

Riverside Community College District Strategic Technology Plan

Approved - May 2015

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Background

The District Strategic Technology Plan (DSTP) was developed in Fall 2014 in response to the Accreditation visit in Spring 2014.

The Plan was to:

- Support the District Strategic Plan
- Integrate with existing College Technology Plans
- Incorporate recommendations from the 2010 IT Audit
- Address Accreditation Standards (specifically IIIC)
- Respond to specific accreditation recommendations from the Spring 2014 visit.

The development of the DSTP involved active participation of the Information Technology Strategy Council (ITSC) and the Technology Advisory Groups (TAGs) from the three colleges (Moreno Valley, Norco and Riverside City). The initial draft was developed by ITSC and aligned with the three college technology plans. The initial draft was reviewed by the Technology Advisory Group representatives in ITSC as well as the Technology Advisory Groups at each college. Feedback was included in the revised draft prior to approval from ITSC and submission to the three college Technology Advisory Groups for approval from their college strategic planning processes. ITSC presented the approved draft District Strategic Technology Plan to the District Strategic Planning Council for approval and recommendation to the Board of Trustees.

It was agreed by the ITSC that there would be a distinction and separation between the District Technology Plan and a District Office Technology Plan (DOTP). The DOTP would include areas such as:

- Standards/Procedures
- Tools/Processes
- Training/Support
- Business Continuity
- Refresh Plan/Funding Sources
- Ongoing Maintenance of the Plan

Current District Technology Environment

Strengths

- Creation of IT governance teams such as the Information Technology Strategic Council
- Improvement of network connectivity and redundancy throughout the District
- Installation and expansion of wireless technology

- Provision of application and email solutions for students, faculty and staff
- Customization of core applications where necessary improving and supplementing baseline functionality
- Securing of federal and state grants including Title V (portal), STEM, OpenCCCAApply, eTranscriptCA and CCCConfer to support technology

Weaknesses

- Limited helpdesk hours, staffing levels, communication and depth of support
- Ineffective marketing of current and emerging technologies
- Insufficient IT staffing levels, salaries and job descriptions that have not kept pace with the growth of technology applications and services employed by the District and colleges.
- Lack of well-structured training programs and adequate services for the technologies and applications offered by the District
- Inadequate tools for analytical and executive reporting

Challenges

- Serving more students, faculty, staff and technologies with current staffing levels
- Keeping faculty and staff current and competent with rapid technology changes
- Funding shortages and the lack of a technology refresh plan
- Marketing to and educating students in order to maximize effective use of technology to facilitate learning

District Strategic Technology Plan

Overview

The DSTP represents a macro view of the District's technology needs. It provides a long range view that anticipates the emerging technological needs of the Colleges and District entities and requires an understanding and accommodation for federal, state and local requirements. The DSTP anticipates and provides for the technological needs necessary to enable other planning documents at the District and College level to succeed and ensures a continuous two-way alliance with college technology requirements to support instruction and student-focused services. The Plan also forecasts a budget necessary to accomplish the goals and objectives of the Plan.

Purpose

The purpose of RCCD's DSTP is to encourage and enable all District and College constituencies to participate in the assessment of technology needs and the development of the vision, direction and prioritization of solutions to address those needs. It ensures ongoing focus and two-way alignment with the Technology Plans of the Colleges and the District Strategic Plan.

The DSTP enables all District entities to utilize data in decision making processes through the meaningful integration of disparate information systems and training; provide the technology necessary to enable College and District entities to respond to federal, state and local accreditation, licensing and reporting requirements; as well as maintain technological currency through the ongoing review of effective practices, emerging technologies and the provision of training to technical staff and end-users.

The DSTP also encourages regular review of business practices, technologies, and strategies to find new and innovative ways to enhance operational efficiencies and maximize value in procuring new technologies and ensuring that a Total Cost of Ownership (TCO) model is followed.

Process

The DSTP is a living document and will be reviewed and updated by ITSC on an annual basis so planning can reflect current situations as well as allowing for the District to be prepared for future challenges.

Through the planning and review process, the District collaborates with the colleges via the ITSC and the college Technology Advisory Groups to ensure input in assessing the use of and needs related to technology at the colleges and district-wide.

Principles

ITSC strives to provide appropriate support by following these Principles:

- Ensure and facilitate student learning and success
- Facilitate faculty and staff professional development and increase effectiveness
- Provide seamless integration between administrative applications that enable real-time exchange of data
- Provide a stable infrastructure and ready access to information
- Ensure technologies are responsive, inclusive and relevant to the communities with which we serve and collaborate
- Strive for excellence in the services we provide and the technologies we deploy and maintain
- Encourage the pursuit and adoption of innovative practices and technologies that enhance services to our stakeholders
- Provide value, effective communication and excellent service to the Colleges and District entities

Planning

The ITSC believes there are key features and characteristics of this planning document that will increase its likelihood for success and make it more meaningful to stakeholders. These include:

- Inviting and encouraging input from all stakeholders and encouraging representation from all areas of the District, colleges and communities we serve

- Making the plan readily available to all stakeholders
- Accommodating changes in the needs of the District, colleges and the communities we serve as reflected by changes in other District and college plans, Board initiatives, accreditation recommendations, external requirements and technology in general
- Maintaining a 3-5 year focus and including collectively defined purpose, process, guiding principles, goals, strategies and objectives
- Establishing objectives that are quantifiable and realistic with a direct link to financial requirements
- Identifying our strengths, weaknesses and challenges
- Regularly reviewing progress toward identified goals and objectives as part of a cyclical review process
- Reassessing the entire planning process every 3 years

Participants

Information Technology Strategy Council

Charge: The Information Technology Strategy Council will provide a collaborative forum to advise and inform the Chancellor’s Executive Cabinet and the District Strategic Planning Committee in setting priorities and making strategic decisions involving the provision of information services and technology to advance the institutional goals of the Riverside Community College District and its three colleges.

Membership: AVC, Information Technology and Learning Services (District) – Rick Herman
 Chief of Staff and Facilities Development (District) – Chris Carlson
 VP, Business Services (MVC) – Norm Godin
 VP, Business Services (NC) – Beth Gomez
 VP, Business Services (RCC) – Mazie Brewington
 Technology Advisory Group Representative (MVC) – Julio Cuz
 Technology Advisory Group Representative (MVC) – Felipe Galicia
 Technology Advisory Group Representative (NC) – Ruth Leal
 Technology Advisory Group Representative (NC) – Damon Nance
 Technology Advisory Group Representative (RCC) – Henry Bravo
 Technology Advisory Group Representative (RCC) – Amber Casolari
 Student Representative (MVC)
 Student Representative (NC)
 Student Representative (RCC)

Alignment of Technology Goals

It is important that the DSTP align not only with the District's Strategic Plan but also with the technology goals of each of the District's three colleges.

Table 1 shows the alignment of the eight District Technology Goals with the District's six major strategic themes as well as the alignment with Accreditation Standards IIIC.

Table 2 shows the alignment of District Technology Goals with the five technology goals of MVC.

Table 3 shows the alignment of District Technology Goals with the seven technology goals of NC.

Table 4 shows the alignment of District Technology Goals with the four technology goals of RCC.

Table 1: Alignment of District Technology Goals with District Strategic Themes

District Strategic Themes		Student Access - ensure that the educational needs of its diverse service area and population are met effectively and efficiently	Student Learning and Success - continue to facilitate student learning and success by offering clear pathways which support the attainment of individual educational goals	Resource Stewardship - ensure a viable and strong economic future through diligent and thoughtful stewardship and planning to effectively manage the District's resources	Community Collaboration and Partnership - continue and expand efforts to collaborate with education, business, and community organization partners in 'best practice' initiatives that prepare, inform and assist today's and tomorrow's prospective students	Creativity and Innovation - committed to work collaboratively with its Colleges, District Office and community partners to maintain excellence, access to learning opportunities and effective support services for students and stakeholders through creative programming and delivery systems	System Effectiveness - dedicated to continued diligence and creativity to ensure system efficiency and effectiveness
District Technology Goals	Accreditation Standard						
Support instruction and learning through technology	III.C.1	X	X			X	
Support communication, collaboration and innovation across the District	III.C.1a	X	X	X	X	X	
Develop and maintain sustainable funding strategies for technology initiatives	III.C.1.c	X		X	X	X	
Provide a stable, secure, robust and scalable infrastructure	III.C.1.a	X	X				X
Improve service delivery and broaden support	III.C.1.d	X	X			X	X
Develop and expand user training and services	III.C.1.b	X				X	X
Improve administrative and operational efficiency and effectiveness	III.C.1a	X	X	X	X		X
Maintain an integrated institutional plan	III.C.2	X	X	X	X	X	X

Table 2: Alignment of District Technology Goals with Moreno Valley College Technology Goals

Moreno Valley College Technology Goals	Develop and Implement Campus-Wide Technology Procedures and Standards	Provide Adequate Technology Fiscal Resources	Improve and Increase Faculty, Staff and Student Access to Information and Related Technology	Improve and Increase Community Outreach Through Technology	Improve Operational Efficiency and Communication through Automation
District Technology Goals					
Support instruction and learning through technology			X		
Support communications, collaboration and innovation across the District				X	
Develop and maintain sustainable funding strategies for technology initiatives		X			
Provide a stable, secure, robust and scalable infrastructure	X		X	X	
Improve service delivery and broaden support	X				X
Develop and expand user training and services	X				X
Improve administrative and operational efficiency and effectiveness	X				X
Maintain an integrated institutional plan	X	X	X	X	X

Table 3: Alignment of District Technology Goals with Norco College Technology Goals

Norco College Technology Goals	Make technology a priority at Norco College through training and support for faculty, staff and students	Develop and continue to update a technology strategic plan for a college-based model	Identify external and internal funding sources and maximize District IT funds for technology	Provide tools for online students about effective use of the learning management system and online resources	Provide tools for online faculty about online pedagogy and effective use of the learning management system	Create technology use and structure models and incorporate best practices in our use of technology college-wide	Respond to the technology needs of the Norco College community
District Technology Goals							
Support instruction and learning through technology	X	X					X
Support communications, collaboration and innovation across the District		X				X	X
Develop and maintain sustainable funding strategies for technology initiatives		X	X				X
Provide a stable, secure, robust and scalable infrastructure		X				X	X
Improve service delivery and broaden support	X	X		X	X		X
Develop and expand user training and services	X	X		X	X		X
Improve administrative and operational efficiency and effectiveness		X				X	X
Maintain an integrated institutional plan	X	X	X	X	X	X	X

Table 4: Alignment of District Technology Goals with Riverside City College Technology Goals

Riverside City College Technology Goals	Providing Global Access to Information	Meeting Educational and Training needs	Fostering Innovation, Communication and Collaboration	Improve the Effectiveness of Student, Faculty and Staff Tasks
District Technology Goals				
Support instruction and learning through technology	X			
Support communications, collaboration and innovation across the District			X	
Develop and maintain sustainable funding strategies for technology initiatives				
Provide a stable, secure, robust and scalable infrastructure	X	X		X
Improve service delivery and broaden support	X	X		X
Develop and expand user training and services				X
Improve administrative and operational efficiency and effectiveness				X
Maintain an integrated institutional plan	X	X	X	X

District Technology Strategies

The following technology strategies have been defined to support and fulfill the District's eight primary technology goals. These strategies are further detailed by means of specific measurable objectives, activities and tasks in Appendix 1.

1. Support instruction and learning through technology
 - 1.1 **Applications** - provide and maintain user applications that support instruction and learning
 - 1.2 **Reporting Tools** - employ and maintain reporting tools that support the effective use of applications, provide analytical reporting for planning purposes and fulfill external reporting requirements
2. Support communications, collaboration and innovation
 - 2.1 **Communication** – provide multiple mediums for critical communication to students, faculty and staff
 - 2.2 **Collaboration** – pursue opportunities for collaboration with internal and external technology groups
 - 2.3 **Innovation** – encourage innovation and implementation of best practices that enhance District and college strategies
3. Develop and maintain sustainable funding strategies for technology initiatives
 - 3.1 **Technology Use Model (TUM)** – develop and maintain a plan for consistent evaluation, procurement, utilization, maintenance, currency and replacement of technology
 - 3.2 **Funding Options** – evaluate acquisition and deployment options in addition to internal and external funding sources
4. Provide a stable, secure, robust and scalable infrastructure
 - 4.1 **Infrastructure** – maintain a reliable and accessible network infrastructure
 - 4.2 **Security** – maintain a secure environment for the District's technology equipment and information
 - 4.3 **Business Continuity** – provide high availability (HA) for critical technology applications and information
5. Improve service delivery and broaden support
 - 5.1 **Service Level Agreements (SLAs)** – establish service offerings, support guidelines and completion expectations
 - 5.2 **Staffing** – monitor and advocate for staffing levels needed to ensure expected SLAs
 - 5.3 **Service Desk** – expand services and improve customer satisfaction
 - 5.4 **Access** – provide increased access to applications both onsite and offsite
6. Develop and expand user training and services
 - 6.1 **Programs** – develop and maintain ongoing technology training opportunities

7. Improve administrative and operational efficiency and effectiveness
 - 7.1 **Applications** – improve computer application efficiency and effectiveness
 - 7.2 **Systems** – improve computer systems efficiency and effectiveness

8. Maintain an integrated institutional plan
 - 8.1 **Organization** - formalize and maintain a District-wide shared governance technology committee structure
 - 8.2 **Maintenance** - develop and maintain formal processes to ensure a living, strategic and viable technology plan

Appendix 1: District Strategic Technology Plan Goals, Strategies, Objectives and Activities/Tasks

1. Support instruction and learning through technology				
1.1 Provide and maintain user applications that support instruction and learning.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
1.1.1 Portal - Develop and deploy a District-wide portal for application consolidation and single sign-on capability.	1.1.1.1 Decision Making - Make taxonomy decisions, code and test	Portal Governance Team	Fall 2015	RCC Grant
	1.1.1.2 Usability - Deploy in a limited pilot	Portal Governance Team; Selected Students, Faculty, Staff	Fall 2015	N/A
	1.1.1.3 Participation (Opt-In) - Deploy along side current stand-alone applications	Students, Faculty, Staff	Winter 2016	N/A
	1.1.1.4 Participation (Required) - Remove external sites and require portal use by students, faculty and staff	Students, Faculty, Staff	Spring 2016	N/A
1.1.2 Colleague/WebAdvisor - Continue to support and enhance the District's Enterprise Resource Planning (ERP) system and related products.	1.1.2.1 Change Management (External) - Implement vendor and state/federal regulatory changes as required	Information Services, Vendors, State/Federal Agencies	Ongoing	TBD
	1.1.2.2 Change Management (Internal) - Implement institutional requests as approved and prioritized	Information Services, User Departments	Ongoing	TBD
	1.1.2.3 Integration - Establish integration where possible to third party applications	Information Services, Vendors	Ongoing	TBD
	1.1.2.4 Products/Functionality - Evaluate, purchase and implement new modules and products as available	Information Services, User Departments, Vendors	Ongoing	TBD
1.1.3 Mobile Technologies - Explore mobile applications, expanding user access and the incorporation of the most commonly used interfaces.	1.1.3.1 Mobile Applications - Implement Ellucian's mobile application	Information Services, Portal Shared Governance Team	Spring 2016	\$10K

1.1.4 Student Success - Provide support for Student Success initiatives by implementing automated processes and expanding self-services.	1.1.4.1 Student Educational Plans - Implement online, comprehensive student educational plans	Student Educational Plan Workgroup, Information Services	Spring 2016	\$35K / SSSP
	1.1.4.2 Transcripts (Outgoing) - Implement Credentials self-service transcript integration	Student Transcript Workgroup, Information Services	Spring 2015	N/A
	1.1.4.3 Transcripts (Incoming) - Implement eTranscriptCA and OnBase TCE data capture	Student Transcript Workgroup, Information Services	Fall 2015	\$200K / SSSP
	1.1.4.4 Degree Audit - Update and maintain articulation agreements for feeder institutions	Student Transcript Workgroup, Student Educational Plan Workgroup, Information Services	Ongoing	Permanent Articulation Specialist
	1.1.4.5 Retention - Evaluate options for tracking and responding to student retention/success	Information Services, User Departments	Winter 2016	TBD
1.1.5 Assessment - Evaluate supported applications and technologies on a regular basis through surveys and focus groups.	1.1.5.1 Creation - Create feedback and survey tools to assess the usability of supported applications	Information Services, User Departments, Focus Groups	Fall 2016	N/A
	1.1.5.2 Collection - Survey and request feedback at least annually	Information Services, User Departments, Focus Groups, Students, Faculty, Staff	Fall 2016	N/A
	1.1.5.3 Assessment - Assess survey and feedback results and make changes where appropriate in order to improve effectiveness of applications	Information Services, User Departments, Focus Groups	Fall 2016	TBD

1.2 Employ and maintain reporting tools that support the effective use of applications, provide analytical reporting for planning purposes and fulfill external reporting requirements.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
1.2.1 Administrative Tools - Use administrative tools to monitor the effectiveness of supported environments.	1.2.1.1 Daily Monitoring - Monitor systems daily to maximize performance and availability	Information Services	Ongoing	TBD
	1.2.1.2 Administrative Tools - Evaluate, purchase and implement monitoring tools to enhance and/or automate the performance and availability of administrative systems	Information Services	Fall 2015	TBD
1.2.2 Internal Reporting - Monitor institutional efficiency and effectiveness through internal reporting.	1.2.2.1 Enrollment Management Dashboard - Continue to refine and enhance	Enrollment Management and Scheduling Taskforce (EMST)	Ongoing	N/A
	1.2.2.2 Student Analytics - Select and implement a student analytics reporting and dashboard tool	Enrollment Management and Scheduling Taskforce (EMST)	Fall 2015	\$100K
	1.2.2.3 Reporting Tool - Select and implement a SQL based generic reporting tool	Information Services, EMST, Departmental Stakeholders	Fall 2015	\$150K
1.2.3 External Reporting - Provide local, state and federal data used for compliance, MIS reporting, apportionment and other requirements.	1.2.3.1 Ownership - Establish ownership and a review structure for all external data reports	Information Services, VC Educational Services, Institutional Effectiveness, Institutional Research, Departmental Stakeholders	Winter 2016	N/A
	1.2.3.2 Timelines - Establish, publish and maintain timelines for all external report submissions	Information Services, VC Educational Services, Institutional Effectiveness, Institutional Research, Departmental Stakeholders	Winter 2016	N/A
	1.2.3.3 Data Warehouse - Create and maintain an institutional data warehouse	Information Services, Institutional Effectiveness, Institutional Research	Spring 2016	TBD

2. Support communication, collaboration and innovation across the District.				
2.1 Provide multiple media for critical communication to students, faculty and staff.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
2.1.1 Portal - Create constituent specific communication content within the portal.	2.1.1.1 Responsibility - Create and maintain a governance structure for the maintenance of portal-based content	Portal Shared Governance Team, Portal Site Coordinators	Spring 2015	N/A
	2.1.1.2 Management - Develop best practices and guidelines for the communication of content-specific content to college-based constituencies	Portal Shared Governance Team, Portal Site Coordinators	Fall 2015	N/A
2.1.2 Online Conferencing - Evaluate video conference usage and explore web-based technologies.	2.1.2.1 Video Conferencing - Expand the availability and use of District video conferencing	Instructional Media Center	Fall 2016	TBD
	2.1.2.2 Web-Based Conferencing - Expand the use of CCCConfer	RCCD CCCConfer Leaders	Ongoing	N/A
2.1.3 Mass Notification - Continue development of a comprehensive emergency notification plan.	2.1.3.1 Mass Notification - Complete the development of a comprehensive Mass Notification plan	Risk Management, Safety and Security Taskforce, Information Services, Communications	Fall 2015	TBD
2.1.4 Websites - Maintain up-to-date communications on all websites.	2.1.4.1 Website Coordination - Ensure District and College websites are kept current and information is consistently communicated	Web Development Staff, Communications, Web Content Stakeholders	Ongoing	N/A
2.1.5 Email/Mobile - Maintain email accounts and mobile based communication services for students, faculty and staff.	2.1.5.1 Office 365 - Migrate from Exchange to Office365 for all faculty and staff	Information Services, Vendors	Fall 2015	\$20K
	2.1.5.2 Student Email - Encourage more frequent use of this technology	User Departments, Communications	Spring 2016	N/A
	2.1.5.3 Mobile - Increase the use of mobile technologies in communication	Information Services, Communications, User Departments, Vendors	Spring 2016	N/A
2.1.6 Social Media - Integrate social media into the communications palette.	2.1.6.1 Social Media - Determine social media owners and develop a communications plan	Social Media Owners, Information Services, Communications	Unknown	TBD

2.2 Pursue opportunities for collaboration with internal and external technology groups.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
2.2.1 Technology Committees/Workshops - Establish and maintain ongoing conversations between District and College technology groups.	2.2.1.1 IT Strategy Council - Maintain a formalized meeting and reporting structure, including a relationship with the College Technology Advisory Groups and District Strategic Planning Committee	IT Strategy Council, College Technology Advisory Groups	Ongoing	N/A
	2.2.1.2 Portal Shared Governance Team - Maintain a formalized meeting and reporting structure	Portal Shared Governance Team	Ongoing	N/A
2.2.2 Technology Conferences/User Groups - Increase participation in local, state and national technology groups.	2.2.2.1 User Groups - Increase participation in product-based User Groups (i.e. Ellucian, Hyland, CollegeNet, State Chancellor's Office)	Information Services, User Departments	Ongoing	TBD
	2.2.2.2 Technology Conferences - Increase participation in technology based conferences (i.e. EDUCAUSE, CISOA)	IT Strategy Council, Information Services, College Technology Advisory Groups	Ongoing	TBD
2.3 Encourage innovation and the implementation of best practices that enhance District and college strategies.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
2.3.1 Peer Institutions - Work with other local institutions and CCC's in collaboration and implementation of new technologies.	2.3.1.1 Collaboration - Develop relationships with other institutions and vendors to implement best practices and to collaborate on new technology related projects	IT Strategy Council, Information Services	Ongoing	N/A
2.3.2 External Agencies - Work with outside agencies in the establishment of partnerships and technology-based grants.	2.3.2.1 Partnerships - Work with the Grants Office and technology vendors to begin building relationships with technology based agencies	IT Strategy Council, Information Services	Ongoing	N/A

3. Develop and maintain sustainable funding strategies for technology initiatives				
3.1 Develop and maintain a plan for consistent evaluation, procurement, utilization, maintenance, currency and replacement of technology.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
3.1.1 Technology Tracking System - Develop and maintain a District-wide inventory tracking system for technology-based hardware and software.	3.1.1.1 Inventory Tool - Evaluate, purchase and implement a technology inventory tracking tool	IT Strategy Council, Information Services, College Technology Advisory Groups	Spring 2016	\$75K
	3.1.1.2 Methodology - Develop a methodology for gathering and maintaining accurate inventory	IT Strategy Council, Information Services, College Technology Advisory Groups	Spring 2016	N/A
	3.1.1.3 Ownership - Determine technology ownership and reporting responsibilities	IT Strategy Council, Information Services, College Technology Advisory Groups	Spring 2016	N/A
3.1.2 Technology Use Model (TUM) - Develop and maintain a District Technology Use Model.	3.1.2.1 TUM - Develop and maintain a District Technology Use Model to be used in conjunction with the District Technology Refresh Plan	IT Strategy Council, Information Services, College Technology Advisory Groups	Fall 2015	N/A
3.1.3 Technology Refresh Plan – Use the TUM model in the development of a Technology Refresh Plan to be used in the preparation of Administrative Program Review.	3.1.3.1 Refresh Plan - Create and maintain a Technology Refresh Plan using the TUM	IT Strategy Council, Information Services, College Technology Advisory Groups	Fall 2015	N/A
	3.1.3.2 APR - Incorporate the TUM into Administrative Program Review (APR)	IT Strategy Council, Information Services, College Technology Advisory Groups	Fall 2015	TBD
3.2 Evaluate acquisition and deployment options in addition to internal and external funding sources.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
3.2.1 Acquisition – Evaluate alternative purchase/lease/hosting options for end-of-life equipment.	3.2.1.1 Hardware Acquisition - Evaluate acquisition options as EOL technology is due for replacement	Information Services	Ongoing	TBD

3.2.2 Deployment – Evaluate alternative application deployment options including hosted, cloud based and hybrid solutions.	3.2.2.1 Office 365 - Complete migration to hosted Office/Outlook environment	Information Services	Fall 2015	\$20K
	3.2.2.2 Colleague/WebAdvisor - Investigate hosting options when current hardware is EOL	Information Services	Spring 2018	TBD
	3.2.2.3 25Live - Evaluate hosted options after migration from R25 is complete	Information Services	Summer 2016	\$15K
3.2.3 Internal Resources – Identify internal funding sources for meeting technology needs.	3.2.3.1 Technology Fee - evaluate the institution of a student-based technology fee	IT Strategy Council, District Strategic Planning Committee, Chancellor's Cabinet, Board of Trustees	Fall 2015	TBD
	3.2.3.2 FTE Fee - evaluate the institution of an employee-based technology fee	IT Strategy Council, District Strategic Planning Committee, Chancellor's Cabinet, Board of Trustees	Fall 2015	TBD
3.2.4 External Resources – Explore external funding sources and protocols for acquisition.	3.2.4.1 Bond Initiatives - Investigate the possibility of a bond initiative to support ongoing technology refresh needs	Information Services, IT Strategy Council, District Strategic Planning Committee, Chancellor's Cabinet, Board of Trustees	Ongoing	TBD
	3.2.4.2 Grants - Research grant options that would assist in technology refresh plans	Information Services, IT Strategy Council, Grants Office, District Strategic Planning Committee, Chancellor's Cabinet, Board of Trustees	Ongoing	TBD

4. Provide a stable, secure, robust and scalable infrastructure.				
4.1 Maintain a reliable and accessible network infrastructure.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
4.1.1 <u>Wide Area Network (WAN) / Local Area Network (LAN)</u> – Maintain currency and redundancy of the District’s network cabling, routing and switching infrastructure.	4.1.1.1 MVC Refresh - Complete router and switch upgrades	Information Services	Spring 2015	\$1.4M
	4.1.1.2 NC Refresh - Complete router and switch upgrades	Information Services	Summer 2015	\$1.4M
	4.1.1.3 RCC Refresh - complete router and switch upgrades	Information Services	Summer 2016	TBD
4.1.2 <u>Wireless Access</u> – Review current coverage and expand as needed to meet acceptable standards.	4.1.2.1 Coverage Areas - Assess, expand and maintain acceptable wireless access areas	Information Services	Ongoing	TBD
	4.1.2.2 Ease of Use - Streamline and simplify use of the District's wireless access protocol	Information Services	Fall 2015	TBD
4.2 Maintain a secure environment for the District’s technology equipment and information.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
4.2.1 <u>Network Operations Centers (NOC), Main Distribution Frames (MDF), Intermediate Distribution Frames (IDF)</u> – Maintain physical security standards.	4.2.1.1 - Physical Security - Ensure appropriate security to all NOCs, MDFs and IDFs with the use of locks, alarms and cameras	Information Services, Facilities, Risk Management	Ongoing	TBD

4.2.2 Data Security – Ensure best practices are followed with respect to data security (firewalls, authentication, passwords, encryption, intrusion protection).	4.2.2.1 Data Access and Security Taskforce - Maintain a policy creation group that oversees data security across the District	IT Strategy Council, Information Services, Risk Management, Legal	Ongoing	N/A
	4.2.2.2 Policies/Procedures - Complete the review, revision and creation of District data security policies and procedures (i.e. security appliances, authentication, encryption)	IT Strategy Council, Information Services, Risk Management, Legal	Fall 2015	N/A
	4.2.2.3 Training - Enforce approved policies/procedures through education and training	IT Strategy Council, Information Services, Risk Management, Legal	Fall 2015	\$20K
	4.2.2.4 Systems - Evaluate, purchase and implement technologies to protect and prevent data corruption and or loss	IT Strategy Council, Information Services, Risk Management, Legal	Fall 2015	\$75K
4.3 Provide High Availability (HA) for critical technology applications and information.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
4.3.1 Operational Continuity – Provide a stable and redundant environment.	4.3.1.1 Network (Fiber) - Complete upgrade and redundant connections throughout the District	Information Services	Ongoing	TBD
	4.3.1.2 Network (Routers/Switches) - Complete upgrade and redundant connections throughout the District	Information Services	Ongoing	TBD
	4.3.1.3 Environment - Ensure adequate A/C, power and switch/router redundancy in all technology NOCs, MDFs and IDFs	Information Services	Ongoing	TBD
	4.3.1.4 Servers - Complete virtualization of all remaining physical servers and establish HA failover	Information Services	Fall 2015	\$150K
	4.3.1.5 Applications - Provide HA application redundancy	Information Services	Ongoing	TBD
	4.3.1.6 Data - Provide HA data redundancy	Information Services	Ongoing	TBD

<p>4.3.2 Technology Continuity Plan – Develop and maintain a Continuity Plan that includes restoration of critical District services and data (i.e. network, phones, ERP, Active Directory, Email and LMS) that is integrated with a Facilities Continuity Plan.</p>	<p>4.3.2.1 Technology Continuity - Complete the plan as part of the overall District Strategic Technology Plan</p>	<p>Information Services, IT Strategy Council, Technology Advisory Councils, District Strategic Planning Committee, Chancellor's Cabinet, Board of Trustees</p>	<p>Fall 2015</p>	<p>N/A</p>
<p>4.3.3 Safety and Emergency Preparedness – Support plans to assess, integrate and implement emergency systems and technologies.</p>	<p>4.3.3.1 Safety and Emergency Preparedness – Support plans to assess, integrate and implement emergency systems and technologies</p>	<p>Information Services, IT Strategy Council, Safety and Security Taskforce</p>	<p>Ongoing</p>	<p>TBD</p>

5. Improve service delivery and broaden support services.				
5.1 Service Level Agreements (SLA's) – establish service offerings, support guidelines and completion expectations.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
5.1.1 Service Level Agreements - Create and maintain SLA's for major technology service areas.	5.1.1.1 Applications - Develop a centralized SLA catalog	Information Services, IT Strategy Council	Spring 2016	N/A
	5.1.1.2 Network - develop a centralized SLA catalog	Information Services, IT Strategy Council	Spring 2016	N/A
	5.1.1.3 Phones - Develop a centralized SLA catalog	Information Services, IT Strategy Council	Spring 2016	N/A
	5.1.1.4 Microcomputer Support - Develop a centralized SLA catalog	Information Services, IT Strategy Council	TBD	N/A
	5.1.1.5 Service Desk - Develop a centralized SLA catalog	Information Services, IT Strategy Council	Spring 2016	N/A
5.2 Monitor and advocate for staffing levels needed to ensure expected SLA's.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
5.2.1 Staffing - Evaluate service level expectations, reporting, job responsibilities and funding for technology positions.	5.2.1.1 Open Campus - Evaluate future reporting and positions	IT Strategy Council, Open Campus, District Strategic Planning Committee, Chancellor's Cabinet, Human Resources, Board of Trustees	TBD	TBD
	5.2.1.2 Service Desk – Evaluate reporting for ITA positions	IT Strategy Council, Information Services, District Strategic Planning Committee, Chancellor's Cabinet, Human Resources, Board of Trustees	Summer 2015	TBD
	5.2.1.3 Websites – Evaluate reporting and responsibilities	IT Strategy Council, College Technology Advisory Groups, District Web Development, District Strategic Planning Committee, Chancellor's Cabinet, Human Resources, Board of Trustees	TBD	TBD
	5.2.1.4 Instructional Media Center – Evaluate reorganization with micro support	IT Strategy Council, College Technology Advisory Groups, District Strategic Planning Committee, Chancellor's Cabinet, Human Resources, Board of Trustees	Summer 2015	TBD

	5.2.1.5 AST positions – Create consistency between reporting, funding and responsibilities	IT Strategy Council, Information Services, District Strategic Planning Committee, Chancellor's Cabinet, Human Resources, Board of Trustees	Spring 2015	TBD
5.3 Expand Service Desk services and improve customer satisfaction.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
5.3.1 Resources – Increase staffing or look for alternative support options.	5.3.1.1 Staffing - Evaluate need for additional District staffing based on current and projected service requests	Information Services, Human Resources	Fall 2015	TBD
5.3.2 Hours of Operation – Increase to accommodate requests after hours.	5.3.2.1 Hours - Evaluate need for evening and weekend support staff or external support services	Information Services	Fall 2015	TBD
5.3.3 Levels of Support – Provide more in-depth support services.	5.3.3.1 Support Services - Evaluate current service requests and determine methods to resolve more efficiently and effectively	Information Services	Fall 2015	TBD
5.3.4 Footprints – Create work order templates to expedite request completion.	5.3.4.1 Work Order Templates - Develop templates that will provide sufficient information to process work orders more efficiently	Information Services	Fall 2015	N/A
5.4 Provide access to applications both onsite and offsite.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
5.4.1 Bandwidth – Monitor and expand bandwidth as needed.	5.4.1.1 Bandwidth - Monitor bandwidth use on all LAN environments and expand as needed	Information Services	Ongoing	TBD
5.4.2 Wireless Access – Simplify and expand wireless access.	5.4.2.1 Wireless - Complete consolidation and simplification of wireless access protocols	Information Services	Fall 2015	TBD

5.4.3 Remote Access – Provide access to appropriate applications from offsite via internet and Virtual Private Network (VPN).	5.4.3.1 VPN - Create VPN policy, review current user list and update appropriately.	Information Services, IT Strategy Council	Fall 2015	N/A
	5.4.3.2 Web Applications - Evaluate methods for distributing self-service options via web applications	Information Services, Web Development	Ongoing	TBD

6. Develop and expand user training and services.				
6.1 Programs - Develop and maintain ongoing technology training opportunities.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
6.1.1 Learning Management System (LMS) – Evaluate, purchase and implement.	6.1.1.1 LMS - Evaluate, purchase and implement an LMS for employee training	Information Services, Key stakeholders, User Departments	Spring 2016	TBD
6.1.2 Workshops – Identify, develop and schedule within the LMS.	6.1.2.1 Identification - Identify user training needs that are appropriate via workshops	Information Services, Key stakeholders, User Departments	Fall 2015	N/A
	6.1.2.2 Creation - Create workshop content for most critical training areas	Information Services, Key stakeholders, User Departments	Fall 2015	TBD
	6.1.2.3 Deployment - Begin delivery of workshop trainings	Information Services, Key stakeholders, User Departments	Spring 2016	N/A
6.1.3 Online Tutorials – Collect, create and consolidate within the LMS.	6.1.3.1 Identification - Identify user training needs that are appropriate via tutorials	Information Services, Key stakeholders, User Departments	Fall 2015	N/A
	6.1.3.2 Creation - Create tutorial content for most critical training areas	Information Services, Key stakeholders, User Departments	Fall 2015	TBD
	6.1.3.3 Deployment - Begin delivery of tutorial trainings	Information Services, Key stakeholders, User Departments	Spring 2016	N/A
6.1.4 Informational Materials – Identify, develop and publish on appropriate websites.	6.1.4.1 Identification - Identify user training needs that are appropriate via informational materials	Information Services, Key stakeholders, User Departments	Fall 2015	N/A
	6.1.4.2 Creation - Create informational material content for most critical training areas	Information Services, Key stakeholders, User Departments	Fall 2015	TBD
	6.1.4.3 Deployment - Begin delivery of informational materials	Information Services, Key stakeholders, User Departments	Spring 2016	N/A

6.1.5 Resources – Identify and fill personnel requirements for the support of ongoing training efforts.	6.1.5.1 Training Resources - Identify personnel requirements to support ongoing District training efforts	Information Services, Key stakeholders, User Departments	Ongoing	TBD
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7. Improve administrative and operational efficiency and effectiveness.				
7.1 Improve computer application efficiency and effectiveness.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
7.1.1 Functional Enhancements – Continue to provide improved functionality for District computer applications where possible.	7.1.1.1 Software Application Enhancements - Continue to provide enhanced functionality for District supported software applications where appropriate	Information Services	Ongoing	N/A
7.1.2 Electronic Document Management – Continue to streamline processes and storage of information through the digitization of paper documents.	7.1.2.1 Electronic Document Management - Complete first phase of document imaging project in DHR and BFS	Information Services, Human Resources, Business & Financial Services	Summer 2015	N/A
	7.1.2.2 Electronic Forms and Workflow - Select, procure and begin implementation of an electronic forms and workflow solution that integrates with District's Document Management system	Information Services, Key Stakeholders, User Departments	Fall 2015	TBD
	7.1.2.3 EDM Expansion - Begin work with new departments in the imaging of paper documents	Information Services, User Departments	Ongoing	TBD
7.1.3 Training – Encourage participation in software application conferences and workshops.	7.1.3.1 Training - Budget and participate in annual training opportunities that support District hardware and software products	Information Services, Key User Department Staff	Ongoing	TBD
7.2 Improve computer systems efficiency and effectiveness.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
7.2.1 Virtualization – Complete and maintain a fully virtualized environment for all District servers.	7.2.1.1 Virtualization - Complete the virtualization of all physical servers	Information Services, Web Development	Fall 2015	N/A
7.2.2 Virtual Desktop Interface (VDI) – Develop a VDI strategy for lab and office environments.	7.2.2.1 VDI Strategy - Develop a VDI strategy for lab and office environments	Information Services, IT Strategy Council	Fall 2015	N/A
	7.2.2.2 VDI Deployment - Deploy VDI technology where appropriate	Information Services	Ongoing	TBD

7.2.3 Management Tools – Evaluate, implement and maintain performance management tools.	7.2.3.1 Management Tools - Check with Network and Applications for specific tools	Information Services	Fall 2015	TBD
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8. Maintain an integrated District Strategic Technology Plan.				
8.1 Formalize and maintain a District-wide shared governance technology committee structure.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
8.1.1 Information Technology Strategy Council (ITSC) – Finalize ITSC membership and its relationship to college-based technology groups.	8.1.1.1 ITSC Membership - Finalize current and ongoing membership representation	IT Strategy Council, District Strategic Planning Committee, Chancellor's Committee Taskforce	Spring 2015	N/A
	8.1.1.2 College Technology Groups - Finalize formal relationship between ITSC and college TAG's	IT Strategy Council	Spring 2015	N/A
8.1.2 District Strategic Planning Committee (DSPC) – Finalize ITSC reporting mechanism and decision making processes with DSPC.	8.1.2.1 DSPC Relationship - Determine relationship between ITSC and DSPC	IT Strategy Council, Chancellor's Committee Taskforce	Spring 2015	N/A
8.2 Develop and maintain formal processes to ensure a living, strategic and viable technology plan.				
Measurable Objectives	Activities/Tasks	Participants	Timelines	Estimated Costs
8.2.1 Process - Establish formal review process, plan updates and reporting.	8.2.1.1 Process - Establish formal review process, plan updates and reporting	IT Strategy Council, District Strategic Planning Committee	Fall 2015	N/A
8.2.2 Prioritization - Determine rules for prioritization of projects.	8.2.2.1 Prioritization - Determine rules for prioritization of projects	IT Strategy Council, District Strategic Planning Committee	Fall 2015	N/A

Appendix 2: District Technology Continuity Plan

A comprehensive District Technology Continuity Plan (DTCP) is critical for providing reliable services to our students, faculty and staff and in safeguarding the information entrusted to us on their behalf. In order to maximize overall business continuity, a technology plan must align with facilities, educational and human resources plans. RCCD is currently in the process of formulating these plans and once completed, the current technology plan will be adjusted as appropriate to ensure alignment.

Disruption of technology services can occur at many levels such as:

- a failed port on a network switch
- a localized power outage
- the failure of a software application
- the loss of data on a hard drive
- the loss of internet connectivity
- the unintended severing of a fiber connection
- mass devastation due to an earthquake, fire, flood, etc.

A comprehensive Technology Continuity Plan addresses the full range of service interruptions and is typically divided into two categories:

- business continuity (providing service during a disruption)
- disaster recovery (restoration of services following a disruption)

Redundancy of services typically provides business continuity whereas a Technology Recovery Management Plan (TRPM) may be initiated following a disaster such as a lightning strike or earthquake.

The following represent technology areas to be addressed in respect to business continuity and disaster recovery.

NOTE: Work has already begun in the areas in **boldface** below.

Facilities

- Offices
 - Workstation Applications/Data
 - Paper Records
 - Email / Voicemail (archive)
 - Portable Devices
- Classrooms
 - Standard Classroom (instructor stations, projectors, monitors, other technology)
 - Labs (workstations, servers)

- Buildings
 - Intermediate Distribution Framework (IDF)
 - **Local Area Network (LAN) (building to building, router/switch redundancy)**
- **Network Operation Centers (NOCs) (power, Uninterruptable Power Supply (UPS), generator, A/C, fire protection, virtualization, redundancy, load balancing)**
- Network Connectivity
 - **Wide Area Network (WAN) (bandwidth, redundancy, failover)**
 - **Internet - RCC/MVC (Ironport, Domain Name Server (DNS), Intrusion Protection)**

Data / Applications

- **Backups (frequency, onsite, offsite, full/incremental)**
- Restores (full/incremental, test plan, Return Point of Operations (RPO), Return Time to Operations (RTO))
- **Applications (patches, restores, custom, test/development accts)**
- Operating Systems (updates, maintenance, compatibility)
- Active Directory (redundancy, data protection)
- **Servers (virtual, High Availability (HA), automated/manual, load balancing)**
- Mobile (cloud backup, remote sites)
- **Digitized Paper Records (enterprise content management system)**

Voice / Phone Systems

- Desk Phones (analog, Voice Over IP (VOIP), spares)
- **Unified messaging**
- PBX failover
- **Voicemail (HA, failover, backup, restore, UPS)**
- Emergency phones

Safety Systems

- **E911**
- **Fire alarms**
- **Access Systems**
- **Surveillance Cameras**
- **Mass Notification**

Remote Access/Communication

- **Webmail** and online meetings (CCCConfer)
- **Web-based/Virtual Private Network (VPN) access to applications**
- Classroom/instructional access via Learning Management System (LMS) for communication and distribution of materials
- **Continued communication via mass notification and cloud-based solutions**
 - **Social Media**
 - **Email**
 - **Voicemail**
 - **Texting**
 - **Websites**
 - **Portal**

NOTE: The District Plan DOES NOT include the categories of Offices or Classrooms. Continuity plans for these areas should be provided by each College and the District Office.

It has been determined by the ITSC that for the purpose of this plan, the top three priorities for technology continuity for the colleges and District are:

- **Safety Systems**

Efforts by the Safety and Security Taskforce have been underway since 2013 to address the areas listed under Safety Systems. This plan includes three general phases:

 - assess what we have (completed)
 - repair, integrate and redeploy those services (in progress)
 - upgrade all safety systems across the District at a global level (may be initiated in 3-5 years based on funding)

- **Data Protection**

Information Services is currently backing up data within its purview on a regular basis (snapshots, incremental and full). All systems are backed up to disk. System backups are retained in the same location as the source data, and most are replicated across the WAN to other sites within the District.

Information Services was able to secure funding for the 15/16 fiscal year for remote replication of ALL data, application software and operating systems within the District and is in the process of securing the necessary software and hardware to implement this approach.

- **Connectivity and Bandwidth**

The District has established a three-year plan to improve redundancy and bandwidth to all critical locations. To improve redundancy, there should be two points of internet access at each primary location. To improve bandwidth, fiber should be used between primary locations to provide a minimum speed of 1 GBPS (gigabit per second).

The three-year progression is illustrated below using the following connection coding.

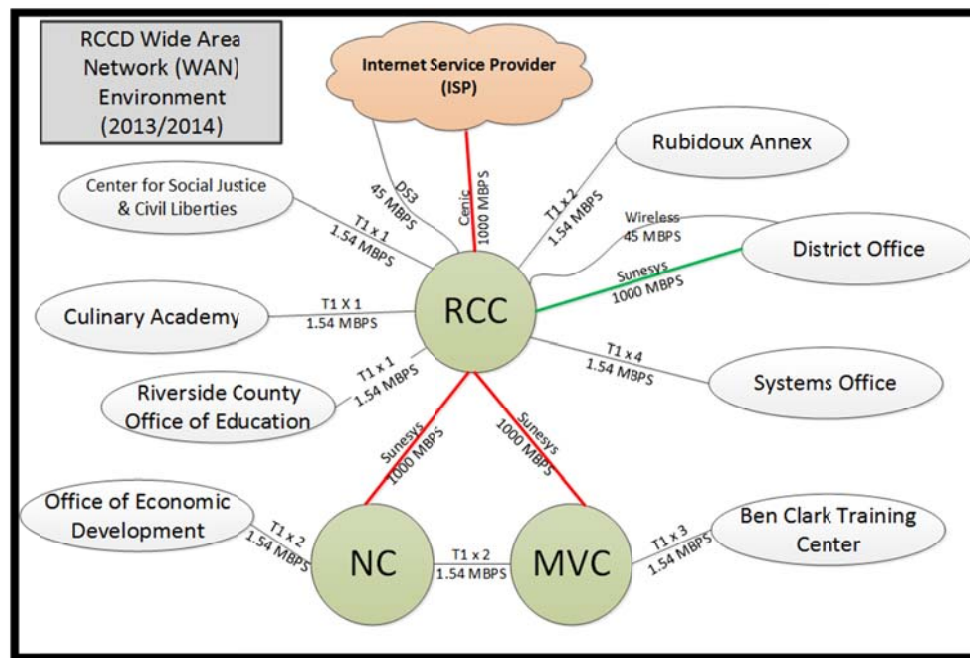
- Routing and bandwidth are shown between current sites (ex. 1.54 MBPS). MBPS = megabit per second, 1000 MBPS = 1 gigabit per second
- **Black connection** = existing substandard bandwidth
- **Red connections** = existing 1 gigabit bandwidth
- **Green connections** = anticipated upgrade to 1 gigabit bandwidth

2013/2014 WAN Status

- The District has a single 1GBPS connection to the Internet provided by CENIC through RCC. The alternate Internet connection was substandard so no reliable redundancy exists.
- The only 1GBPS connections within the District exist between RCC and NC, RCC and MVC. Connection between NC and MVC is substandard and virtually unusable due to required bandwidth.
- Substandard connections exist between all remaining locations. Although these connections are currently handling the bandwidth needs, there is no redundancy.

2013/2014 Projects

- Upgrade connection between RCC and District Office to 1GBPS.

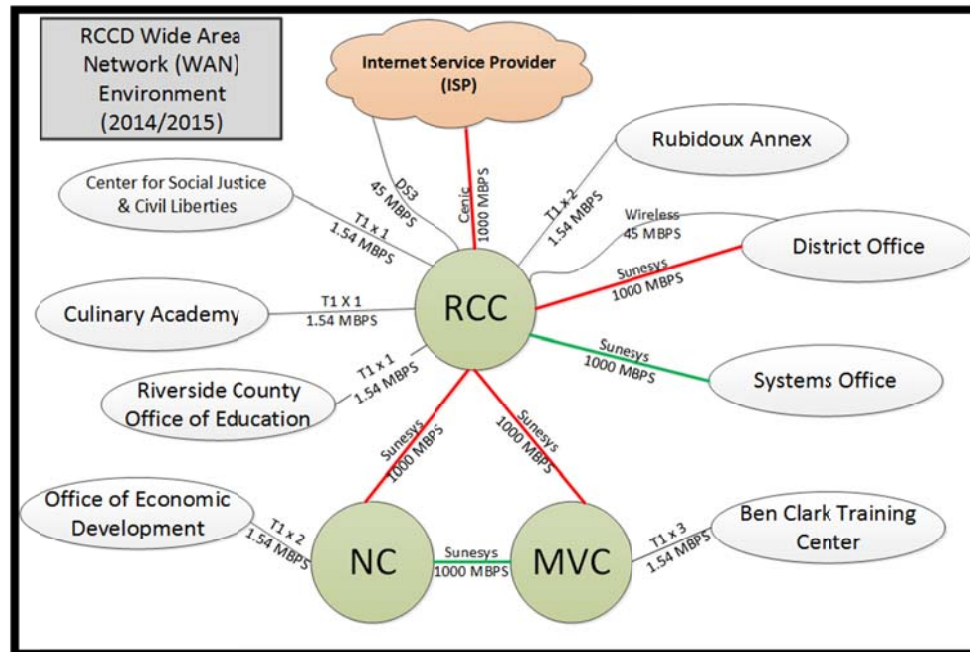


2014/2015 WAN Status

- Connection between RCC and District Office was upgraded to 1GBPS.

2014/2015 Projects

- Upgrade connection between RCC and Systems Office to 1GBPS.
- Upgrade connection between MVC and NC to 1GBPS.

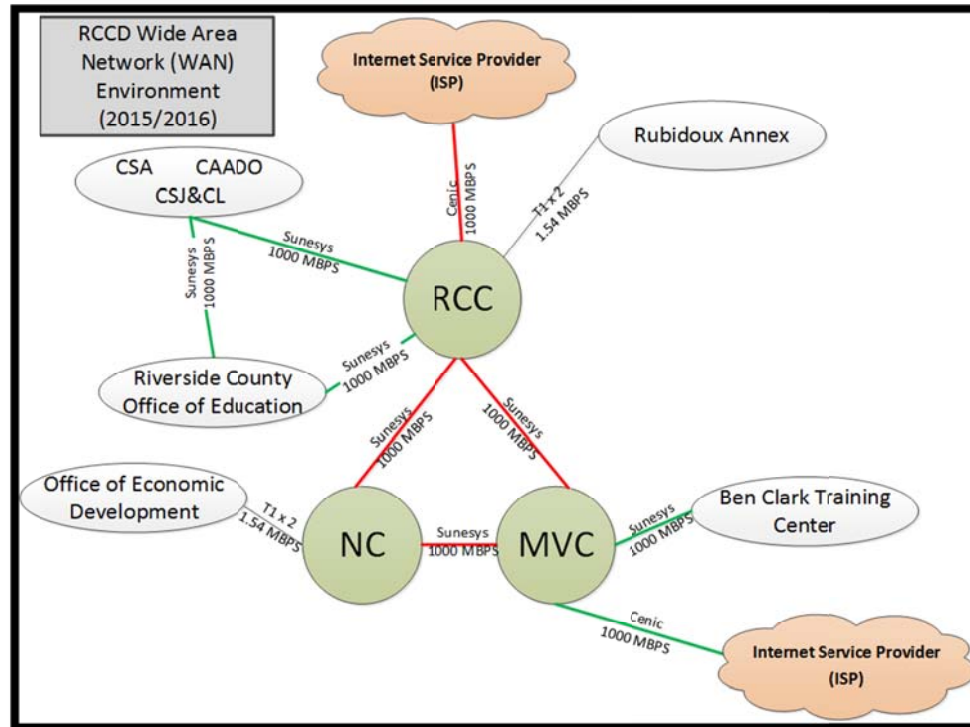


2015/2016 WAN Status

- Connection between RCC and Systems Office was upgraded to 1GBPS.
- Connection between MVC and NC was upgraded to 1GBPS.

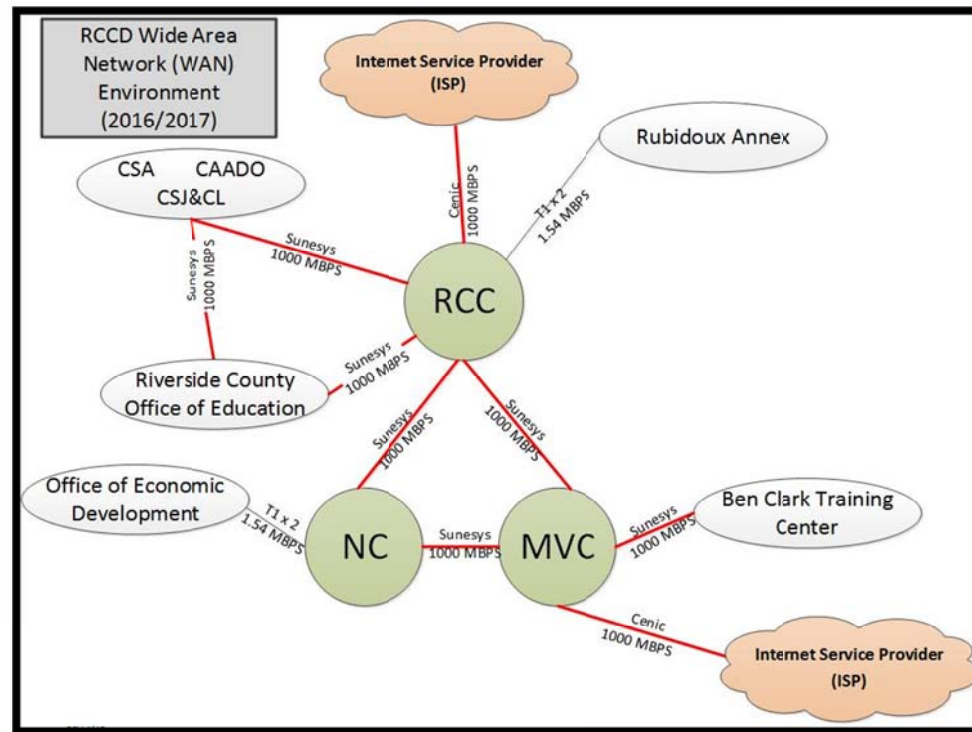
2015/2016 Projects

- Swing connection between RCC and District Office to CAADO/CSA and retain at 1GBPS.
- Disable connection between RCC and Systems Office.
- Establish connection between RCC and RCOE at 1GBPS.
- Establish connection between RCOE and CAADO/CSA as a redundant 1GBPS connection.
- Upgrade connection between MVC and Ben Clark Training Center to 1GBPS.
- Complete MVC NOC and establish redundant 1GBPS internet connection via CENIC.
- Disable DS3 connection between RCC and the Internet.



2016/2017 WAN Status

- The District has 1GBPS links to the Internet via RCC and MVC providing redundancy and 2GB of potential bandwidth.
- All connections between major locations are 1GBPS.
- There is full redundancy between all major locations with the exception of Ben Clark Training Center, Rubidoux Annex and Office of Economic Development.
- Substandard connections remain only between RCC and Rubidoux Annex, NC and Office of Economic Development. Although the bandwidth is currently acceptable for these locations, consideration should be given to possible redundant routes and increased bandwidth if these locations are to remain long-term.



In addition the following projects are either completed or in progress using Measure “C” funds allocated for Infrastructure Refresh:

- CORE and LAN infrastructure at MVC was completed in Spring 2015
- CORE and LAN infrastructure at NC was completed in Summer 2015
- CORE and LAN infrastructure at RCC is scheduled for completion in 2016
- LAN budget to complete access redundancy between buildings at RCC. \$100,000 has been approved to begin this project during 2015/2016.

Funding has been approved beginning in the 15/16 fiscal year to contract for emergency hardware replacement for all mission-critical servers, disk arrays, routers and switches. If District inventory is unavailable, the contracted service will deliver listed equipment within 48-72 hours.

Next steps in the development of a comprehensive DTCP will include:

- prioritization of outstanding items
- continued efforts in connectivity and hardware redundancy
- evaluation of local, hosted and cloud-based solutions
- enhancement of communication services

Appendix 3: District Technology Refresh Plan (DTRP)

Prior to the passing of Measure “C” in 2010, the District was only able to upgrade technology-related equipment as budget allowed or as equipment failed and was unrepairable.

Since the approval of Measure “C” funds for the purpose of upgrading the District’s technology infrastructure, Information Services has been in the process of systematically upgrading end-of-life equipment at all three colleges. Funds for this project are not sufficient to complete the necessary upgrade District-wide and do not provide for an acceptable service level moving forward. ITSC will continue to pursue avenues for funding technology upgrades with recommendations included in the District’s Annual Program Review for IT.

ITSC has determined that the District Plan should include the purchase, maintenance and upgrade of the following categories of technology equipment, software and related services. The number in () represents the agreed upon refresh/upgrade cycle in years for each category.

- Fiber/Bandwidth (10)
- Routers (10)
- Switches (5)
- Servers (5)
- Wireless Access Points (3-5)
- Monitoring Appliances (5)
- Disk Storage (5)
- Applications (5)
- Operating Systems (3)
- Uninterruptable Power Supplies (3-5)
- Phone Systems (3)
- Voicemail Servers (3)
- Equipment Environments (10)
 - Power
 - Uninterruptable Power Supplies
 - Generators
 - A/C

The intent of this document is to provide a guideline for the ongoing provision of required District technology equipment, software and related services. The four areas to be covered in detail include:

- Recommended Standards / Configurations

- Warranty / Maintenance Requirements
- Criteria for Replacement / Timelines
- Redeployment / Liquidation