is overseen by the Superintendent. 	<ul style="list-style-type: none"> The school board must be regularly educated on the importance of technology within the district and the impact of limited funds on the ability to support the required technology.
The role of technology is agreed upon by all parties	<ul style="list-style-type: none"> Technology needs are communicated to the Deputy Superintendent, who updates the Superintendent and other key individuals weekly. The Board is informed of major purchases and initiatives. 	<ul style="list-style-type: none"> No recommendations are needed in this area.
Professional Development Strategies	<ul style="list-style-type: none"> Although the district places a high priority on professional development, a lack of funding has created challenges in this area. 	<ul style="list-style-type: none"> Ensure professional development efforts are addressing the added complexity of online testing both for teachers and technical support staff. The addition of District Technology Leaders is easily quantifiable and would facilitate professional development in the district. Aiken would benefit from assistance from the state with a management system for professional development and additional funding.
Other Comments or Concerns	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">

Readiness of Technical Staff to Support Online Testing

Readiness Score	3.0
-----------------	-----

Area of Focus	Observations	Recommendations
Technical Support Staff	<ul style="list-style-type: none"> Aiken has a support staff of 21 members. Although this is small for a district of their size, the district has a high level of efficiency with automation, especially on the network and server side. 	<ul style="list-style-type: none"> As online testing grows, Aiken may need to increase the technology staff. School coverage during testing will be difficult with only 9 technicians.
Technical skills and proficiency of support staff	<ul style="list-style-type: none"> Aiken’s IT staff is extremely skilled in many areas, including security, technical support, networking, and servers. Because of the number of devices on the network, the district would benefit from additional hardware support staff. The district outsources PowerSchool maintenance, e-Rate preparation, and they have contracts with multiple vendors for high-level support (Microsoft, Dell, Cisco,). 	<ul style="list-style-type: none"> Formal details of roles and responsibilities are needed to help map out where additional skill sets might need to be inserted into the support model.
What is the role of I/T during testing?	<ul style="list-style-type: none"> IT prepares the servers, if needed, and installs/updates the software. They are also available to provide support if problems occur during testing. The district has concerns about staffing levels when testing is taking place at multiple sites. They presently have a school to staff ratio of approximately 4:1. All staff members are aware of essential testing troubleshooting and remote access is frequently utilized to compensate for not having a technician at each site. 	<ul style="list-style-type: none"> Developing a support model for supporting on line a priority. Technical issues disrupting testing should be should be kept to a minimum. Given the district's limited technology staff it is imperative that well trained contacts are at all schools.

Availability of staff to proactively engage with the teachers and administrative staff	<ul style="list-style-type: none"> • The technology staff faces issues daily with tackling everyday operational duties and handling issues throughout the district. • Each school has at least one Media Center Specialist who is often a first point of contact for issues before placing a work order. 	<ul style="list-style-type: none"> • The Director of Technology should consider a formal training program for points of contact in the schools to ensure basic required skills are developed.
Risk of Single Point of Failure. If a key resource leaves will testing become at risk?	<ul style="list-style-type: none"> • Multiple resources in the department could be considered at risk for single point of failure. • Although cross-training is taking place in the department, there is a lack of redundancy in key areas. • If a technician is out during testing, their assigned schools must be distributed among the remaining technicians. This would create an even greater strain on school support. 	<ul style="list-style-type: none"> • It is imperative that all staff be cross-trained in all areas to provide adequate backup if needed. • Given the size of the district, the addition of at least one support technician is easily quantifiable.
Other Comments or Concerns	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Additional Consultant Observations

Highlighted below are the most frequently cited strengths of the school district, which can be used as a foundation for creating a roadmap to address any areas of concern. The items in the table are rank-ordered according to the frequency with which they were mentioned in the interviews. Multiple points of engagement took place with a minimum of two analysis team members involved with every district.

Rank	Strengths	Common Themes
1	Strategic Planning	Through collaboration and communication among all areas, Aiken has been able to overcome many of the other challenges they face.
2	Attitude / Enthusiasm	District staff is extremely eager to make testing a success. They were cooperative and showed excitement and positive attitudes toward this project.
3	Student Readiness	Although the district has concerns about student keyboarding proficiency, they have actually done an excellent job of exposing their youngest students to computers through the use of daily instructional programs.

Commonly Cited Concerns

Listed below are the most frequently cited concerns about testing that were documented over the course of the analysis process.

Rank	Concern	Sample Answers
1	Budget	Concerns that the funds that will be necessary to procure additional infrastructure, hardware and/or professional development will be insufficient.
2	Disaster Recovery	Limited funds available for proper disaster recovery.
3	Staffing Levels and Workload	Inadequate staff to complete the workload to prepare for testing. The focus on assisting teachers and their classroom technology consumes the majority of the staff's time leaving little availability for additional tasks.
4	Lack of Professional Development	New or upgraded technology will require significant training. There are limited funds available for professional development and few resources available to conduct the training.

District's Inventory of Readiness Needs

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Facilities	Space/Testing Rooms							
	Air Conditioning Unit							
	Roof/Ceiling Repair							
	Desks							
	Chairs							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Infrastructure	Bandwidth	1GB (x10), 500mb (x15)						Present
	Routers	None						
	Switches	In progress, none needed beyond already planned						
	Access Points	In progress, none needed beyond already planned						
	Cabling				\$900,000 (est.)			2020
	Installation/Testing							
	Disaster Recovery	Renewal			\$150,000	85,000		annual
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Hardware	Laptops		Dell/ Lenovo	1400	7,551,300	600000		2017-2020
	Desktops		Dell	4000	13,541,000	600,000		2017-2020
	Memory	Current systems are at maximum						
	Operating System Upgrade	Already at Windows 10						
	Monitors	Already replaced with newer units						
	Computer Carts (Cart Only)							
	Extra Batteries							
	Installation/Testing							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Teacher Readiness	Type of training needed by grade and by topic							
	Teacher's Knowledge of Online Testing Requirements including security							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Student Readiness	Computer Literacy Curriculum							
	Computers needed for training							
	Practice Tests							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Funding Mechanisms	Assistance/Training for Writing Grants							
	Assistance/Training to manage e-Rate							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Strategic Planning	Consulting Assistance to educate staff in the strategic planning areas							
	Formal Training of Staff							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Qty	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Technical Support	Consulting Assistance to help in specific areas							
	Additional resources							
	Other							

Strategic Roadmap

This section will provide an overview of the specific action items the district should focus on to improve the readiness of each area discussed in this report. The Roadmap is broken down into measurable tasks and deliverables to

1-Month Plan

- **Finalize e-Rate process for major cabling next school year**
- **Inventory systems for summer refresh**
- **Order summer refresh equipment**

3-Month Plan

- **Refresh inventory as funding allows**
- **Update and re-image systems as needed**
- **Complete VoIP upgrades to replace existing lines**

6-Month Plan

- **Begin process of upgrading cables and network equipment using e-Rate funds**
- **Additional round of hardware replacement, as funding permits**
- **Install upgraded backup appliance**

12-Month Plan

- **Have all large schools at 1gb bandwidth**
- **Have all medium schools at 500mb bandwidth**
- **Complete installation of fax server and remove analogue equipment**

18-Month Plan

- **Revisit bandwidth needs to ensure optimization**
- **Refresh inventory as funding allows**

APPENDIX

Pictures of District

Computer Labs

