Richland School District Two
Technology Plan Draft
2014-2017
Transforming Learning for the 21st Century

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Richland School District Two Technology Plan 2014-2017

Signature Page

The Richland School District Two Technology Plan for 2014-2017 has been prepared and submitted to the South Carolina Department of Education in accordance with the established guidelines listed below:

- The plan establishes clear goals and realistic strategy for using telecommunications and information technology to improve education or library services.
- The plan has a professional development strategy to ensure that staff knows how to use the new technologies to improve education.
- The plan includes an assessment of the telecommunications services, hardware, software, and other services that will be needed to imporve education.
- The plan provides for sufficient budget to acquire and maintain the hardware, software, professional development, and other services that will be needed to implement the strategy for improved education.
- The plan includes an evaluation process that enable the district and its schools to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.
- Budget for appropriate year(s).

The Richland School District Two Technology Plan was created through the collaborative planning work of the Information Technology Services Division, which includes the Technology Integration Specialists and the school level Teaching and Learning Coaches.

Signature _____ Date: 4-21-14

Dr. Debra Hamm, Superintendent

Signature _____ Date: 4-21-14

Mr. Tom Cranmer, Chief Technology Officer

Table of Contents

Executive Summary:

The 2014 plan for Richland School District Two outlines strategies and action steps for further advancing the technology-integrated teaching, learning and administrative capabilities of the district. The five core technology focus dimensions and the major goals set forth for these areas are as follows:

Learn. We will establish a digital age learning environment where student learning is personalized, authentic and collaborative.

Respect. All students and staff in Richland Two will embrace the principles and concepts of digital citizenship.

Collaborate. Through professional learning, modeling, and coaching, teachers and staff will collaborate on best practices for continual improvement in teaching and learning.

Connect. Richland School District Two will expand and support technology resources to assist educators and learners in meeting the state academic standards**.**

Innovate. Richland School District Two will encourage innovative practices and the use of emerging technologies to transform teaching and learning.

District Vision, Mission and Beliefs:

Vision:
The district vision includes technology as a component that permeates all aspects of the educational process. The transformative use of technology will:

1. Improve overall student academic achievement
2. Ensure equity of resources
3. Improve curriculum design and pedagogies with 21st century skills as a framework
4. Improve student engagement

Mission and Beliefs:
In partnership with our community, Richland School District Two prepares all students for success by providing meaningful, challenging, and engaging learning experiences.

- We believe that as our students inquire and ask questions about their world, our classrooms transform into centers of learning designed to meet the needs of the 21st century.
- We believe that the latest technologies and authentic experiences ignite the joy in learning.
- We believe that connections and real-world challenges inspire our students to extend themselves into the realm of all possibilities.

Information Technology Mission Statement:

To develop and promote world-class education by advancing and supporting the integration of evolving technologies for teaching, learning, and information management.

Richland Two has a proven history of offering excellent programs in academics, athletics and the arts. We believe that there is a direct correlation between the quality of work students are asked to do and their willingness to do it. By providing every child the opportunity to learn in a variety of ways and to demonstrate their learning to their peers, teachers, parents and community, we have established the foundation they need to carry their love for learning beyond their years with us. From the classroom to the boardroom, we are creating the Richland School District Two framework, focused on engaging work.

Richland Two serves more than 26,000 students (including adult education and pre-kindergarten) in 39 locations throughout the district: 18 elementary schools, seven middle schools, five high schools, four magnet centers, two district-wide child development centers, and two alternative schools. Our newest schools are built to LEED specifications.

We take pride in the knowledge that more than a dozen of the district's instructional and extracurricular programs for K-12 have served as models for those developed in other districts. The district offers an array of magnet programs whose focus ranges from science and technology to leadership and entrepreneurial pursuits and more. Richland Two also has an adult, continuing and technology center. We strive to utilize the latest technology including 1:1 computing and student-owned electronic devices to enhance the learning experiences for our students

Technology Integration Vision:
In Richland Two, students will work collaboratively in digital age learning environments on authentic problem and project-based activities which enhance creativity, critical thinking, communication, and problem solving. Through personalized, authentic and collaborative experiences, our students will develop the skills to prepare them for a future that we can only imagine.

District Profile: Today in Richland Two

Richland School District Two has 1:1 (called 1TWO1 in Richland Two) computing for all students in grades 3-12 with over 21,000 students having access to 1:1 devices. Our final phase of 1:1 computing was completed in August of 2013. The majority of our 1:1 devices are Chromebooks but we also have small implementations with tablets as well as a BYOD program.

The Information Technology department has had the full support of the school board to fund and support initiatives for 1:1 computing. Beginning in 2000, the school board approved funding for the "Classroom of the Future" prototype classroom. ITEC 1:1 classrooms were added in many of our schools with 200 teachers having 1:1 computing in their classrooms by August of 2011. In 2001, the school board allocated funding for school level Technology and Learning Coaches (TLCs) at every school for providing leadership in classroom technology use. At the district level, a technology integration team of six technology integration specialists and the team leader for technology integration lead the 1:1 computing initiative. The Information Technology department also has 21 staff members who support the network infrastructure and provide technical support.

Successful bond referendums in 2004 and in 2008, supported by the school board, provided for comprehensive technology in construction budgets. In 2009, a decision was made to include 1:1 computing in new school construction. To address issues of equity and provide all students with access to 21st century tools and resources, the school board supported the initiative to phase in 1:1 computing into all schools. The IT department provides monthly reports to the school board and actively seeks input from board members as projects are planned and implemented.

The Richland Two school board has been supportive is approving the use of 8% improvements funding for the infrastructure. The current PC replacement funding is also being used to fund the 1:1 initiative. Funding was approved for additional technicians as well as two additional technology integration specialists for the district team.

The 1:1 initiative is being sustained by $3.5 million in annual capital expenditure funds that had traditionally been used for the replacement of legacy Windows computers.

Infrastructure upgrades to support 1TWO1 computing included adding wireless access points in every classroom, upgrading bandwidth to 2 gbps, and implementing VDI (virtual desktop infrastructure). VDI allows our district to provide software applications to mobile devices. By hosting data and software on our VDI servers, we are able to avoid costly and time consuming upgrades to operating systems and software on desktops, laptops, and mobile devices. District servers are upgraded on a regular schedule and equipment receives regular maintenance.

All of our school sites were upgraded with wireless access points in 2011 and all new construction including our new high school meets these standards. Bandwidth was upgraded in January of 2012 and is monitored and increased as needed.

- All wireless infrastructure was upgraded in 2011 to the latest 802.11n standards.

The design is very dense with access points installed in every instructional space and configured with low output power to localize load as much as possible.

- Internet bandwidth is monitored and increased as appropriate based on actual utilization. At present, we have a 2 gbps shared Internet connection with plenty of headroom for growth. We utilize a Packet Shaper to manage certain types of traffic to limit the impact on overall service. Additionally, we use URL and protocol filtering from Websense to maintain some level of control over the types of sites and applications that are allowed to function.

The IT department has a Technical Advisory Committee with key IT personnel from local business including Blue Cross/Blue Shield and Palmetto Health. The members of the committee meet quarterly and advise us on next steps needed to maintain a robust infrastructure.

Innovation in Richland Two:

Our district has a long history of innovations which have had a positive impact on student learning. Through the leadership of our superintendent, Dr. Debra Hamm, and our Chief Technology Officer, Tom Cranmer, we are continuing to move forward with new innovations. Other innovations include:

- In 2009, the iPAC (Personalized, Authentic and Collaborative Learning) program was created to provide 20 teachers with classroom technology and professional development to implement project-based learning. Many of the teachers are now Technology and Learning Coaches in our district and are teaching professional development classes at the school and district level. The data we gathered from implementing iPAC was instrumental as we moved forward with our 1:1 computing initiative.

- All schools have full time Technology and Learning Coaches to work with teachers on integrating technology into learning.

- Our district has updated policy to allow students to bring their own devices including cell phones. Our team worked with high school teachers to pilot cell phone usage in the classroom and developed best practices for the use of cell phones in school. Students in our district are allowed to bring devices from home to supplement technology in the classroom.

- District administrators have participated in technology leadership workshops for the past two years to enable them to effectively model the use of technology in their schools and support the professional development needs of teachers.

- As part of the 1:1 initiative, we've developed procedures to allow students to take devices home. Most high school students as well as many of our middle school students are taking devices home daily. We're currently testing 4G devices to provide our students who don't have home Internet access with connectivity at home.

- We have a variety of professional development offerings in place including district level (T) for Two classes, online courses, mini-course, blended courses (online and face-to-face), as well as school level sessions led by the Technology and Learning Coaches. We

host an annual two day conference, the SC Midlands Summit, with international speakers and quality technology sessions. Many of our teachers have said that the Summit provided them with the jumpstart that they needed to begin successfully integrating technology resources into teaching and learning.

- As the wealth of resources available to teachers has grown, our team has created a District Digital 1TWO1 Starter Kit and a PreK-2 Starter Kit with technology resources that teachers can use for a variety of instructional activities and assignments including tools for brainstorming, assessment, collaboration, and presentations. Teachers have embraced the Digital Starter Kits and are attending professional learning to effectively integrate the tools into learning.

- Our latest initiative is the R2 Innovates innovation incubator. Through a rigorous process, we have identified nine district teams to implement innovative programs. We're providing the teams with mentoring and support to fully develop their ideas and create programs that are scalable and can be replicated throughout the district.

Spotlight on 1TWO1 Student Computing Initiative:

Our current 1:1 computing initiative (1TWO1 Computing Website) is fully implemented and we are seeing positive outcomes. Our comprehensive planning phase included updating our infrastructure, identifying devices, setting policies and procedures, selecting digital resources, and gaining support through public relations. Through our instructional technology team's leadership with the initiative, we have been able to work closely with our Academics department to move our district forward with integrating the technology into instruction for intervention, core content, formative assessment, online collaboration, and information literacy. The use of 1:1 devices has been brought to routine classroom use and teachers are working collaboratively to share best practices for using the technology to transform teaching and learning.

The technology integration team engaged all stakeholders in the 1:1 planning process by bringing together administrators, teachers, district office personnel, students and parents. The goal was never about choosing a device but rather about deciding on desired outcomes for student learning. By focusing on student achievement, 21st century skills for students, and equity of access, our team was able to successfully lead the effort to provide students with access to technology as well as provide teachers with quality professional development to fully integrate the technology into student learning.

A major part of the successful implementation of our 1:1 initiative was the use of a Quality Implementation Tool which outlined the duties and responsibilities of all team members and provided a checklist of items needed for quality implementation at each school. Our team worked closely with school administration and school Technology and Learning Coaches to ensure that the process was being implemented effectively. By focusing on the checklist for quality implementation, our team was able to assist all schools with the successful roll out of 1:1 computing. Through district surveys to students, teachers and parents, data was used to inform school administrators and Technology and Learning

Coaches so that course corrections could be made as needed.

Through our team's leadership, teachers have been involved in district-level and school-level professional learning to ensure that they are able to effectively integrate technology into teaching and learning. Teachers have been encouraged to work collaboratively at the school level and in district groups to share best practices. Teachers and their students' work is highlighted in our technology integration blog. In addition to providing professional development throughout the school year, our team has also hosted an annual two day conference called the SC Midlands Summit which provides teachers with access to international speakers and sessions that showcase best practices with technology.

In addition to working closely with each school in the district, our team also worked with a parent advisory committee to communicate the purpose of our 1:1 initiative and involve parents in the process. Our team held a district-level parent night to educate parents about the new technology and provide them with opportunities to hear students speak about the benefits of 1:1 computing. Over the last two years, we have also assisted individual schools with parent nights and continue to meet regularly with the district parent advisory committee. Our parent committee completed a 1:1 student computing parent handbook, and members of the committee are actively involved in working with school improvement councils.

The major impact of our 1:1 initiative has been that teachers are effectively integrating technology into learning which has brought about many positive early results. We're currently seeing a trend of more student engagement and decreased discipline referrals through our 1:1 computing initiative. Classroom observation data shows that teachers are successfully integrating technology into lessons at high levels and with the right fit of instructional strategies and content.

Through our focus on the Common Core for State Standards, we have leveraged the power of technology to provide students with tools and resources that we believe will help them to be successful in school and future careers. Our team's leadership and involvement with district and school Common Core implementation teams has led to a new classroom walkthrough document that captures best instructional practices including the effective use of technology. Technology resources have been integrated into Common Core professional development and all district teachers are focusing on using technology formative assessment tools to provide data which can be used for intervention and differentiated instruction.

Our technology integration team meets regularly with an outside evaluation team to work collaboratively on surveys and other measures. Our district team also works closely with the evaluation team to examine test data, discipline rates, attendance rate, and other quantitative and qualitative data. Current survey results indicate that our 1:1 initiative is being implemented effectively in schools and that teachers are receiving the needed professional development.

Needs Assessment:

For more than decade, Richland School District Two has been on a continuous march to improve teaching and learning with technology. The district has made significant investments in hardware, software and professional development. The outcomes have been positive in terms of student achievement and engagement and well received by the stakeholders. The district is among the leaders in high-quality, effective uses of education technology due to the commitment of the Richland Two community for modernizing the learning process and creating contemporary learning environments.

The following are the current technology needs of the district:

- Beginning and advanced professional development for instructional pedagogies aligned with 21st century skills and the assessment of 21st century skills
- Beginning and advanced professional development for technology-integrated lesson design with special emphasis on higher-order thinking skills
- Professional development in curricular design for delivery in blended and online environments
- Hardware for sustaining 1TWO1 computing
- Asset management system
- Streamlined management of digital resources

Needs Assessment Spotlight:

One ongoing challenge that we have faced with our 1:1 implementation has been the management of digital resources. As we continue to add electronic textbooks and other web-based subscriptions, we are dealing with more products that do not have single sign-on for our students. With Google Apps for Education, our students are able to access many resources with their Google login but some textbook publishers have not yet implemented single sign-on options.

In order to better deal with the challenges of multiple student logins for resources, we will develop a resource selection protocol to ensure that we can better manage student data uploads to content providers as well as provide schools with the necessary support to access online content.

Current Technology Inventory:
Windows Laptops: 5,459
Windows Desktops: 10,447
Chromebooks: 22,132
iPads: 5,067
Apple Computers: 500
Projectors: 2,494
Interactive SmartBoards: 1,994
Printers: 1,256

Current Technology Support Strategy:

Online system for placing and tracking help requests (48-hour turnaround)

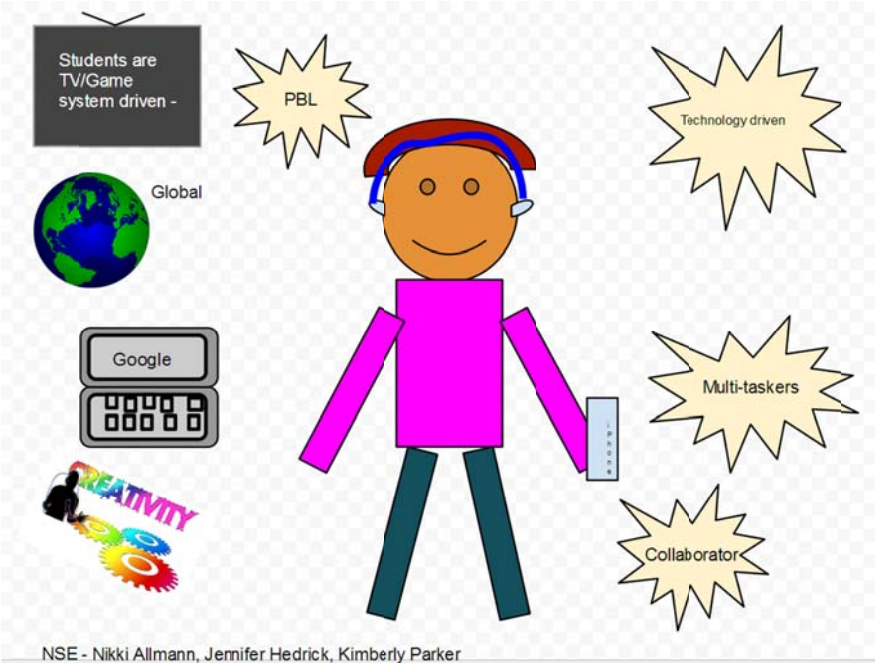
- 17 district-level field technicians for technology, 3 telecom technicians
- Centralized network engineers, LAN administrators, Technology Integration Specialists
- Centralized help staff – emerging full-time help desk

The 21st Century Learner:

Susan, age 13, was born into the 21st century. From an early age, her parents established her digital presence by sharing baby photos online with family members. She's never known a time when digital cameras and cell phones weren't available, her music has always been in mp3 format, and she's always played games in a multi-user environment.

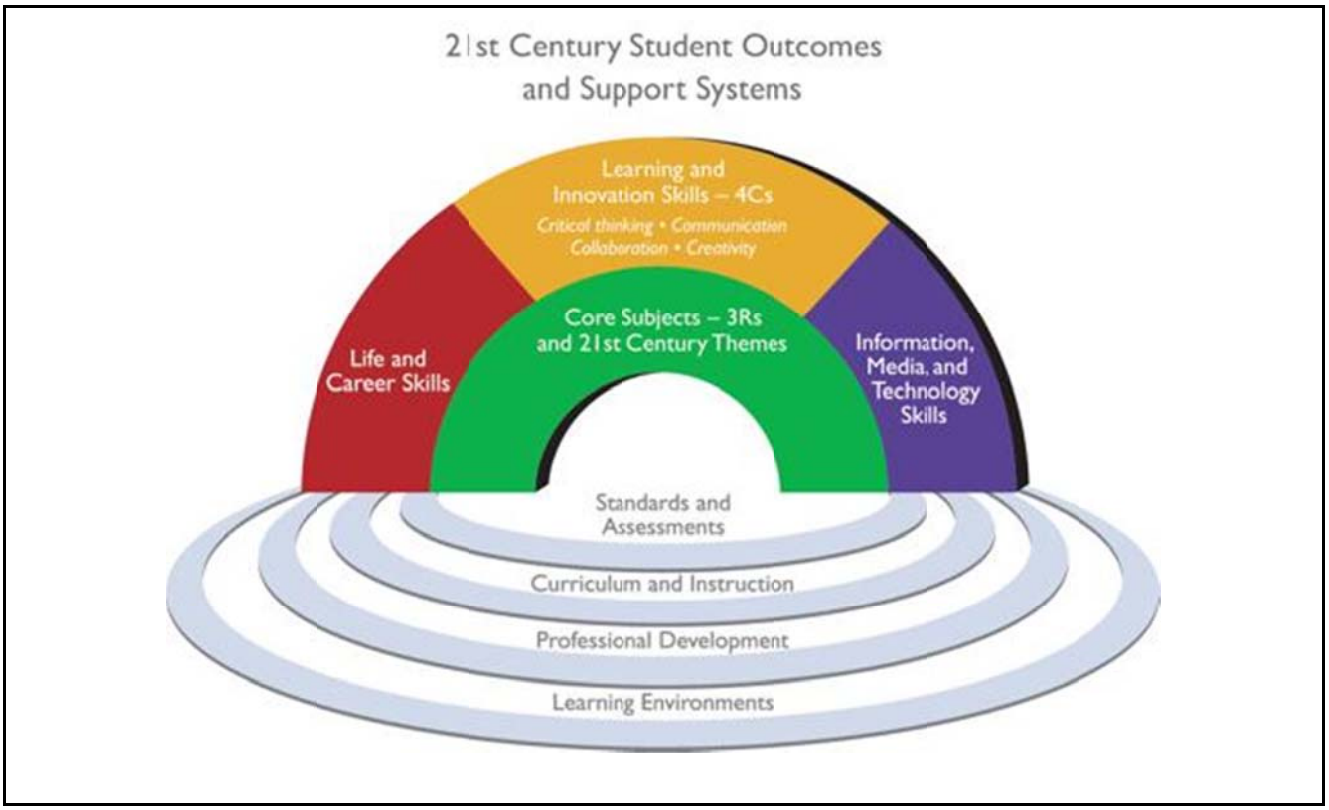
Susan shares instant photos with friends from her smart phone, participates in online chats, and doesn't have any phone numbers memorized. She doesn't wear a watch. She has access to anytime, anywhere television programming and movies and downloads her favorite ebooks on demand.

Susan knows how to use a variety of technology tools for learning, but isn't always aware of the consequences of inappropriate use. She loves to work on group projects and collaborates well with her team members. Work is often posted online and shared with the world. She loves work that is personalized, authentic, and collaborative and hates class lectures. Susan and her peers in Richland School District Two are ready for the next challenge and are ready for a digital age learning environment to support their 21st century needs.



21st Century Skills Framework

The Partnership for 21st Century Skills has developed a unified, collective vision for 21st century learning that can be used to strengthen American education. The key elements of 21st century learning are represented in the graphic and descriptions above. The graphic represents both 21st century skills student outcomes (as represented by the arches of the rainbow) and 21st century skills support systems (as represented by the pools at the bottom).



Vision of a 21st Century Classroom:

Ridge View High School teacher, Staci Weeks did not want her students to skip a beat when she was out for maternity leave. Since cloning was out, she decided to go with the next best option--flipping. (Flipping is a form of teaching in which a teacher uses technology to teach content outside of class so that students have more time to practice what they have learned in the class. This allows a teacher time for small group and individual instruction.) Mrs. Weeks used a combination of Tech Smith's Snagit software, a Smart Slate, and Edmodo to teach her lessons. She uploaded the videos to Screencast.com and to Edmodo so that students would have access to the videos both on and off campus. Students watched the videos for homework and then came to class the following day to practice what they had learned for homework. Students helped one another in class and asked questions on Edmodo.

How did the students feel about the flip? Many would like this method to continue. One student said, ". . .The method of her teaching was rather enjoyable. While learning lessons at home, it was much easier to understand because I could rewind a lecture whenever I did not understand something and replay as many times as I wanted. Doing homework in the classroom allowed me to look to other students for guidance if I was ever stuck on a problem."

Mrs. Weeks gives the following advice to teachers thinking of trying to flip: "If you're planning on flipping, know that it will be time intensive at first, but it will save you time in the long run. There is a learning curve to making the videos, but once you get the hang of it, you can make a video in less than 15 minutes, and it saves you SO MUCH classroom time. I didn't realize how much time I lost in a lecture due to small interruptions like administration calling for a

student, small discipline issues that need to be addressed, waiting for a slower student to copy notes, or PA announcements until I actually started fitting 45-minute lectures into a 15-minute video." Here is a sample of Mrs. Weeks Flipped Lesson. (link)

Evaluation and Conditions for Success:

As we implement the strategies in our technology plan, the following areas of focus will ensure that we have the necessary conditions for success.

Leadership and Support
Leadership and support of technology initiatives at the school and district-level is key to our success. An ongoing technology leadership series for principals and other administrators will provide leadership with the skills needed to bring about second order change.

Continuous Quality Improvement
A process of continuous quality improvement is built into the implementation of each strategy. Through the use of a Quality Implementation Tool (QIT) at the school and district level, we will ensure that a process is in place to continually monitor progress and make course corrections.

Professional Learning
Professional learning is addressed in all strategies to provide staff with the necessary skills to fully implement technologies for teaching and learning.

Scaling Up

The process of scaling up to have broad-based adoption of an innovation is a key component of technology planning. The plan should address steps to achieve depth, sustainability, spread, shift and evolution.

Depth
Getting to scale produces deep and consequential changes in practice. Requires evaluation and research to understand and enhance the causes of effectiveness.

Sustainability
Sustaining scaled growth means maintaining these changes in practice over substantial periods of time. Requires robust design to enable adapting to negative shifts in context.

Spread
Scaling up is achieved by diffusion of the innovation to large numbers of users. Requires modifications to retain effectiveness while reducing the resources and expertise required.

Shift
Ownership of the innovation is assumed by users, who deepen and sustain the innovation

via adaptation. Requires moving beyond "brand" to support users as co-evaluators, co-designers, and co-scalers.

Evolution
The innovation as revised by its adapters is influential in reshaping the thinking of its designers. Requires learning from users' adaptations about how to rethink the innovation's model.

Overview of Technology

Strategies:

The Richland Two Technology Plan strategies are aligned with the four Richland Two priority areas of learning, character, community, and joy. The visual representation of our plan includes the five strategies as essential components in using technology to transform learning. Professional learning, continuous quality improvement, and leadership and support must be addressed for our strategies to be successful. The center triangle represents TPACK - Technology, Pedagogy and Content Knowledge. The right fit of content, instructional strategies, and technology resources will engage students and improve student achievement.

Richland Two Priorities	**Technology Strategies**
Learning	**Learn.** We will establish a digital age learning environment where student learning is personalized, authentic and collaborative.
Character	**Respect.** All students and staff in Richland Two will embrace the principles and concepts of digital citizenship.
Community	**Collaborate.** Through professional learning, modeling, and coaching, teachers and staff will collaborate on best practices for continual improvement in teaching and learning.

	Connect. Richland School District Two will expand and support technology resources to assist educators and learners in meeting the state academic standards**.**
Joy	**Innovate.** Richland School District Two will encourage innovative practices and the use of emerging technologies to transform teaching and learning.

Strategy One: Learn.

We will establish a digital age learning environment where student learning is personalized, authentic and collaborative.

Spotlight: Project-Based Learning

A 6th grade team implemented an interdisciplinary unit in which students had to integrate their knowledge of science, social studies, math, and language arts in order to create a futuristic city using the building techniques of the ancient world. Students had to design a building using elements of Greek and Roman architecture and integrating one of the six simple machines that they learned about in science class. After students created their building using all recycled materials, they had to photograph their projects and use an app of their choice to highlight the geometric elements present in their structure. Students also had to submit a presentation demonstrating not only their knowledge of the six simple machines but also how those simple machines were used in the ancient world to accomplish great feats of engineering.

By the end of 2017 the following actions will be implemented:

- Partner with Academics to support the Common Core State Standards implementation.
- Prepare college and career ready graduates through the use of 21st century skills; Collaboration, Creativity, Communication and Critical Thinking.
- Provide opportunities to develop and enhance information literacy skills.
- Evaluate and support digital resources and management strategies to support personalized, authentic and collaborative learning environments.
- Cultivate personalized, authentic and collaborative learning environments, such as blended learning, classroom management, and assessment.
- Transition from evaluating 1TWO1 implementation to evaluating deeper learning.
- We will create conditions for success through leadership, support, and CQI.

Strategy Two: Respect.

All students and staff in Richland Two will embrace the principles and concepts of digital citizenship.

Spotlight: Internet Safety K-12 Curriculum Scope and Sequence:

A team of Technology and Learning Coaches and Media Specialists developed an Internet Safety K-12 Curriculum Scope and Sequence correlated to the South Carolina K-12 Internet Safety Standards. The Internet Safety K-12 Curriculum Scope and Sequence was created by using the resources purchased from i-SAFE to educate students on; Digital Citizenship, Media Literacy, Cyberethics and Personal Safety.

i-LEARN training is available for staff to view online video-based professional development used to enhance their knowledge to help students develop critical thinking and decision-making skills they need to be safe, responsible and technologically proficient cyber citizens in today's global society and economy.

By the end of 2017 the following actions will be implemented:

- Educate students, faculty and staff about Digital Citizenship through iSafe and iLearn.
- Provide opportunities to develop and enhance information literacy skills.
- Advocate and practice safe, legal, and responsible use of information and technology.
- We will create conditions for success through leadership, support, and CQI.

Strategy Three: Collaborate.

Through professional learning, modeling, and coaching, teachers and staff will collaborate on best practices for continual improvement in teaching and learning.

Spotlight: SC Midlands Summit

The SC Midlands Summit is a summer opportunity to bring together not only faculty and staff from Richland School District Two but across the southeast for two days of intense professional learning and collaboration.

Participants engage in sessions by presenters from across the nation to learn more about

technology integration in the classroom. The format of the two day professional learning also gives participants the opportunity to learn from one another through networking sessions.

The SC Midlands Summit leaves teachers and staff invigorated for a summer of learning to prepare their classes for next year.

By the end of 2017 the following actions will be implemented:

- Implement Peer-Ed coaching model.
- Engage all teachers and staff as active participants of learning communities for universal access to people, information, and ideas.
- Develop and implement professional learning opportunities based on the latest technology integration practices and resources. Appendix 1
- Implement teacher created professional learning plans.
- We will create conditions for success through leadership, support, and CQI.

Strategy Four: Connect.

Richland School District Two will expand and support technology resources to assist educators and learners in meeting the state academic standards**.**

Spotlight: Partnerships

Through our involvement as a Project RED Signature District, member of the Digital Promise League of Innovative Schools and a CoSN Teaming for Transformation network member, Richland Two has collaborated with districts from the United States, Canada, and other countries to share best practices for the integration of technology into learning. In the past year, Richland Two has hosted over 150 visitors from around the US including South Carolina, North Carolina, California, New Jersey, New York, and Virginia.

As Richland Two has gained national visibility, we've also worked to develop strategic partnerships to further enhance our technology initiatives. Through partnerships with companies including Intel, Google, Hapara, WeVideo and Discovery Education, we've been able to provide teachers with additional resources and professional development to support instruction.

By the end of 2017 the following actions will be implemented:

- Infrastructure: The district technology infrastructure will be assessed and evaluated on a continuous basis in order to ensure that appropriate hardware and operating systems are strategically maintained and upgraded to support the operational and instructional computing needs of the district.
- Business Systems: The needs of the district's business operations will be monitored and evaluated for effectiveness. As new and emerging technologies become feasible, certain strategic upgrades and expansions will be considered.
- We will sustain our 1TWO1 computing initiative and move toward a BYOD environment.
- We will develop strategic business partnerships which will benefit students, parents, and staff in Richland Two.
- We will ensure equity of access to resources by providing students who do not have home Internet access with alternative ways to access the Internet (community hotspots, mifi devices, etc.)
- We will create conditions for success through leadership, support, and CQI.

Strategy Five: Innovate.

Richland School District Two will encourage innovative practices and the use of emerging technologies to transform teaching and learning.

Spotlight: Wreck This PD

After working with Ewan McIntosh in a two day innovation workshop, two librarians and two technology and learning coaches developed a proposal to get teachers involved in changing the way their high schools plan and implement professional development opportunities.

The PD Innovation group, also known as *Wreck that PD*, brought together two schools with twelve teachers, two media specialists, four curriculum specialists and two technology and learning coaches.

After researching, collaborating, and brainstorming, the group developed a plan which includes: choice, teacher-led workshops, badging, gamification, time for practice and collaboration, coaching, and designated spaces for professional development.

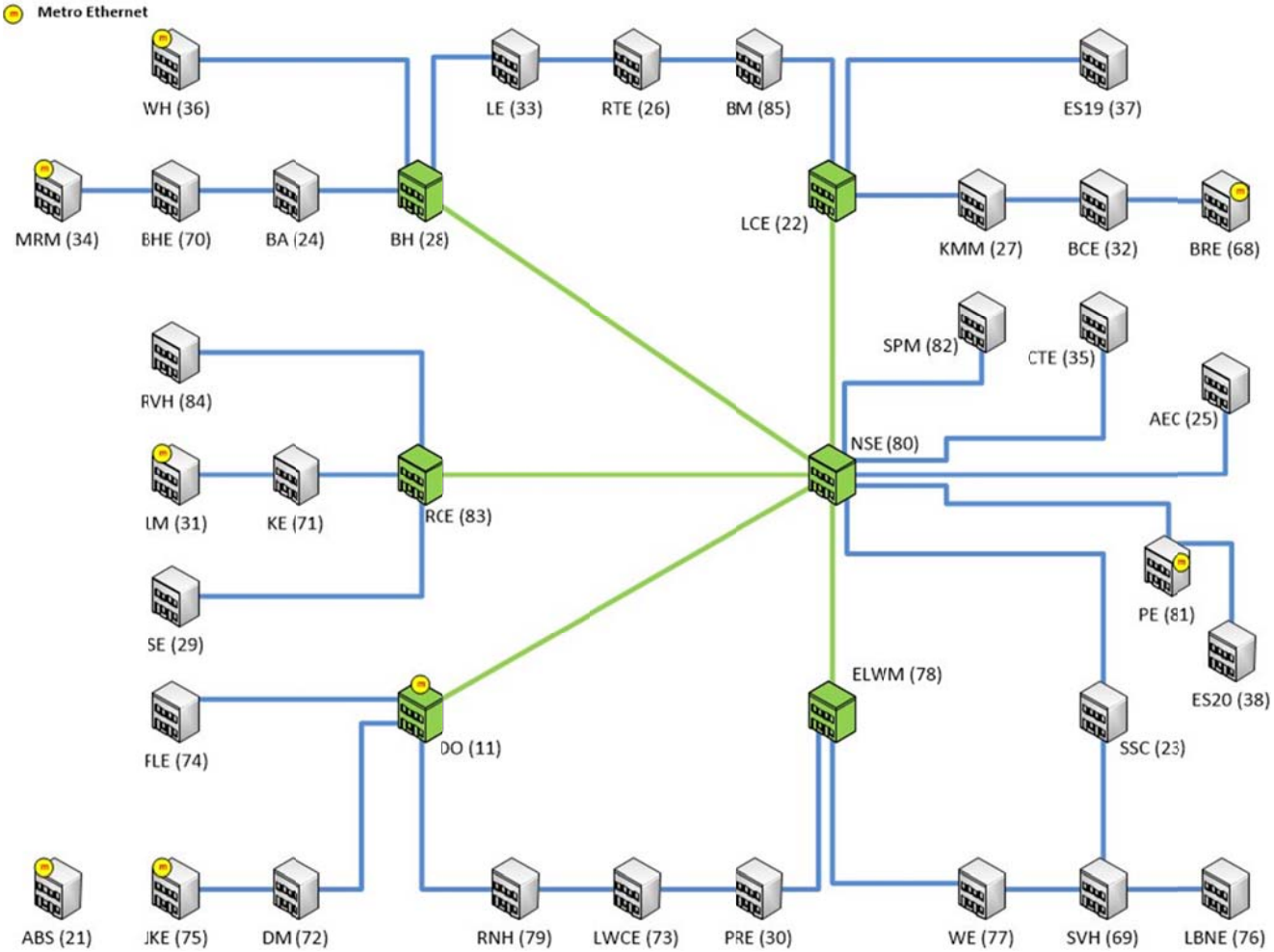
By the end of 2017 the following actions will be implemented:

- Continual renewal of innovative systems to foster growth for innovative practices in the classroom.
- Provide an Innovation Incubator to help teachers with the resources, facilities, and expertise needed to develop their innovative practice.
- We will create conditions for success through leadership, support, and CQI.

Technology Infrastructure and Telecommunications

Wide Area Network
The district Wide Area Network comprises forty locations connected with privately owned fiber optics. Most sites have two independent fiber connections to the WAN to guard against a single fiber failure. Metro Ethernet services from AT&T are online in strategic locations to provide reliable connectivity to groups of schools in the event of a major fiber failure. One exception is Anna Boyd School, which was not cost effective to connect with private fiber. The single WAN connection for Anna Boyd School is Metro Ethernet. Metro Ethernet services are provisioned at 1Gbps and private fiber is connected with 10Gbps Ethernet.

Graphical Overview of Wide Area Network Fiber and Metro Ethernet Connections



Local Area Networks

Each location includes a Local Area Network design that is relatively standardized across the district. The main data closet is centrally located within the site, and is the WAN demarcation point. A high performance switch connects to the WAN and to each data closet within the location with 10Gbps Ethernet fiber interfaces.

Access layer switches are mixed among 1Gbps Ethernet and 100Mbps Ethernet, depending on the age and historical needs of the location. Power Over Ethernet (PoE) ports are selectively available in older locations for Wireless Access Points (WAP) and IP Telephones (IPT). Newer locations are fully equipped with 1Gbps PoE access ports.

Wireless Networks

All locations have a local wireless controller in the main data closet. 802.11N Lightweight Wireless Access Points are installed in all instructional and common spaces for full internal coverage and high density performance. WAPs connect to 1Gbps PoE switch ports.

Centralized Services and Infrastructure
Network servers, storage and management systems are centralized at the District Office, with few exceptions. Internet connectivity, security and access control solutions are centralized as well. A separate disaster recovery site with SAN replication and backup solutions exists at a school site.

Planned Evolution of the Network
A new centralized learning and administration center will open in 2016. The primary data center will be migrated to the new facility, and the current data center will become the disaster recovery site. The current disaster recovery site will be used for other purposes. The general architecture of the network will not change significantly with this transition, but the placement will provide a greater degree of redundancy for our primary data center, and the facility will be up to date with appropriate cooling, electrical and other physical qualities that a modern data center demands.

Wireless networking technology is improving rapidly, and we anticipate that a refresh of our wireless infrastructure will be necessary within the next five years.
Our use of wired access devices has necessarily reduced with a continued growth in mobile technology. Although the quantity of wired network ports will diminish, we will need to replace aging access layer equipment that is not longer performing at the appropriate level. Wireless infrastructure depends on wired infrastructure, and therefore the wired infrastructure must evolve with wireless.

Technical Support Strategy
Our support team comprises two systems engineers and two system administrators centrally, and two support supervisors and nineteen technicians in field support roles. Two of the technicians specialize in communications systems, and seventeen support all aspects of technology in schools.

Field support teams are allocated in groups for high schools, middle schools and elementary schools based on a ratio of technicians to schools. Ratios are one technician per high school, one technician per two middle schools and one technician per three elementary schools. The District Office is supported by a dedicated administrative support technician. Other sites are supported by one technician.

As schools are constructed, we must add support staff to maintain group ratios as they are currently defined for high, middle and elementary schools. Our current group allocations can accommodate the addition of one middle school and two elementary schools before additional staff is required to maintain ratios.

In order to improve service levels, we must establish a group of technicians to support additional sites and to assist school group support technicians with team efforts, large projects and to fill in when necessary due to absence or other factors that affect service levels in schools. Current needs and anticipated increases in demand over the next three years suggest that a group of four additional field technicians will be required to establish the desired level of service across all schools and sites.

Network Systems Maintenance
Core network storage and server systems are typically selected and purchased with a specific life cycle in mind. Warranties and active critical support contracts are maintained for core system during their life cycles. Exceptions to life cycle based planning and maintenance occur when significant technology changes are presented to meet specific requirements.

Wired and wireless edge solutions are not designed with a specific life cycle, but rather are expanded, enhanced, augmented or replaced in response to changing demands. A significant change in technology that is required to support emerging standards would prompt evaluation and implementation of updated edge solutions. For example, the emergence of the new 802.11ac wireless networking standard brings a significant increase in performance and quality of service. Many of our devices will support this standard within the next three years, and may warrant a change in technology.

Within the next three years, it will be necessary to replace the oldest portion of our network's wired access layer which is based on outdated 100Mbps Ethernet standards and lacks features such as PoE. These systems are no longer warranted or maintained by the manufacturer, and will receive no further updates.

High Level Inventory Snapshot
The following inventory list represents a high level snapshot of technology assets currently in the district:

Laptops: 5,459
Desktops: 10,447
Chromebooks: 22,132
iPads: 5,067
Projectors: 2,494
SmartBoards: 1,994
Printers: 1,256

Telecommunications Evaluation

Telecommunications are the backbone of connectivity between and among the school district's facilities, and form the connection between the school district as a whole and the Internet. The effectiveness and affordability of these connections are critical to the operability of the district's technology assets.

To ensure that the district as access to and has selected and maintained the most appropriate telecommunications infrastructure, the district has assembled a Telecommunications Evaluation and Assessment Team whose purpose is to ensure that the appropriate telecommunications resources are in place in the district. The Telecommunications Evaluation and Assessment team consists of the following:

- Chief Technology Officer
- E-Rate Analyst
- Systems Engineers

- Director of Information Technology Operations

On a regular basis, the team reviews the current telecommunications resources currently in place, stays abreast of the newest technologies, monitors and makes recommendations for voice, video and data telecommunications and vendor service plans.

These reviews pertain to:

- POTS (Plain Old Telephone Systems)
- Voice over IP communications
- Cellular Services and Cellular Plans
- District-owned private fiber optic installations
- State-supplied digital broadband telecommunications
- Long distance telephone services

Telecommunications in Support of Instruction:

Telecommunications are critical to the function of classroom instruction, the reliability and “up time” of all district telecommunications are closely monitored and maintained as a high priority component of the district’s infrastructure.

When appropriate, infrastructure adjustments are made in order to ensure that all operational and instructional needs of the district are met.

Acknowledgements

Bibliography

Appendixes:

Appendix 1
Professional Learning focus for Strategy 3: planning, instructional delivery, learning environment, professionalism

- Teacher must have an online presence
  - What is an online presence?
  - Edmodo, Google Sites, Calendar etc.
  - Action: Webmaster link all teacher sites

- Building Community
  - Student
    - making connections
    - gaming
  - Teacher
    - Develop PLN
      - Real time learning

- Flexible learning
  - physical space, learning centers, etc
  - differentiation
  - personalized learning
  - tools

- Blended Learning Models
  - What it is
  - How to create
  - Tools
  - How to implement
  - Assessment
  - Remediation
  - Intervention (Project RED)
  - Small groups

    - Differentiation

- Inquiry
    - PBL, Buck
    - questioning techniques
    - back channelling
    - mind mapping
    - proof of evidence
    - Work with content specialists

- Information Literacy (Project RED)
    - research skills
    - reading, listening
    - resources
    - Google Search
    - DISCUS
    - Discovery Ed
    - Evaluation of resources
    - supporting claims with evidence
    - citations
    - Action: work closely with media specialists

- Critical Thinking and Problem Solving
    - How do you ask higher order questions?
    - How do you create challenging, authentic assignments
    - Work with content specialists

- Communication and Collaboration
    - Writing
    - Speaking, verbal
    - visual communication
    - digital storytelling
    - teamwork towards a common goal
    - global connections
    - face-to-face and online (Project RED)
    - virtual field trips (Project RED)
    - http://i.huffpost.com/gen/406768/GROUP-WORK.jpg

- Assessment (Project RED)
- https://docs.google.com/a/richland2.org/presentation/d/1dA2buWBUMCgzVP1a9ofrmnrzZmx7eYvkgXAtvDxZP1c/edit#slide=id.p
    - What is formative assessment?

    - Why formative assessment?
    - Digital tools for formative assessment
    - What is summative assessment?
    - Why summative assessment?
    - Digital tools for summative assessment?
    - Resources, Kahoot, Google Forms, Flubaroo, Edmodo Quiz, Discovery Builders, Geddit, Socrative, 3 ring (digital portfolio)
    - ePortfolios
    - Reflection, blogger

- Digital Literacy
    - Digital footprint/citizenship
    - Understand proper tool to use for outcome
    - visual literacy
    - charts and graphs, infographics

- Publish Student Work (Creativity)
    - Why?
    - Publishing platforms
    - Audience?
    - Tools

Appendix 2: Budgets and Funding: Technology and Telecommunications Budgets Summary

Richland School District Two funding for items of equipment, software, services and telecommunications:

Fiscal Year 2013-2014

General Fund Allocation for Technology …….…… $ 300,647
(not including staff salary or fringe benefits)

Capital Expenditure Funds for Technology (not including equipment replacement)…..$ 3,141,568

Capital Expenditure Funds for Computing Device Replacement …….. $ 2,750,000

E-Rate Proceeds …….. ……$ 340,000

General Fund Telecommunications Allocation ……. $ 374,118

Total Funds 2013-2014…….. $ 6,566,333

Fiscal Year 2014-2015

General Fund Allocation for Technology ……..…… $ 300,647
(not including staff salary or fringe benefits)

Capital Expenditure Funds for Technology (not including equipment replacement)….. $ 2,395,016

Capital Expenditure Funds Allocation for Obsolete Equipment Replacement …….. $ 3,784,752

E-Rate Proceeds ……..……... $ 345,699

General Fund Telecommunications Allocation ……. $ 374,118

Total Funds 2014-2015 …….. $ 7,200,232

Forecasted for Fiscal Year 2015-2016

General Fund Allocation for Technology ……..…… $ 300,647
(not including staff salary or fringe benefits)

Capital Expenditure Funds for Technology (not including equipment replacement)..... $ 2,400,000

Capital Expenditure Funds for Computing Device Replacement …….. $ 4,000,000

E-Rate Proceeds …….. ……$ 350,000

General Fund Telecommunications Allocation ……. $ 374,118

Total Funds 2015-2016…….. $ 7,424,765

Forecasted for Fiscal Year 2016-2017

General Fund Allocation for Technology ……..…… $ 300,647
(not including staff salary or fringe benefits)

Capital Expenditure Funds for Technology (not including equipment replacement)..... $ 2,400,000

Capital Expenditure Funds for Computing Device Replacement ……... $ 4,500,000

E-Rate Proceeds …….. ……$ 350,000

General Fund Telecommunications Allocation ……. $ 374,118

Total Funds 2016-2017…….. $ 7,924,765