Richmond Community Schools

Strategic Technology Plan

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WE RICHMOND
Richmond Community Schools
weRrichmond.com 765.973.3300

RCS PowerUp
Education through Innovation

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Richmond Community Schools

Preface

The Indiana Department of Education and the eLearning Team announced its programming goals in 2013-2014 based on the following ideas and realities.

- Strong, informed and visionary leadership is necessary to move schools and communities toward the opportunities and advantages of digital-age learning.
- Schools are at very different places on the continuum of innovation through technology and the strategic use of available state funds will target innovation leaders and in parallel widen the circle of schools ready to capitalize on local vision and the strong desire to innovate.
- Access to high quality digital content is increasingly important as schools shift from traditional textbooks to a digital curriculum.
- There are many examples of schools and individuals delivering high quality instruction and achieving improved student outcomes yet there are challenges in tapping into this expertise.
- Online and virtual learning is pervasive and poised to expand dramatically in the coming years.
- Student comfort with technology is not synonymous with being an effective and able learner in the digital age. The skills and aptitudes of students to learn in digital environments should be addressed through integrated curricula and assessed periodically.
- Indiana is a state that has the capacity to connect schools to new products and services, test them in real classrooms, share the results and strategically abandon or iteratively implement.

RCS Technology Committee

The Richmond Community Schools Strategic Technology Plan is the product of a multi-year process conducted by the RCS Technology Committee. The Technology Committee creates, modifies, and critiques the evolving Strategic Technology Plan. The Technology Committee met monthly to discuss the vision and goals of the Strategic Technology Plan and recommends modifications and updates as needed.

The committee comprises Richmond Community Schools' board member, administrators, teachers, support staff and community members. Committee members also communicate using various tools, including e-mail and an online wiki, to keep each other abreast of technology trends, fads, and new systems.

The Technology Committee focused on several aspects of technology during their meetings and on their committee online wiki space. These areas included current state of RCS technology, emerging technology trends, emerging educational technology trends, and five-year technology predictions.

The result of this analysis is this strategic technology plan.

SECTION I: TECHNOLOGY OVERVIEW

Part 1: RCS Vision and Mission Statements

Richmond Community Schools guides students on pathways of learning to a future of limitless possibilities.

Board Vision

Richmond Community Schools: A community nurturing mind, body, and spirit to prepare students for lives of choice, purpose, and service.

Board Mission

Richmond Community Schools guides students on pathways of learning to a future of limitless possibilities.

Board Goals

- Richmond Community Schools will increase opportunities for student and stakeholder engagement.
- Richmond Community Schools will assure student growth through measures of academic, social, physical, and emotional successes.
- Richmond Community Schools will maximize resources to provide the highest quality educational opportunities for students in Wayne County.

Board Belief Statements

- Meaningful learning occurs in the presence of meaningful relationships.
- Schools should provide a safe and secure environment for learners of all ages.
- In an environment where a student can err without being judged, risk-taking creates resilient thinkers and learners.
- Education is an enjoyable process when learners are engaged through discovery, exploration, and focus.
- The unique learning needs of every child should be addressed through appropriate and diverse instructional methods.
- Through education, students realize their strengths and weaknesses and develop confidence to become creative builders of their future.

- A measure of school and student success should be a balance of student assessment and other indicators of student growth.
- Learning is most productive when there is collaboration among students, parents, staff, and community partners.
- Citizenship is developed through student-directed, teacher-facilitated, and family-supported experiences that prepare students for life's demands.
- Learning is priceless and worthy of continuous community investment; a robust public education is essential for citizenship, democracy, and the common good.

Richmond Community Schools Technology Mission Statement

Our mission is to implement use of technology that supports the educational mission of the Richmond Community Schools. Richmond Community Schools, in partnership with the community, will work to bring modern technology to our student's educational experience to support and enhance teaching and learning. This is necessary to:

- Allow students with differing learning styles or learning speeds to learn more efficiently.
- Assist in the development of student's higher order learning skills.
- Educate our students in international and multiethnic issues.
- Prepare our students for higher education initiatives and for the workplace (i.e. college and career ready).

Richmond Community Schools' Strategies for Embedding Technology

Richmond Community Schools is using technology to enhance learning opportunities for students and staff. Computers and other electronic devices offer the promise of educating students in innovative and unique ways, while exposing them early on to the high-tech tools that they will likely build upon throughout their lives. As Dr. Mark Edwards states in *Every Child, Every Day*, "Digital resources not only transform teaching and learning, they are essential preparation for today's marketplace."

Strategies to reach the RCS technology goals include the following:

- Ensure equity of access for all students.
- Encourage educational connections.
- Integrate appropriate technologies into the learning environment.
- Provide access to electronic and information networks to facilitate communication among students, teachers, administrators, and parents to make all active participants in the educational process.,

Children will continue to learn basic skills including numeracy, word usage, thinking and ideas using technology where appropriate.

Access to the technology tools to be used now will be provided and their use encouraged; training and education in their use will be supported. At this time these learning tools will include, but not be limited to, the following:

- Personal computers, including desktop computers, laptops, netbooks, and similar devices.
- Mobile devices to enable students and teachers to move around classrooms, labs, and other environments with ease.
- Tablet devices, including Apple iPads, Apple iPod Touches, Windows-based tablets, and Google Android-based tablets.
- Wireless devices to extend the classroom outside the “four walls”.
- Electronic networks, including pervasive WIFI and high-speed local area networks.
- Classroom display devices, including electronic whiteboards (i.e. SmartBoards), LCD projectors, document cameras, and accompanying hardware and software.
- Video devices and software to enable classroom lectures to be captured and replayed.
- Cloud-based, local, and long distance information storage and retrieval systems, such as Microsoft Office 365.
- Hand-held student response systems.
- Podcasting and video podcasting software and hardware.

These technologies provide a foundation to enable all in our local learning community—students, teachers, administrators, parents, and community members—to participate in the development of a global, 21st century learning community.

Part 2: Transformational Changes

To be successful in attaining our strategic goals as a corporation, our district must have the commitment and passion to examine old ways and philosophies, commit to new challenges, plan for goal attainment, and be willing to learn from other successful schools.

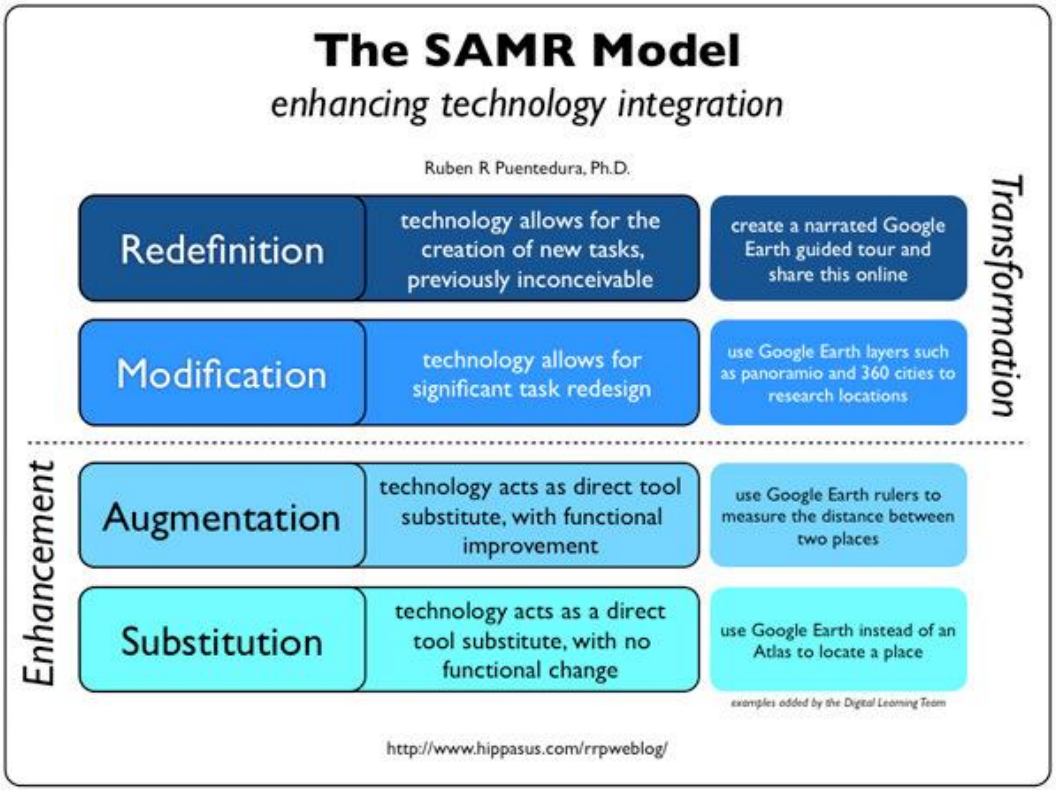
Second-Order Changes

Richmond Community Schools is committed to the use of technology as a key educational facilitator for the 21st century learner. To get where we want to go, we must go through a second-order change. First-order change serves to only increase

efficiencies. **Second order change, however, transforms the familiar way of doing things into novel solutions to persistent problems.**

Transformational change is a fundamental break with current practices that sparks an irreversible new system. It requires new knowledge and skills for successful implementation. It does not mean doing new or different things in an old system; it is the inception of a whole new system.

An approach to transformational change happening at Richmond Community Schools is the introduction of the SAMR model. The **Substitution Augmentation Modification Redefinition Model** provides a way for computer technology to significantly impact teaching and learning. SAMR shows a progression that adopters of educational technology often follow as they progress through teaching and learning with technology. The RCS Technology Department and eLearning Specialists work with teachers, staff, and administrators to ensure digital lessons fit within the SAMR model to increase the level of student engagement. As the learning process moves along the SAMR model continuum, computer technology becomes more important in the classroom but at the same time becomes more *invisibly woven into the demands* of good teaching and learning. The following is an illustration of the SAMR model.



All students must know how to use today's technology regardless of their future plans. SAMR fulfills this need. For example, students must know how to use digital tools and online content, sort and manage information, and work in the technology-based world. **Students must learn a new way of collaborating with their peers**. Teachers must move the instructional focus from **teacher direction to student collaboration**, where students work in small groups and in pairs for discussion, problem-based learning, and research projects. Teaching can become "inside out", focusing on each student's work, purpose and progress. In short, **differentiated learning is paramount**.

Roles in Transformational Change Organizations

Project RED (a national organization designed to **R**evolutionize **ED**ucation through technology), defines specific roles in the corporation for transformational changes to take place. The key roles include the following:

- Teachers
- Principals
- Superintendents
- Technology Directors
- Curriculum Directors
- Finance Directors

The following table lists these roles and provides information about related transformational tools.

Role	Area 1	Area 2	Area 3
Teachers	**Teaching Strategies** Inquiry-based, student-directed, personalized themes must prevail over lecture-based methods.	**Curriculum Tools** Interactive tools, digital resources, creation/production tools to enable deeper study, authentic, relevant and personalized learning should be utilized fully.	**Learning Environment** Groupings of tables and stations will foster collaboration and inquiry. Foster 'anytime, anywhere, anyway' learning with technologies inside and beyond classroom walls.
Principals	**Model Through Leadership** Provide strong leadership and inspiration toward a new vision through effective 'change' organizational processes and management.	**Create High Expectations** Build a culture for personalized, high student achievement.	**Gather Internal Insights** Take inventory of building strengths and weaknesses to lead to data-driven analyses, decision-making and instruction.
Superintendent	**Develop a Mission and Vision** A core mission must be communicated and	**Inspire Buy-in at All Levels** Cultivate commitment from all stakeholders — board	**Develop a Financial Plan** Build an innovative short-term and long-

	present in all facets of the district. Develop or modify policies, practices and programs to reflect the mission.	members, teachers, administrators, students, parents, and community leaders	term financial plan to support the vision and new system
Technology Director	**Drive a Paradigm Shift in Methodology** Transformational change is first and foremost about changing the way teachers teach and students learn; technology is a powerful tool to assist with this change, but not the primary focus.	**Provide Infrastructure and Support** Based on needs assessments, provide the infrastructure and technical support for the change. **Require Training** Encourage professional development and mentoring, in order to both empower early adopters, and support reluctant skeptics.	**Collaborate with the Curriculum Director** Partner closely and often with the curriculum and instructional staff to address key needs.
Curriculum Directors	**Develop an Instructional Vision** Acquire buy-in from a learning perspective. Examine current practices in relation to the vision and provide leadership in forming new practices. Engage staff leaders to serve as mentors in each building. Lead development and dissemination of digital resources tied to Common Core Curriculum.	**Provide Training and Tools for Teachers** Gain an awareness of strengths and weaknesses in instructional design. Conduct a gap analysis and provide necessary training and tools for staff, where needed.	**Ensure Access to Materials and Appropriate Infrastructure** Partner with Technology Director for proper infrastructure and access to resources.
Finance Directors	**Develop a Comprehensive Financial Plan** Help create strategic action plans from the vision-engaging resources reallocation, cost avoidance and determining return on investment for legacy costs. Ensure that the long-term financial plan fully supports the vision and new system, while the short-term plan addresses immediate needs for the change.	**Garner Support from Stakeholders** Ask key stakeholders for input and support for the new learning practices. Seek financial support from community partners and business leaders. Develop “Q&A” documents for stakeholder-wide publications that address district finances tied to goals.	**Partner with Superintendent's Leadership Team** Work with superintendent’s cabinet to understand research and best practices aligned with vision for education technologies. Be ‘on message’ with superintendent’s leadership team.

Part 3: RCS' Commitment to Digital Conversion

A key part of the transformation change is rooted in the RCS Technology initiative to **transform traditional curriculum to digital**. This is part of a digital conversion philosophy. ***Digital conversion*** is the transformation of paper-based curriculum to a primarily digital world. To be successful, the digital conversion process relies on the following essential pieces:

- All students have access to a personal computer or mobile device anytime.
- All students have access to the Internet anytime.
- All teachers have access to a personal computer or mobile device anytime.
- All teachers have access to the Internet anytime.
- All teachers have adequate professional development for student use of anytime/anywhere computer and mobile devices.

The term ***1:1 computing*** has been used to define the preceding; that is, one computer for each student. However, **digital conversion means much more than simply technology**. As Dr. Mark Edwards describes in *Every Child, Every Day* (Pearson 2014),

> "Digital Conversion initiative encompasses far more than hardware and software. Our students' success is the result of one-to-one computing combined with many other factors ... including a culture of caring and a relentless focus on data to improve student achievement." (page x-xi)

A list of factors required for a successful digital conversion initiative follows:

- A commitment to every child
- Equitable resources
- A shared vision
- A culture of caring and collaboration
- Embrace the moral imperative
- Sustainable financial commitment
- Relentless focus on achievement
- Personalized, relevant, connected learning
- Deep transformation of instruction
- High expectations
- Digital resources and infrastructure
- Ongoing professional growth
- Ubiquitous leadership
- In-depth planning
- Data-driven decision making
- Creative resource alignment

- All hands on deck
- Joy, laughter, recognition, and celebration
- Understanding of second-order change

Why One-To-One?

Project RED released a report in 2010 that focused on three major issues in education in the United States:

- Improving student achievement
- Evaluating the financial impact of technology
- Assessing the impact of continuous access to a computing device for every student

This report reviewed almost 1000 schools with comprehensive data points and aimed to rank technology practices in order of highest impact on the classroom. This report also found that, properly implemented, technology saves money; in fact, **schools with a 1:1 computer-student** ratio saw the most cost savings in many areas, including printing costs to online textbooks.

Some of the factors for proper implementation include the principal as an effective instructional leader and having a full adoption of technology practices for every teacher, with online collaboration for students on a daily basis. The report found that schools with a successfully implemented One-to-One computer program and also utilized key instructional strategies had a significant impact on student performance. Additional positive effects of these programs included reduced discipline issues, improved dropout rates, and improved graduation rates.

Learn more about the RCS recommendation for a 1 to 1 initiative in the separate document titled *PowerUp – RCS Recommendation For 1 To 1 Technology*.

SECTION II: THREE ESSENTIAL AREAS FOR TECHNOLOGY

The RCS Technology Strategic Plan identifies three essential areas that technology impacts the core education system of Richmond Community Schools:

- Learning opportunities
- Infrastructure
- Operations

These essential areas should be funded appropriately to meet the growing and ever-changing role of technology in the school system. The following three parts of this document discuss these core areas in more detail.

Part 1: Learning Opportunities

The **learning opportunities** area provides technology support for learning, assessment, curriculum delivery, professional development, student engagement and enrichment, and teaching models to function within Richmond Community Schools. We believe it is important to provide technology ***not*** just for the sake of technology. Instead, ***technology should be infused into the curriculum*** to be used by students to encourage them to learn more about the topic at hand, communicate with peers and instructors, and find out more about the world around them. Technology should be an extension of the traditional and non-traditional classroom tools and resources that teachers already have available to them.

Technology's Role in Innovative Classrooms

Richmond Community Schools is committed to providing the best educational opportunities for all students. For some students, traditional classroom methodologies work. Other students, however, thrive in non-traditional classroom settings, such as online classes or mixture of online and traditional classroom environments.

To meet the needs of today's learners, we must remove the barriers of past educational failures and frustration, geographic isolation, building-level restrictions, and cost. We must create a system for learning that is welcoming to all, easy to enter and use, and tailored to the needs of each learner. We must create a system that fosters the personal relationships and support all human beings need to learn and thrive.

We can accomplish these goals in a variety of ways with technology.

First, classroom and lab use of technology should be inviting for all students. Second, innovative design of technology should be available that enables teachers to create, store, retrieve, and present digital information to students. One such example of this is adopting the concept of a *flipped classroom*, which we discuss in more detail in the "Technology and the Flipped Classroom" section.

Another such system is a *virtual academy* that provides individualized instruction via online courses. Richmond High School currently offers online courses for credit recovery and has extend online course offerings for credit accrual during summer school and the introduction of the Richmond Online Graduation Academy at Richmond High School.

21st Century Students

To understand the value of investing in and supporting technology in 21st century classrooms, it's important to first understand 21st century learners and the characteristics they bring to the classroom. Today's students are different in some ways to students in previous generations. Students graduating from high school in 2015 were born during the age of the Internet—circa 1997. They do not know a world without the following:

- Pervasive and high-speed Internet
- Global communications
- 24x7x365 access to online searches and information
- Computers and tablets in homes
- Constant communication using Smartphone devices
- Social media dependency

Today's students know what it's like to be connected in ways that have never been available in the past. Text messaging, social media interactions, blogging, e-mailing, and micro-blogging (Twitter) are a few of the ways students stay in contact with their friends, family members, and other people around them. With these communications tools, students have world-wide contacts as well. In many cases, these contacts are experts in their fields of study.

Technology in Education: The Research

A number of studies have been documented on the effectiveness of technology in education. This research, according to many, is still in its infancy (see *The Digital Promise: Transforming Learning with Innovative Uses of Technology*, Wellings & Levine 2010). As far back as 2004, in their article, "Toward a Theory of New Literacies Emerging from the Internet and Other Communications Technologies," Donald Leu, Co-Director of the New Literacies Research Lab at the University of Connecticut, and colleagues, Charles Kinzer, Julie Coiro, and Dana Cammack (2004) say that technology

is not a passing phenomenon: “The demand from businesses, parents, and society at large is such that technology will continue to appear in schools even before research outcomes are known.” In 2015, we are living proof that technology and technology integration has not become a passing phenomenon. In fact, its usability, worth, and effectiveness grows each year as newer and more dynamic technological classrooms tools are used, including iPads, netbooks, laptops, SmartBoards, student response systems (“clickers”), and webcams.

This view leads to a more pragmatic approach to technology in learning: technology and new media literacy are required to ensure that students will be prepared for the workforce of the 21st century while gaining the store of essential knowledge, skills, and perspectives to assure effective future citizenship roles. Schools need to prepare students to function in a 21st century work environment where employees are expected to collaborate on projects, incorporate feedback from a work group and a supervisor, create and manage global vendor relations, and make connections between new and existing knowledge. Unfortunately, many schools have been stuck in a time warp and now need to respond urgently to catch up to the technology revolution that has influenced nearly every other sector of society.

More information: "Where laptops and Internet use make a difference are in innovation, creativity, autonomy, and independent research." (p. 88 Disrupting Class) See Winnie Hu, http://www.nytimes.com/2007/05/04/education/04laptop.html.

Purposeful Intent of Technology

For digital devices (including computers, tablets, and other technology) to have an impact on student learning, technology must be used in purposeful ways to enhance the learning process. Images, audio, video, animation, and interactive elements integrated throughout lessons provide multiple representations and address different learning styles in students. Interactive exercises and projects must provide hands-on opportunities for students to master difficult concepts. Scaffolding such as rollover vocabulary definitions and the ability to listen to instructional text read aloud must provide important assistance to students who may otherwise be held back in their learning due to their literacy level. With the adoption of the Houghton Mifflin Harcourt English Language Arts material in 2014-2015, and with the roll-out of the classroom laptops at Richmond High School, technology and instructional materials are meeting the needs of our digital conversion initiatives.

21st Century Skills

Along with the RCS Technology Committee, a subcommittee called the RCS 21st Century Skills Committee was created during the 2013-2014 school year to discuss 21st Century Skills and develop a list of skills and classroom technology that Richmond Community Schools should follow. 21st Century skills are a set of abilities that students

need to develop in order to succeed in the information age. The committee was comprised of teachers, administrator, technology staff, and community members.

The following sections lists the 21st Century Skills as defined by the RCS 21st Century Skills Committee.

Creativity

- Use a wide range of idea creation techniques (such as brainstorming)
- Create new and worthwhile ideas (both incremental and radical concepts)
- Elaborate, refine, analyze and evaluate ideas in order to improve and maximize creative efforts
- Develop, implement and communicate new ideas to others effectively
- Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
- Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas
- View failure as an opportunity to learn

Critical Thinking

- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation
- Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems
- Effectively analyze and evaluate evidence, arguments, claims and beliefs
- Analyze and evaluate major alternative points of view
- Synthesize and make connections between information and arguments
- Interpret information and draw conclusions based on the best analysis
- Reflect critically on learning experiences and processes
- Solve different kinds of non-familiar problems in both conventional and innovative ways
- Identify and ask significant questions that clarify various points of view and lead to better solutions

Communication

- Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills
- Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions
- Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)

- Utilize multiple media and technologies, and know how to judge their effectiveness
- Communicate effectively in diverse environments (including multi-lingual)

Collaboration

- Demonstrate ability to work effectively and respectfully with diverse teams
- Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal
- Assume shared responsibility for collaborative work, and value the individual contributions made by each team member

21st Century Classroom

A key role of the RCS 21st Century Skills Committee was to discuss and list the vital components of what a 21st Century classroom should comprise. This is important for the technology plan as many of the components that make up a 21st Century classroom depend on today's technology, such as computers, interactive whiteboards (i.e. SmartBoard), LCD projectors, and similar digital components.

Table 1 below shows the results of the RCS 21st Century Classroom as proposed by the RCS 21st Century Skills Committee.

Table 1: 21st Century Classroom Components*

Area	Teacher Area	Student Area
Primary Schools Includes CYS In addition to classroom equipment, all primary schools will have at least one 30-seat computer lab.	• Teacher computer with 19-inch LCD monitor • Digital mobile device, such as Apple iPad • Laser printer • Telephone • SmartBoards • Optional: Digital camera and/or video camera • Web browser • Microsoft Office Professional • PowerSchool	• 3-5 student desktop computers • Digital mobile device, such as Apple iPad or laptops • Laser printer • Web browser • Microsoft Office Pro • Curriculum approved software • NWEA and Skills Navigator • Scholastic Reading Inventory (SRI) • School software and apps deemed appropriate by faculty and administrators
Intermediate Schools In addition to classroom equipment, both intermediate schools will have at least three 30-	• Teacher computer with 19-inch LCD monitor • Digital mobile device, such as Apple iPad • Laser printer • Telephone • Grades 5-6: SmartBoards • Grades 7-8: LCD Projector and	• 3-5 student desktop computers • Digital mobile device, such as Apple iPad or laptops • Laser printer • Web browser • Microsoft Office Pro • Curriculum approved

seat computer labs, and one Family Consumer Sciences (FACS) lab.	wide screen (minimum 84" wide) • Optional: Digital camera and/or video camera • Web browser • Microsoft Office Professional • PowerSchool	software • NWEA and Skills Navigator • Scholastic Reading Inventory (SRI) • School software and apps deemed appropriate by faculty and administrators
High School Note: See "RHS Career Center" below for Career Center classrooms.	• Teacher computer with 19-inch LCD monitor • Digital mobile device, such as Apple iPad • Laser printer • Telephone • LCD Projector and wide screen (minimum 84" wide) • Optional: Digital camera and/or video camera • Web browser • Microsoft Office Professional • PowerSchool	• Available labs in core areas or departmental settings. • Digital mobile devices, such as laptops • Access to laser printer • Web browser • Microsoft Office Pro • Curriculum approved software • School software and apps deemed appropriate by faculty and administrators
RHS Career Center	• Teacher computer with 19-inch LCD monitor • Digital mobile device, such as Apple iPad • Laser printer • Telephone • LCD Projector and wide screen (minimum 84" wide) • Optional: Digital camera and/or video camera • Web browser • Microsoft Office Professional • PowerSchool	• Student desktop computers • Laser printer • Color plotter (Project Lead the Way engineering classrooms only) • PLTW-approved laptops for PLTW BioMed classroom • Digital mobile devices, such as laptops • Access to laser printer • Web browser • Microsoft Office Pro • Curriculum approved software • School software and apps deemed appropriate by faculty and administrators
Early College and LOGOS Programs In addition to classroom equipment, these programs will have at least one 30-seat computer lab.	• Teacher computer with 19-inch LCD monitor • Digital mobile device, such as Apple iPad • Laser printer • Telephone • Grades 3-6: SmartBoards • Grades 7-8: LCD Projector and wide screen (minimum 84" wide) • Optional: Digital camera and/or video camera • Web browser • Microsoft Office Professional • PowerSchool	• 1 to 1 mobile device, such as Apple iPad or netbook • Access to laser printer • Web browser • Microsoft Office Pro • Curriculum approved software • School software and apps deemed appropriate by faculty and administrators
Richmond Adult	• Teacher computer with 19-inch	• Student desktop computers

Education	LCD monitor • Laser printer • Telephone • LCD Projector and wide screen (minimum 84" wide) • Web browser • Software required for Adult Education program	• Laser printer • Web browser • Software required by Adult Education program

** As recommended by the RCS 21st Century Skills Committee*

You can compare this proposed list against the actual inventory of our classrooms by seeing the section called "Inventory of RCS Classrooms" later in this document. In all cases, our classrooms meet or exceed the list shown in the preceding table except in one critical area—student access to devices.

Disruptive Innovations in Classrooms

Richmond Community Schools should be unafraid to be innovative in the area of education if that innovation provides positive and continuous results. *Disruptive innovation* is an innovation that transforms a sector from one that was previously complicated and expensive into one that is far simpler and more affordable. Examples of innovations that Richmond Community Schools use include the following:

- Online courses
- Computer-based individualized learning platforms
- Blended learning opportunities
- Modular education systems
- Flipped classroom environments

The following sections describe these innovations in more detail and highlight areas in which Richmond Community Schools uses these innovations.

Create Engaging and Student-Centric Methods of Learning

Technology should not simply supplement and reinforce existing teaching models, but create intrinsically engaging methods of learning. For example, in-class computers should not become *activity centers* for students. Rather they should provide adaptive research methods to be more student-centric, similar to the way in which NWEA Skills Navigator works in our Tier 2 and 3 interventions. RCS will continue to look for affordable and innovative future software built around artificial intelligence that will bring more technological advances that address customization centered around specific student needs.

Use Technology to Expand Blended Learning Environments

Richmond Community Schools can use key technology resources to provide more **blended learning** opportunities by offering additional online courses for subjects that are not available due to limited budgets or interest. Students can utilize online learning environments to meet educational needs that have gone unmet for generations. District adoption of online learning management system (LMS) is critical for students to get involved and stay involved with their classes in an online environment. The barriers of time, distance, and conventional classrooms prevent far too many students from improving their basic educational skills, and eventually limiting lifelong contributions to our society and economy.

Blended learning is an emerging instructional model that many K-12 institutions, including Richmond Community Schools, have implemented. With blended learning, traditional classroom learning practices have been "blended" with online learning environments. The RCS credit recovery classes, for example, are blended classroom environments that provide online learning with classroom teachers. The report entitled *The Rise of K-12 Blended Learning: Profiles of Emerging Models* lists 40 examples of blended learning categorized into the six models:

1. Face-to-Face Driver: The face-to-face teacher delivers most of the curricula. The teacher deploys online learning on a case-by-case basis to supplement or remediate a student's education, such as in the back of the classroom or in a technology lab.
2. Rotation: Within a given course, students rotate on a fixed schedule between learning online in a one-to-one, self-paced environment and sitting in a classroom with a traditional face-to-face teacher.
3. Flex: Uses an online platform that delivers most of the curricula. Teachers provide on-site support on a flexible and adaptive, as-needed basis through in-person tutoring sessions and small group sessions.
4. Online Lab: Relies on an online platform to deliver the entire course, but in a brick-and-mortar lab environment. These usually provide online teachers, and paraprofessionals supervise. Often students in an online lab program also take traditional courses and have typical block schedules.
5. Self-Blend: Students choose to take one or more courses online to supplement their traditional school's catalog.
6. Online Driver: Uses an online platform and teacher to deliver all curricula. Students work remotely and face-to-face check-ins are sometimes optional and sometimes required.

It is the recommendation of the Technology Committee that Richmond Community Schools adopts a district-wide learning management system (LMS) to created blended

learning environments. Recently the district began using the My Big Campus LMS from Lightspeed. As of June 2015, My Big Campus will be retired as a product and no longer available. The Curriculum Directors, teachers, Technology Department and eLearning Specialists are investigating alternative LMS solutions, including Canvas, ItsLearning, Schoology and other options.

LMS products provide the following online features:

- Online classrooms
- Homework dropbox areas
- Parent/Guardian access
- Grade publishing
- Safe email for students (with Microsoft Office 365)
- Safe blogs and student profile pages
- Emergency alerts for students and parents/guardians
- Group workspaces for curriculum teams, departments, PTA, clubs, teams and more
- Mobile apps portal for students and parents/guardians
- Personal file storage/bookmarking for students
- Member management for teachers and school administrators
- Hosted off-site in the “cloud”
- Lesson planning option

Utilize Modular Education Systems

One other emerging area of disruptive innovation involves online facilitated networks. **Online facilitated networks** can create modular education systems that facilitate customization of content delivery. Richmond Community Schools uses BrainHoney (at www.brainhoney.com) with Pearson GradPoint for online courseware offerings at Richmond High School (summer school and credit recovery), Richmond Online Graduation Academy, and Community Youth Services (credit recovery). BrainHoney is a course management platform that exists in the cloud that provides user-selected pathways through different content modules to learn and master a standard.

Pearson GradPoint is a learning platform that hosts online course curriculum focused on intervention and remediation strategies such as credit recovery, dropout prevention, alternative education, English Language Learning, and summer school needs. Along with these curriculum solutions, GradPoint also hosts a large catalog of Core Curriculum courses, Advanced Placement (AP) courses, and honors courses.

Technology and the Flipped Classroom

A term being used in 21st Century classrooms is **flipped classrooms**. Flipped classrooms utilize technology to provide a different level of interaction between the learner and the instructor. In some cases, flipped classrooms "flip" the way lectures and homework are conducted in a class. Instructors provide the lectures online in video and/or audio podcasts so that students can access those lectures to watch during the normal homework time. Students then come to class to do their homework, providing valuable time with the instructor for in-class questions, help, or other key interactions.

One of the greatest benefits of flipping is that overall interaction increases: Teacher to student and student to student. Since the role of the teacher has changed from presenter of content to learning coach, teachers can spend time talking to kids. Teachers are answering questions, working with small groups, and guiding the learning of each student individually. Richmond Community Schools supports and encourages flipped classrooms where and when appropriate for teachers and students. An example of a teacher who has incorporated flipped learning is RHS teacher Brandon Hilbert in his PLTW classes.

How Technology is Used to Support Teaching and Learning

In some cases, just providing access to technology is enough for staff members to utilize these tools to teach more effectively, efficiently, and help students learn in the way they want to learn. Staff members are encouraged to assist their peers in learning about and implementing technology-related instruction. However, to ensure all faculty and staff maximize their use of available technology, it is critical that professional development opportunities are provided.

Technology Integration to Support Teaching and Learning

Through various professional development processes, faculty and staff are made aware of technology tools that can be used to improve the learning experience. Part of this goal is accomplished through the support provided by a technology integration position. The following strategies are utilized:

- Project-based learning.
- Problem-based learning.
- Guide technology consultants that are assigned to each school to assist in training and troubleshooting problems.
- Work with district eLearning Specialists (two on staff).
- Encourage technology savvy staff to help provide support to other staff members.
- Research new software and hardware options.
- Provide technology related training to all faculty, staff, and administrators.

- Create awareness of technology tools.
- Implementation and evaluation of hardware:
    - Computers (desktop and portable)
    - Mobile device deployment and management
    - Document cameras
    - Wireless tablets
    - Audio and video recording devices
    - Student response systems
    - Electronic books
- Implementation of software:
    - Student assessment programs
    - Teaching programs and apps
    - Student information system (electronic grade book)
- Utilization of online resources:
    - Wiki's
    - Blogs
    - Virtual environments
    - Videoconferencing
- Emerging technologies:
    - 3D printers for the classroom
    - Immersive environments for learning
    - Social media strategies for classroom use
    - The Internet of Things

Technology Support to Support Teaching and Learning

The district is supported in its technology efforts by a technology department comprising nine full-time employee: one technology integration specialist, two network administrators, one database and Web programmer, one SIS and state reports specialist, three full-time technicians, and one temporary technician. The district utilizes an online trouble call reporting system to facilitate prompt reporting of technical problems. Individual buildings are also supported by an on-site technology consultant who is responsible for managing day-to-day troubleshooting and providing nine hours of staff development.

District eLearning Specialists

In 2014, two eLearning Specialists were hired to assist in providing professional development for teachers as they transition to more digital classroom environments. As part of the Curriculum Department, the eLearning Specialists work with teachers and students in order to take advantage of digital tools that can engage, enhance, and ultimately transform the traditional learning environment. The team has regularly scheduled days and times that they are in buildings across the district in order to

develop consistency, provide follow-up, and be available to address specific teacher and student needs. Trainings are conducted on a one-on-one, team, or whole-group basis. eLearning meetings are held with the Directors, Assistant Superintendent, Chief Operations Officer, Technology Coordinator, eLearning Specialists, and members of the Technology Department to discuss ongoing e-learning activities, upcoming deployments, and other pertinent information.

Access For All Users: 1:1 Deployments

Research shows that it is important to provide and ensure technology is in the hands of all students during regular school time. A PBS and Learning Media survey showed that over 90% of teachers surveyed had technology in their classroom, but only 22% reported having the right level of technology. In many cases, this meant teachers wanted to students to have access to some type of mobile device, such as tablets, netbooks, or laptops. Richmond Community Schools provides classroom computers, laptop/netbook carts, iPad carts, and school labs to satisfy some of the needs for current classroom instruction. However, to migrate away from a “sit-and-get” classroom paradigm and promote a full digital experience for our students, we must provide access to a digital device to all users in every classroom. The type of device should come in one of the following forms:

- Desktop computer
- Laptop
- Netbook
- Tablet (such as an Apple iPad)

These devices provide the platform for most all educational needs in our district. For example, these devices allow students to do the following:

- Access online resources
- Create, edit, and view documents, presentations, and spreadsheets
- Create, edit, and deliver video files
- Manage files
- Send and receive e-mail
- Communicate with social networking tools

Access to cloud-based technologies (online locations that store user files and documents) provides users the opportunity to share documents, files, online resources, and other key components of their computing life. Not only can users share these resources with other people, they can access those resources from multiple computers or, in many cases, multiple types of devices. For example, using a free cloud-based file system (i.e. Microsoft Office 365’s OneDrive, Google Drive, or DropBox), users can

store, retrieve, share, and manage files using a Windows or Mac computer (or laptop/netbook), an Apple iPad or iPod, an Android-based tablet, an Apple iPhone, a Windows 7 phone, and an Android-based phone.

As you can see, the hardware device that is adopted by the user or school is becoming less and less important. The key is finding the right combination of hardware and online resources. In fact, a recent purchase for the Richmond High School English Language Arts (ELA) classrooms included low priced Windows 8.1 laptops for 14 classrooms. This amounted to approximately 400 laptops. Initially, these laptops will remain in the ELA classrooms for daily student access. A similar deployment of Windows 7 laptops and netbooks are deployed in seven RHS Science department classrooms.

Not only should students have access to classroom technology while at school, they need access to it at home as well. Students living in affluent households have access to tablets and computers outside of school hours at a higher rate than students living in middle or lower income homes. There is an assumption that all students have access to a computer or similar device outside of the classroom or school lab. Research shows that at-risk students have significantly lower opportunities to access computers or similar devices when not in school. It is the position of the RCS Technology Committee that we need to strive to level the playing field for our most at risk students. Students in higher poverty areas have a significant reduction in access to advancement when that advancement is tied to technology. Because we assume all students have a base level of access and we assume all students are more adept than ever before with the use of technology, we may be masking yet another “have-not” circumstance that undermines our fundamental mission.

Moreover, our current resources in the district are predominantly lab-based. Although there are benefits to having these resources centralized, there are also significant shortcomings. Labs are more difficult to monitor. By this we mean that it is more difficult to have rotating teachers and classes be responsible for these resources. This is true at every level, but is more pronounced at high school and intermediate level where a media specialist is not available for supervision. It seems that computers in individual classrooms, monitored by individual teachers, are “cared for” more closely (because they take greater ownership of these resources). Furthermore, these resources are often held captive by scheduling, departmental ownership, and scheduled assessment initiatives. Most significantly, End of Course Assessment (ECA) and ISTEP+ Online testing makes virtually all resources inaccessible at one of the most crucial times in the term (at the end when many teachers are demanding comprehensive investigations as a cap to course study). Hence, going 1:1 makes it possible for every student to be on-task, with technology, at all times--not just when the resources are available.

Simply put, one-to-one (1:1) computer deployments provide each student with a computer. In today's primary and secondary educational facilities, 1:1 programs are increasingly common. Computers offer the promise of educating students in innovative and unique ways, while exposing them early on to the high-tech tools that they will likely build upon throughout their lives. Twenty-first century learning demands access to technology. In many respects, technology is the great leveler; that is, if all users (students, teachers, parents, and administrators) have access to the same type of technology, you have leveled the playing field. It doesn't matter the relative cost of a device as long as the user can access the resources he needs.

One issue that school corporations have, including Richmond Community Schools, is how to ensure ALL users have access to technology while in-class and out of class. The easy answer is to provide devices to all students as they enroll into one of our schools, creating a district-wide one-to-one (or 1:1) deployment. This would ensure, similar to disbursements of classroom textbooks, that all students get the same technology as they enter a class. Why shouldn't students have the same opportunity for technology disbursements?

As we examine the importance and arguably the need to have a computer or device in the hands of every student at Richmond Community Schools, one strategy of a 1:1 deployment presents itself.

Part 2: Infrastructure

The technology **infrastructure** provides students, faculty, administrators, and supporting staff the resources they require to meet the needs of the educational mission of Richmond Community Schools. Resources not only include computer hardware and software, but the following:

- People
- Policies and guidelines
- Learning resources
- Client hardware and software
- Broadband connectivity
- Processes
- Sustainable models for continuous improvement
- Administration tools
- Management systems
- Servers, including virtual servers

Current Technology Infrastructure and Infrastructure Plans

The current technology infrastructure for all 15 educational and administrative sites* in the Richmond Community School Corporation is fully networked with an infrastructure that supports voice, video, and data networks for all classrooms and administrative areas. This network is built around a gigabyte capacity to all head end closets and 100 megabytes to all desktops. All sites have fiber optic supporting the bandwidth, which is a 1GB backbone.

**Note: Two of our buildings--, Highland, and CR Richardson—are no longer used as RCS educational sites. However, network and Internet access are still provided to those facilities for emergency telephone support, security alarms, and HVAC controls.*

Server infrastructure comprises 15 building servers supporting network access and software applications for students, staff, and administrators. There are approximately 101 other servers (standard and virtual) in the district that support student information systems, district-wide student applications, network security, web filtering, building security, email, department-specific databases, data storage, and backup services for students, staff, and administrators.

The following is a list of **some of the key infrastructure technologies**:

- Staff members use the Pearson PowerSchool student information system in conjunction with department specific software to perform duties such as student attendance, discipline tracking, collection of fees, and reporting grades.
- The district technology staff continues developing customized data storing and data analysis capabilities (within PowerSchool) to facilitate efficient access to and reporting of student assessment and performance information.
- High school, middle schools, and elementary schools use the Alios Cash Fees program for student-level accounting functions within PowerSchool.
- The Human Resources and Finance departments use ECA, Komputrol and K-Time to manage and maintain district financial and personnel information.
- RCS uses technology to monitor and control the use of HVAC system sin school buildings.
- The Food Services department uses Café Enterprise to collect student data in order to keep the costs of student lunches to a minimum. The department provides required information regarding students on free and reduced lunch status.
- The Transportation department uses BusBoss to optimize bus routes to increase efficiency and provide the minimum amounts of time a student spends on the bus going to and from school.

- The Library Services department uses Follett Destiny to facilitate the organization and access to materials at the building and district levels.

There are over 5,000 computers and mobile devices in the district, of which approximately 1000 devices are dedicated to staff and approximately 4,000 devices are available for student use. Of these devices, RCS has approximately 1,500 Apple iPads in the district. Each classroom teacher and instructional coach has been assigned an iPad device.

Each classroom is equipped with at least one teacher computer and one network laser printer. All core classrooms incorporate SmartBoards, in-ceiling LCD projectors, or mobile LCD projector systems. Student computers are placed in classrooms or labs based upon the instructional needs of the building as determined by the building administrators in accordance to the school improvement plan and school-specific technology plan. The district-wide student to computer ratio is approximately 2:1.

Networking Services

One of the primary features of a 21st century school corporation is the need of a robust and dependable local- and, in the case of Richmond Community Schools, wide-area network. Our local-area networks (LANs) are built within each building of RCS. They connect to one another using a wide-area network (WAN) design.

We depend on the network to be up and running 24/7. To ensure this availability, we must devote resources to maintaining and upgrading the network services. The following list shows the general type of equipment and software required for a thriving network:

- Network hardware, including routers, switches, credentialing servers, and cabling
- Firewall protection devices
- Web filtering devices
- E-mail hardware and software
- Backup hardware and software
- Antivirus hardware and software
- Web site hardware and software
- Wireless (WIFI) hardware and software

Internet Services

Along with local and wide area networks, all layers of the Richmond Community Schools rely on access to the services available on the Internet. Richmond Community Schools currently has a 1GB backbone to the Internet.

Some of the Internet services and resources available to all students and staff include, but are not limited to the following:

- Department of Education
- Curriculum resources
- Data services
- Financial institutions
- Assessment tools
- Rich multimedia, including video and audio sites

Inventory of RCS Classrooms

To ensure consistency of communication, curriculum endeavors, and collaboration, this technology plan proposes that all schools in the Richmond Community Schools should strive to remain technology-neutral except for special projects or pilot areas. What this means is that each school level (primary, intermediate, and high) should have similar types of technology and software. At the core, every school has high-speed Internet, wired network, and wireless network (WIFI) resources available in all classrooms.

The following sections describe and detail the basic technology requirements for all Richmond Community Schools classrooms as proposed by the RCS 21st Century Skills Committee. At the time of our inventory, all of our classrooms meet or exceed the basic requirements set forth by the RCS 21st Century Skills Committee (see earlier section called "21st Century Classrooms") except in one key area—student access to devices for instructional and assessment.

The document entitled *PowerUp – RCS Recommendation for 1 To 1 Technology* proposes how to close this gap for student access to devices.

Primary Schools

For primary schools (PK-4), the following components comprise the basic technology packages for all RCS primary school classrooms.

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Teacher iPad
- Laser printer
- Telephone
- Grades Pre-K-4 classrooms will have interactive SmartBoards
- Optional: Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Outlook, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool
- NWEA
- Pertinent grade-level software and/or Apple iPad apps

Student Area

Each student classroom area has the following items:

- 3-5 student desktop computers
- Laser printer

Students has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access.
- Curriculum-approved software
    - NWEA
    - Scholastic Reading Inventory (SRI)
    - School software deemed appropriate by faculty and administrator

In addition to classroom equipment, all primary schools will have at least one 30-seat computer lab in the building.

Intermediate Schools

For intermediate schools (grades 5-8), the following components comprise the basic technology packages for all intermediate school classrooms.

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone
- Grades 5-6 classrooms will have interactive SmartBoards
- Grades 7-8 classrooms will have LCD projector and wide screen (minimum of 84” wide)
- Optional: Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Outlook, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool
- NWEA
- Pertinent grade-level software and/or Apple iPad apps

Student Area

Each student classroom area has the following items:

- 3-5 student desktop computers
- Laser printer

Students has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access.
- Curriculum-approved software
    - NWEA
    - Scholastic Reading Inventory (SRI)
    - School software deemed appropriate by faculty and administrator

In addition to classroom equipment, Dennis and Test intermediate schools will have at least four 30-seat computer labs, one Family Consumer Sciences (FACS) lab, and four-30-seat portable carts with mobile devices (i.e. laptops, netbooks, or iPad tablets).

High School

For the high school, the following components comprise the basic technology packages for all high school classrooms.

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone
- LCD projector with wide screen (minimum of 84” wide)
- Optional: Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Outlook, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool
- Pertinent grade-level software

Student Area

The high school is provided with computer labs for core areas or departmental settings. Table 2 lists each lab, its primary role, and its location. Also shown is a proposed replacement year column. This column shows when we are expected, based on the age of the equipment, to replace each lab computer. In all cases, we re-evaluate this timeline based on the current status of the computer. In some cases, we can prolong the usable life of a computer by adding additional memory, storage, or similar upgrade. The costs of the upgrades can be minimal compared to the replacement cost of each computer. As a caveat, however, some computers cannot be upgraded to increase speed, functionality, and usability.

Table 2

	Type of Lab	No. of Computers	Primary Role	Year Replaced	Proposed Replacement Year
Library	Desktops	30	Research, ECA exams	2010	2017
L110	Desktops	30	Language Arts Curriculum, ECA exams	2011	2018
L104-105	Desktops	30	GradPoint Credit Recovery	2010	2017
R107	Desktops	30	Foreign Language Software, AP exam prep	2013	2019
R177	Desktops	30	Project Lead the Way – Engineering	2009	2015 - Done
R150	Desktops	30	Project Lead the Way – Engineering	2011	2015 - Done
R169	Laptops	28	Project Lead the Way – BioMed	2011	2015 - Done
R160	Netbooks	30	Science	2011	2015
R163	Netbooks	30	Science	2011	2015
R165	Netbooks	30	Science	2011	2015
R153	Netbooks	30	Science	2011	2015
R156	Netbooks	30	Science	2011	2015
R249	Desktops	30	Social Studies, ECA exams	2010	2017
R259	Desktops	30	Math, ECA exams	2011	2017
C213	Desktops	30	Business	2012	2019
C215	Desktops	30	Business	2012	2019
C212	Desktops	30	Marketing	2008	2017
C211	Desktops	30	Business, Web Page	2010	2017
C206	Desktops	30	Business, Accounting	2010	2017
R206	iPads	30	English	2010	2015
R236	iPads	30	Social Studies	2011	2016
3rd Floor	Netbooks	30	Special Education	2010	2016

Inventory for Special Programs Classrooms

Richmond Community Schools offers several program areas in which technology plays an important role.

Richmond Area Career Center

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone
- LCD projector with wide screen (minimum of 84” wide)
- Optional: Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool

Student Area

Each student area has the following items:

- Student desktop computers
- Laser printer
- Color plotter (PLTW engineering classrooms only)

Early College Program

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone
- Grades 5-6: Interactive SmartBoard
- Grades 7-8: LCD projector with wide screen (minimum of 84” wide)
- Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool

Student Area

Each student area has the following items:

- Student mobile devices
    - Apple iPads for grades 5-10+

LOGOS Program

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone
- Grades 5-6: Interactive SmartBoard
- Grades 7-8: LCD projector with wide screen (minimum of 84” wide)
- Optional: Digital camera and/or video camera

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool

Student Area

Each student area has the following items:

- Five student desktop computers
- Netbooks for each student
- Laser printer

Alternative Education

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool

Student Area

Each student area has the following items:

- Student desktop computers
- Laser printer

Community Youth Services

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor
- Laser printer
- Telephone

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access
- Pearson PowerSchool

Student Area

Each student area has the following items:

- Student desktop computers
- Laser printer

Richmond Adult Education

Teacher Area

Each teacher has the following hardware items:

- Teacher computer with 19-inch LCD monitor

- Laser printer
- Telephone

Each teacher has the following software items:

- Web browser
- Microsoft Office Professional, comprising Microsoft Word, Excel, PowerPoint, OneNote, and Access

Student Area

Each student area has the following items:

- Student desktop computers
- Laser printer

Telecommunications Services

A key part of our communication infrastructure is our phone system. Richmond Community Schools' telecommunications services include the following:

- Private Branch Exchange (PBX)
- Telephones in all classrooms
- Limited VOIP (Voice Over IP) infrastructure
- Cellular telephones for some administrators, principals, nurses, resource officers, technology department staff, and maintenance facility staff
- Air Card data systems for off-site connectivity for resource officers, superintendent, and maintenance facility supervisors (for managing environmental control systems and security systems)
- Voice mail system for all RCS staff, teachers, administrators, and embedded community organization staff (such as Community In Schools and CenterStone staff)

In 2010, RCS implemented a district-wide unified communications and messaging deployment of Microsoft Exchange Server 2010. This enabled faculty and staff to communicate with parents, community members, and each other in a more effective and efficient manner. Exchange Server 2010 continues to be our main e-mail system for staff and faculty. In 2014, the Technology Department initiated deployment of Microsoft Office 365 online accounts for all students. Office 365 provides Outlook 365 as its e-mail provider.

Replacement of Telephone System

Currently our telephone system is a traditional PBX (private branch exchange) that offers phone services to all buildings, offices, and classrooms. Recent disruptions to

phone services requires us to advance a proposal for the school board to consider for replacing the phone system. Based on quotes that we have received and extensive discussions with our current phone server provider (Frontier Communications), a new system (which would replace the PBX with a networked based VOIP system) would likely cost in the neighborhood of $180,000 - $220,000 based on features and current costs. In the near future, the Technology Department will be recommending a request to bid for a new phone system based on an request for proposal (RFP) currently under design. Technology Bond monies from 2015 and 2016 will be considered for funding this project.

Future Technology Improvements

Classroom, network, server, and computer infrastructure is maintained and upgraded as needed to support the curricular and instructional needs of the district. Future improvements and additions include the following:

- Continue to provide electronic textbook alternatives (such as Houghton Mifflin English Language Arts curriculum) for student learning.
- Create and maintain student e-portfolios in a Learning Management System to allow students to store, retrieve, and manage digital content. My Big Campus was the LMS of choice, but its parent company (Lightspeed Systems) has announced that My Big Campus will be retired at the end of the 2015-2016 school year.
- Add district-wide data collection and content servers for approved literacy, STEM, and other curriculum based applications.
- Install additional in-ceiling LCD projectors at the high school where needed.
- Continue to upgrade high school WIFI so all classrooms have at least one access point to ensure wireless density in those rooms. A project at Richmond High School was completed this fall that placed on WIFI access point in all classrooms.
- Extend the Microsoft Exchange Server 2010 messaging and unified communication system to allow for enterprise unified messaging with Microsoft Lync.
- Incorporate Microsoft System Center as the backend imaging and computer management system. System Center will replace Symantec Altaris as the imaging system.

Part 3: Operations

The o*perations* area is the essential mechanism that provides support and cohesion for an institution like Richmond Community Schools to function. It is, in short, the “business of doing business”. The essential underlying principle for all operations is to support the

student-learning process. Multiple layers of operations exist at RCS, such as student achievement, facilities, information technology, and so on.

For operations to meet the needs of the district and our community, Richmond Community Schools must provide core technology components for the following operations.

- Administration
- Curriculum
- Student Achievement
- Business department
- Human resources
- Exceptional Student Education
- High Ability
- Student Services
- Facilities and Grounds
- Transportation
- Food services
- Information technology

Enabling technology for operations is paramount to reaching our educational mission as technology provides tools for the following endeavors:

- Manage large amounts of student and staff data
- Provide a platform for resource management systems
- Create electronic systems for communications
- Maintain electronic archival systems for human resources department
- Provide surety in case of catastrophic electronic system failures

SECTION III: TECHNOLOGY FINANCIALS AND FUNDING

An important part of the health and upkeep of the technology in Richmond Community Schools depends on the availability of funds.

Part I: Technology Funding Sources

Funding sources for technology include the following:

- Capital Projects Fund (CPF)

- Bonds
- Universal Service Fund (USAF) E-Rate
- Grants
- Title I and Title II
- General Fund
- Rainy Day Fund
- Donations

Of these sources, CPF and a technology bond are the predominate sources of funding technology at Richmond Community Schools. Although the CPF budget has decreased over the past seven years, it still plays a primary function in which technology is maintained and upgraded for RCS. Grants have played a part of funding targeted areas of deploying technology and supporting professional development opportunities.

Technology Bond

In May 2013, a Technology Bond in the amount of $1,750,000 was approved to offset funds from the CPF account. Currently the remaining balance in the Technology Bond is $1,373,710.06. The following shows the current bond balance per year.

Year	Remaining Balance*
Technology-Yr1 (2014)	$0
Technology - Yr2 (2015)	$323,710.06
Technology - Yr3 (2016)	$350,000.00
Technology - Yr4 (2017)	$350,000.00
Technology - Yr5 (2018)	$350,000.00

**End of October 2015*

Annual Technology Budget

To create the annual technology budget, CPF and Technology Bond monies are combined. The following table lists the overall technology budget for the upcoming five years.

Year	Bond	CPF	Total Budget
2015-2016	$350,000.00	$300,000	$650,000
2016-2017	$350,000.00	$300,000	$650,000
2017-2018	$350,000.00	$300,000	$650,000
2018-2019	$350,000.00	$300,000	$650,000
2019-2020 *	$0	$650,000	$650,000

**The amount from CPF of $650,000 in 2019-2020 was the projected amount from the Office of Finance during the initial discussions of the Technology Bond. The actual amount may be adjusted in the future.*

Technology Recurring Costs

The following table lists the recurring technology costs for the upcoming three school years. As you can see, each year has recurring costs that amount to a large portion of the annual budget. Each year we review these costs and adjust accordingly based on current and future needs. For example, district software such as the Lightspeed filter will be reviewed in the 2016-2017 timeframe. If its costs can be adjusted downward, we will make those adjustments based on contracted costs, per pupil count, etc. Similarly, in the 2017-2018 timeframe, it will be up for renewal. At that point we will decide to continue using that product or switch. For budgetary purposes, we will use the known products and amounts to help us plan for future needs.

2015-2016 Technology Budget

Name	Category	Area	Annual Cost
Pearson GradPoint	Recurring Software	RHS, CYS	$35,940.00
Sophos AntiVirus	Recurring Software	District	$28,810.93
PowerSchool Annual License	Recurring Software	District	$26,100.00
Lightspeed Filter	Recurring Software	District	$25,000.00
Follett Destiny Library Software	Recurring Software	District	$10,000.00
Alert Solutions PowerAnnouncement	Recurring Software	District	$10,000.00
Lightspeed MDM Support	Recurring Software	District	$10,000.00
Board Docs	Recurring Software	District	$9,000.00
Security Certificates	Recurring Software	District	$6,400.00
Bus Boss Software	Recurring Software	District	$5,000.00
Perfect Forms	Non-Recurring Software	District	$4,500.00
GFI Archiver - Email	Recurring Software	District	$3,750.00
Waynet Membership	Recurring Software	District	$2,800.00
Pearson	Recurring Software	District	$2,500.00
Weidenhammer/Alio$ Support	Recurring Software	District	$2,500.00
FormSite - Vroman Systems	Recurring Software	District	$2,500.00
Think Help Desk	Recurring Software	District	$2,146.20
CrossTec SchoolVue	Recurring Software	RHS	$1,733.50
Northside Security Software	Recurring Software	District	$1,075.00
Dbvisualizer	Recurring Software	District	$100.00
	Hardware Related		
Dell Extended Warranties	Recurring Maintenance	District	$15,000.00
Cisco Switch Maintenance	Recurring Maintenance	District	$5,000.00
Juniper VPN	Recurring Maintenance	District	$15,000.00
PC Replacements	Hardware Sustainability	District	$141,000.00
District Phone System Upgrade - VOIP	Phone System	District	$200,000.00

Server Memory Upgrades	Non-Recurring Hardware	District	$16,829.40
UPS Replacements	Non-Recurring Hardware	Building	$2,030.67
UPS Repairs	Non-Recurring Hardware	District	$5,000.00
Brother Printers	Non-Recurring Hardware	District	$3,638.60
Wireless Infrastructure	Hardware Sustainability	District	$20,000.00
Printers, Projectors, ECA, PLTW	New or Updated Hardware	District	$10,160.87
Repairs, Batteries, Supplies	Repairs of Hardware	District	$26,484.83
		TOTAL	$650,000

2016-2017 Technology Proposed Budget

Name	Category	Area	Annual Cost
Pearson GradPoint	Recurring Software	RHS, CYS	$35,940.00
Sophos AntiVirus	Recurring Software	District	$28,810.93
PowerSchool Annual License	Recurring Software	District	$26,100.00
Lightspeed Filter	Recurring Software	District	$25,000.00
Follett Destiny Library Software	Recurring Software	District	$10,000.00
Alert Solutions PowerAnnouncement	Recurring Software	District	$10,000.00
Lightspeed MDM Support	Recurring Software	District	$10,000.00
Board Docs	Recurring Software	District	$9,000.00
Security Certificates	Recurring Software	District	$6,400.00
Bus Boss Software	Recurring Software	District	$5,000.00
Perfect Forms	Non-Recurring Software	District	$4,500.00
GFI Archiver - Email	Recurring Software	District	$3,750.00
Waynet Membership	Recurring Software	District	$2,800.00
Pearson	Recurring Software	District	$2,500.00
Weidenhammer/Alio$ Support	Recurring Software	District	$2,500.00
FormSite - Vroman Systems	Recurring Software	District	$2,500.00
Think Help Desk	Recurring Software	District	$2,146.20
CrossTec SchoolVue	Recurring Software	RHS	$1,733.50
Northside Security Software	Recurring Software	District	$1,075.00
Dbvisualizer	Recurring Software	District	$100.00
	Hardware Related		
Dell Extended Warranties	Recurring Maintenance	District	$15,000.00
Cisco Switch Maintenance	Recurring Maintenance	District	$30,000.00
Juniper VPN	Recurring Maintenance	District	$15,000.00
PC Replacements	Hardware Sustainability	District	$191,000.00
District Phone System - VOIP	Phone System – Recurring Costs	District	$50,000.00
Server Memory Upgrades	Non-Recurring Hardware	District	$16,829.40

UPS Replacements	Non-Recurring Hardware	Building	$2,030.67
UPS Repairs	Non-Recurring Hardware	District	$5,000.00
Backup Generator	Non-Recurring Hardware	District	$75,000
Brother Printers	Non-Recurring Hardware	District	$3,638.60
Wireless Infrastructure	Hardware Sustainability	District	$20,000.00
Printers, Projectors, ECA, PLTW	New or Updated Hardware	District	$10,160.87
Repairs, Batteries, Supplies	Repairs of Hardware	District	$26,484.83
		TOTAL	$650,000

2017-2018 Technology Proposed Budget

Name	Category	Area	Annual Cost
Pearson GradPoint	Recurring Software	RHS, CYS	$35,940.00
Sophos AntiVirus	Recurring Software	District	$28,810.93
PowerSchool Annual License	Recurring Software	District	$26,100.00
Lightspeed Filter	Recurring Software	District	$25,000.00
Follett Destiny Library Software	Recurring Software	District	$10,000.00
Alert Solutions PowerAnnouncement	Recurring Software	District	$10,000.00
Lightspeed MDM Support	Recurring Software	District	$10,000.00
Board Docs	Recurring Software	District	$9,000.00
Security Certificates	Recurring Software	District	$6,400.00
Bus Boss Software	Recurring Software	District	$5,000.00
Perfect Forms	Non-Recurring Software	District	$4,500.00
GFI Archiver - Email	Recurring Software	District	$3,750.00
Waynet Membership	Recurring Software	District	$2,800.00
Pearson	Recurring Software	District	$2,500.00
Weidenhammer/Alio$ Support	Recurring Software	District	$2,500.00
FormSite - Vroman Systems	Recurring Software	District	$2,500.00
Think Help Desk	Recurring Software	District	$2,146.20
CrossTec SchoolVue	Recurring Software	RHS	$1,733.50
Northside Security Software	Recurring Software	District	$1,075.00
Dbvisualizer	Recurring Software	District	$100.00
	Hardware Related		
Dell Extended Warranties	Recurring Maintenance	District	$15,000.00
Cisco Switch Maintenance	Recurring Maintenance	District	$30,000.00
Juniper VPN	Recurring Maintenance	District	$15,000.00
PC Replacements	Hardware Sustainability	District	$141,000.00
District Phone System - VOIP	Phone System – Recurring Costs	District	$50,000.00

Server Memory Upgrades	Non-Recurring Hardware	District	$16,829.40
UPS Replacements	Non-Recurring Hardware	Building	$2,030.67
UPS Repairs	Non-Recurring Hardware	District	$5,000.00
Air Conditioning	Non-Recurring Hardware	District	$125,000
Brother Printers	Non-Recurring Hardware	District	$3,638.60
Wireless Infrastructure	Hardware Sustainability	District	$20,000.00
Printers, Projectors, ECA, PLTW	New or Updated Hardware	District	$10,160.87
Repairs, Batteries, Supplies	Repairs of Hardware	District	$26,484.83
		TOTAL	$650,000

Technology Grant Opportunities

Grant opportunities become available from time-to-time from the state DOE, federal DOE, or other sources. These grant opportunities are usually competitive in nature and require strenuous attention to detail to meet the needs of the grant scoring rubric. In most cases grants are targeted in the following areas:

- Grade-level
- Program area
- Initiative

It is the recommendation of the Technology Committee to apply for technology-related grants that fulfill the overall mission of our technology plan, and/or meet a specific area of technology integration. Our goals will be to provide technology and/or professional development that will be instrumental for the betterment of our students and staff.

The following is the current grant awarded to Richmond Community Schools Technology Department.

eLearning Summer Regional Conference

The Indiana Department of Education's (IDOE) Office of eLearning believes strongly in providing technology-rich professional development for our Indiana educators and administrators that focuses on student-centered teaching and learning. To ensure all educators have the opportunity to engage in this type of professional learning, the Indiana DOE is supporting Summer eLearning Regional Conferences all around the state. Richmond was awarded its 5th annual award for the summer of 2016 in the amount of $13,000. Richmond Community Schools was of 22 districts that received the grant and will offer summer professional development.

E-RATE Opportunities

E-rate is a tiered system of reimbursement, for which Richmond Community Schools applies on behalf of eligible schools in the district. The school district uses the E-rate discount (currently set at 85%) to lower the cost of Internet access, telecom expenses,

and network data services. It should be noted that E-rate funds cannot be used to purchased computers, laptops, iPads, software, or similar client equipment.

The following lists shows the amount of projected e-rate funds for which RCS is eligible over the next four years. This is a total amount for the four years; not per year. The recommendation from e-rate vendor (AdTec) is to expend these funds within the 2016 and 2017 fiscal years.

Building	Projected Amount
Charles	$59,925.00
CYS - Baxter	$13,515.00
Crestdale	$60,307.50
Dennis	79,815.00
Fairview	$9,644.00
Hibberd	$38,632.50
RHS	$108,445.50
Starr	$22,694.15
Test	$21,127.60
Vaile	$21,336.70
Westview	$33,277.50

A plan is currently being drafted to detail the proposed purchases. For most buildings, the expenses will be to purchase WIFI devices (access points, wire, and switches) and services to augment the current WIFI devices in those buildings.