

Vision for Learning and Instructional Technology Plan

Recommendation:

It is recommended that the Board approve the transfer of \$7 million from the Working Fund Reserve to cover the cost of IT infrastructure to support the Vision for Learning and Instructional Technology Plan.

Background:

The Peel District School Board's vision for learning and instructional technology is based in the context of 21st century learning skills:

- collaborative inquiry to solve real and relevant problems
- creativity and innovation
- critical thinking and problem solving
- communication

Technology is what enables this kind of learning, and engages students by:

- Providing learning, anywhere, anytime
- Supporting teacher innovation and capacity building
- Enhancing equity of access through the use of personal devices and internet resources
- Using social media to support inquiry and communication while building social responsibility and digital literacy
- Strengthening connections with parents

The first major step towards the Board's vision is to create wireless access in all schools and expand network capacity to support a major increase in the number of users on the system. Wireless network access will provide flexibility for the use of mobile technology in a school. Most devices, be it tablets or computers, come ready to connect to local wireless networks. The technology used is called "WiFi" and will allow students to access the Internet where learning resources and assignments can be stored. Provisioning for wireless access and network expansion is the focus of the attached report which requires a financial commitment from the board's operating reserves of \$7 million. If approved, a comprehensive communication plan to the system would be developed.

Submitted by:

Carla Kisko

Associate Director

Operational Support Services

Peel District School Board's and Instructional Learning Technology Plan

GETTING STARTED – BUILDING THE INFRASTRUCTURE



Peel District School Board

March 2012

1. Vision for Learning and Instructional Technology

We live in a world today that is so much more complex than it was even five years ago. It's a world where people, economies and cultures are inextricably linked through the internet, reached through mobile computers and smart phone devices in the hands of millions. This global interdependence has a profound effect on how we think, learn, work and play.

For our students to thrive and be successful in this ever changing environment, education must ensure that all students can access the modern world while in school.

Imagine a new – ideal learning environment, it might be a place where:

- Teachers and students are all learners
- The focus is more on questions, less on answers
- Understanding is more important than knowing
- Innovation and exploration are part of learning
- We connect and learn with the world

The Peel District School Board's vision for learning and instructional technology is based in the context of 21st century learning skills.

- collaborative inquiry to solve real and relevant problems
- creativity and innovation
- critical thinking and problem solving
- communication

Technology then, is what enables this kind of learning, and engages students by:

- Providing learning, anywhere, anytime
- Supporting teacher innovation and capacity building
- Enhancing equity of access through the use of personal devices and internet resources
- Using social media to support inquiry and communication while building social responsibility and digital literacy
- Strengthening connections with parents

2. Development of the Learning and Instructional Technology Plan

In the fall, 2010, the Board undertook a review of the current successes in and challenges to the implementation of digital technologies for teaching and learning. The Board commissioned Dr. Jennifer Jenson, of York University to undertake a series of focus groups and interviews with key stakeholders, issue a survey, and summarize key findings. The outcome of the review was a series of recommendations.

The recommendations formed the basis for further discussions within the Board and formed the basis for developing a shared vision of Learning and Instructional Technology.

In September 2011, the Leadership team of the Board reviewed the report and developed a draft vision for Learning Technology as well as a list of key components needed to deliver the vision. Director's Council, which represents all of the key employee groups within the Board, provided further input to the Vision and Key Components and the vision was reviewed again at the Board's senior management leadership retreat in October, 2011.

In the fall of 2011, the draft Vision and Key Components were presented to Trustees in a special meeting of the Board. Subsequently, the Key Components were presented to over 100 students at the (Student) President's Council for input. The outcome was the final Vision and Key Components.

The Learning Technology Department and Instructional Technology Initiative Team then reviewed the Vision and Key Components to develop a plan of specific projects for the Learning Technology Plan. As well, LTSS undertook an inventory of existing technology in schools to help identify the current state of technology and the gap that needed to be addressed to fulfill the vision.

3. Key Components of the Board's Learning and Instructional Technology Plan

To fulfill our vision of Learning and Instructional Technology for the Board, there are a number of key components that need to be present:

- Teacher support and professional learning
- Equitable access to core technology across schools
- Digital learning resources available anywhere, anytime
- Internet-based (Cloud) file services for students
- Enabling the use of student personal technology
- Wireless access to support personal student technology
- Policies and guidelines for the appropriate use of technology
- Communication and collaboration tools to engage students and parents
- Innovation model for funding pilots and support of emerging technologies
- Communication plan

Teacher Support and Professional Learning

Educating students to be successful in this rapidly changing world is no small task. Twenty first century skills include the less tangible aspects of learning such as openness to new and different ideas and the ability to adapt to change. For educators this means rethinking "what to teach" as well as "how to teach". Technology offers tools to fundamentally change how we teach. We recognize that supporting teachers is an essential component of a learning technology strategy. Professional learning includes both the training on the technology tools per se as well as learning new teaching models and strategies. Further, professional learning is an on-going process and needs to be supported as such. The Board has invested in a Teaching with Technology Initiative that has provided Instructional Technology Resource Teachers to support classroom teachers through peer coaching.

Professional learning can be enhanced by private social networks that allow teachers to find authentic peer connections within the Board for professional dialogue. Board tools will need to support both structured and ad hoc private social networks.

Equitable access to core technology across schools

The level of technology in Peel schools today varies significantly. Although there is a base technology plan for elementary schools, the six year refresh cycle requires schools to supplement their school technology through fundraising efforts to stay current.

No system plan exists for secondary schools and therefore investments in technology has been dependent on a school administrator's commitment to these investments through the school budget, fund raising efforts and proceeds from vending machines. A technology inventory review identified that many of our secondary schools lacked technology in classrooms. There is a need to holistically change the technology model for secondary schools.

To be embedded in daily teaching practice, technology needs to be reliable and sustainable. Defining what is "core" classroom technology is central to the development of a classroom technology plan, a plan that also addresses sustainability and equity among students and schools. While teachers may use different teaching tools, it is recognized that all classrooms need core infrastructure and technology on which additional tools may be added. This "core technology" generally needs to include connectivity to the Internet and a way to share the learning experience through projection. More dialogue is needed with Superintendents, school Principals and teachers to define "core" classroom technology. The outcome of this work will determine how annual budgets for classroom technology are allocated to schools in the future and how equity among schools is measured.

Digital learning resources available anywhere, anytime

Part of the 21st century learning model is the ability for students to access learning resources wherever and whenever students want to learn. Many learning resources are currently only available inside school, from the Board's network. Increasingly, the Board will utilize web-based resources, such as electronic text-books, that allow greater levels of access anywhere the Internet is available.

This transition to web-based resources also includes software. Typically, the Board has used instructional software that needs to be installed on computers. In Elementary panel, over 100 software titles are installed. Much of this software is licensed through the Ministry of Education. One exception is MS-Office which remains, a school-based investment much like textbooks.

When students want to use their personal computers, the model of installed software is problematic. Software licenses for use at home or on personal computers often represent significant additional cost to the Board. As well, requiring the installation of Board software on personal computers creates new support challenges.

The Internet provides new models for software or application access. Where students utilize their own computing devices, there will be a transition to web-based applications that replace many of the installed software titles. This transition will take some time. Many teachers have lessons built around specific installed software titles. Lesson plans will have to be adapted to web-based resources.

Internet-based (Cloud) file services

Student work today is stored in a variety of ways. Any work that is currently stored on school servers is unavailable to students at home. In order to support 21st century learning, student work needs to be available from home and other locations as and when students are ready to learn. This includes both personal as well as team work.

"Cloud-based" services enables student to access their files from the Internet. The term "cloud" refers to the provisioning of services independent of physical location; files are stored across the Internet on servers in multiple locations. Cloud services will reduce but not eliminate the level of in-school file storage needed.

The use of cloud services increases the need for Internet bandwidth in schools. Since the Internet is accessed through the Board's wide area network, use of cloud file storage also precipitates a need for additional Wide Area Network capacity.

Enabling the use of student personal technology

Access to technology and digital learning resources will enhance the teaching and learning experience for students and staff. Yet, the Board will not be in a position to afford a computer for every student so students must be permitted to bring their own technology to school. At the same time, schools will need to have additional on-site resources available for students that don't have mobile devices.

Wireless Access to Support Student Personal use technology

In general, wireless network access will provide flexibility for the use of mobile technology in a school. Providing wireless network access is essential to the Board's 21st century teaching and learning vision. Most devices, be it tablets or computers, come ready to connect to local wireless networks. The technology used is called "WiFi" or "Wireless Local Area Networking" (WLAN). By providing WLAN, students will be able to access the Internet where learning resources and student work may be stored. Provisioning for wireless network access is the focus of this report and the required investments to create ready access is described in detail in the next section.

Policies and guidelines for the appropriate use of technology

The introduction of more "open" access to Board networks and resources for personal technology required staff to revisit existing Board Policies and Operating Procedures on appropriate use of technology. The updated approved policy and new operating procedure is provided in **Appendix 1** of this report.

Communication and Collaboration Tools to Engage Students and Parents

Private and Public Social Networks

Social networks can be public, such as Facebook and Twitter or private, such as Sharepoint and Jive. Private social networks allow for managed user access. In general, the content in a private social network is "owned" by the organization and protected as such; organizations determine where data is stored. By contrast, public social networks each have unique privacy agreements that change over time and may store data in other countries. Many organizations have moved to "private social networking" because they are concerned about privacy and the hosting of corporate data in countries with substantially different privacy laws.

We envision the use of both public and private social networks depending upon the purpose of communication, the participants, content ownership, and the level of privacy required.

Student Communication and Collaboration

On-line communication tools range from simple one-way communication to full E-Learning environments. They can be publically available, teacher-managed environments, or Board-managed environments.

Teacher web sites provide a basic communication tool for teachers. Within the Board, MyClass is a teacher web site tool currently used by over 6,000 teachers. It is delivered through Sharepoint. Currently, as designed it is one-way communication and is open to the parents; as it is on the Internet and does not require an account and password, it is limited in the content that can be shared.

As students progress in their use of on-line environments, they can actively use Web 2.0 tools such as blogs, wikis, tweets, and threaded discussions. Students can communicate, collaborate on projects, tutor one another and share resources. At this level students may also be ready to hand-in assignments electronically, using “drop box” features. This functionality can be delivered through public domain tools on the internet or through Board-managed tools. Regardless, user authentication through accounts and passwords is required.

Parent Communication

On-line communication tools can help parents stay connected to schools and classrooms. Whether is it helping their student access learning resources or helping students plan for tests and assignments, parents can support their learner in a variety of ways. The Board currently provides a tool for School web sites called “Webcreate”. For K-12, MyClass also serves and a class-specific communication vehicle to parents. We can leverage web-based language translation tools for additional supports to parents.

Communication needs to be flexible to allow parents to be informed as and when they are available. The Board’s corporate web site peelschools.org will be designed to provide better access to multiple devices (e.g. smart phones).

Communication Plan

It will be important to share the exceptional work in our schools with parents and community. As well, for the system to move forward, there needs to be a broad understanding of the vision and roadmap for teaching and learning with technology. Included in this plan is information on wireless safety which will help parents and school communities feel confident that the board is taking a careful and responsible approach to implementing its technology vision. See **Appendix 2**.

GETTING STARTED --- Infrastructure Upgrade Requirements

The Board's core infrastructure was designed 10 years ago and implemented in subsequent years. At that time, the design met the needs of the Board. Now however, much of the infrastructure needs to be redesigned in order to meet the future needs of the Board.

Identity Management and the Enterprise Directory

An "Enterprise Directory" is the foundation for access to all of the Board's applications and services. The directory provides a comprehensive list of everyone in the organization, who they are, what their role is, and where they are. This directory is used by all internal systems to authorize access.

Increasingly, the ability to grant access to external learning resources, "in the cloud", will become important. One example of an external service may be electronic "text books" which generally require student authentication for access.

There needs to be a model for student identification and account management for Internet services. Today, student accounts on the Internet are largely managed by teachers. For teachers with multiple classes, this creates workload issues. Equally important is the impact on students. For some students, having to remember passwords for multiple web services can be difficult. The Board's student identity management processes need to be redesigned with Internet and privacy in mind.

Currently the Board uses Novell's e-Directory as the core directory. However, not all services can use it. PDSB has had a Novell environment since 1990. In the 1990's, Novell was the leading vendor in enterprise networking. Microsoft Active Directory now has nearly 75% of the market, leaving Novell as a niche player in the enterprise directory space.

While Novell met the organization's needs 10 years ago, it will impede the Board's progress going forward. Few wireless technologies and internet-based services interface with e-Directory, and many infrastructure tools such as backup services, do not interface with e-Directory. It is recommended that the Board implement Active Directory rather than redesign e-Directory

The move to Microsoft Active Directory will ensure that the board can deliver 21st century solutions for students and staff. The Peel District School Board has one Canada's largest technology suites in the public or private sector. Given the size of our organization, it is imperative that we utilize outside expertise with considerable experience for the Active Directory design and rollout plan to all of our Board sites. The overall design of our Active Directory will dictate how successful the system will be for staff, students and future initiatives

Classroom Management and Imaging Systems

There are two additional pieces that go hand in hand with the implementation of Active Directory: the computer Classroom Management System (CMS) and, the Enterprise Technology Imaging Solution. CMS is the interface that sits on the Board computers delivers all application and printing services. Imaging is the process where we create standard "images" to be put on all makes and models of computers; it provides a high level of reliability as applications are configured to work together then the "working image" is copied on to all similar makes and models of devices. Today we use Novell products for both functions.

A move to Active Directory will require new CMS and imaging solutions. While this is a significant effort, the Board would have needed to upgrade the current Novell tools regardless. Therefore, it makes sense to migrate to Active Directory rather than upgrade.

The new CMS and Imaging Solution, implemented with Active Directory, will bring many new features and integration capabilities to Peel including: the ability to easily integrate security and internet access to personally owned devices, staff and students at home will be able to access to their files, students will be able to submit assignments from home, and staff will have an single login on Board computers.

WLAN Infrastructure Plan

A twenty-first century learning environment is one that enables a seamless use of technology for research, collaboration, problem solving, communication and entertainment. Critical to this is access to a reliable wireless service. This report proposes to install pervasive wireless in all of our schools so that students, teachers, school administration and guests can access the world through their fingertips on their own devices as well as board devices.

The influx of these disperse devices places a burden on our existing networks and security infrastructures. Bring Your Own Devices (BYOD) is inherently insecure. There is no control as to what the user has loaded on the device so our system must be designed in a way that enables access safely and securely.

Wireless:

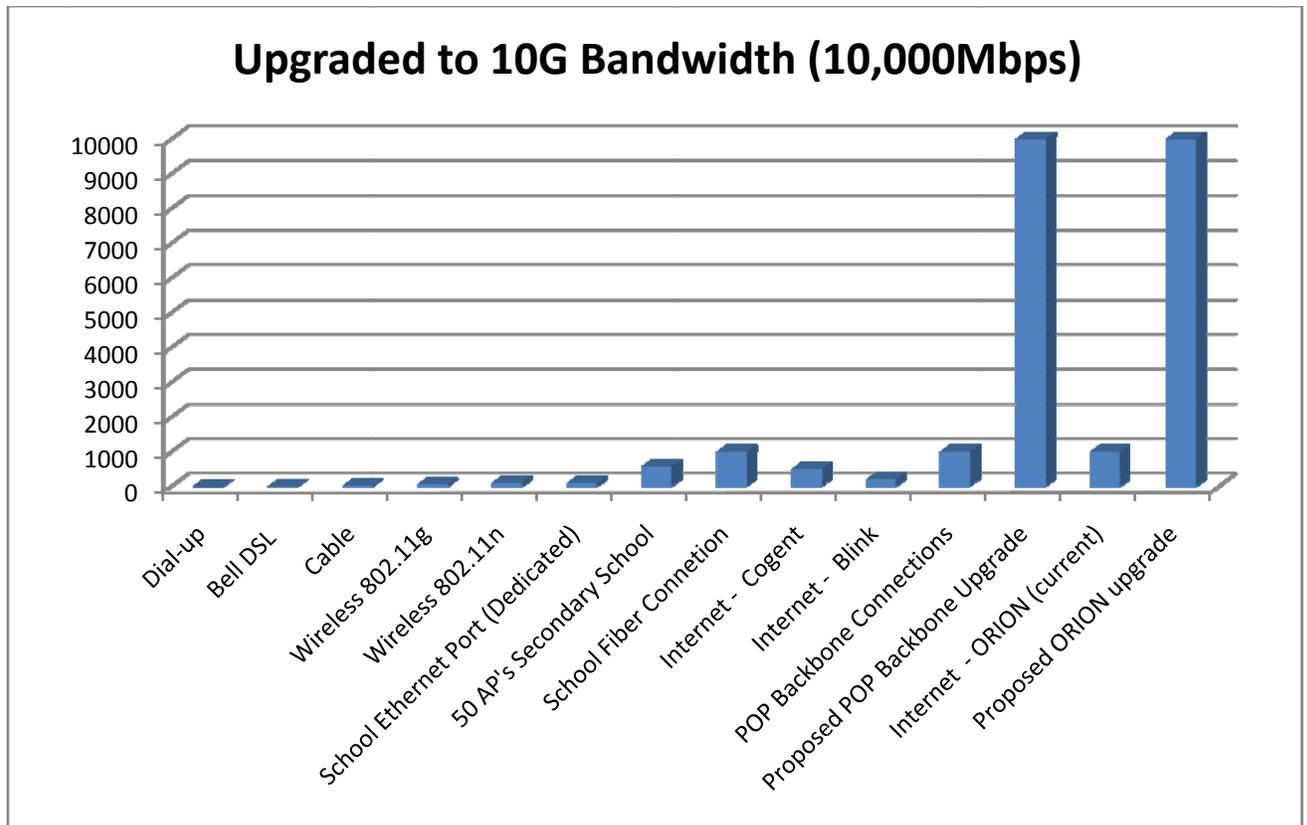
Enterprise grade wireless is a complete system that uses light weight radios (access points - APs) that rely on centralized controllers installed in the CBO datacenter to operate. Staff estimate that a typical Secondary school will require 50 APs. The typical elementary school will require approximately 15 to 20 APs. As the number of clients increase or wireless performance decreases, additional APs could then be strategically installed to augment capacity and performance.

Capacity Upgrades:

The bandwidth used in Peel will have to be increased to support many of our new initiatives such as BYOD, Active Directory, centralized security and higher internet utilization. The number of devices on our network continues to grow each year as does the use of the internet. In 2010 about 30,000 devices were accessing the internet. This year the current count is about 60,000. With wireless in all of our schools, we anticipate the number to be over 100,000.

The WAN is our private network connecting all of our Board locations back to CBO. The WAN has 10 POP (Point of Presence) sites where the fiber optic cabling from the schools terminates to network equipment owned by Hydro One and Rogers. Schools connect to the POPs at 1Gbps. The POPS then connect back to CBO datacenter on a dedicated 1Gbps link. The dedicated 1Gbps link is currently oversubscribed, effectively giving each school a link speed of 50Mbps of traffic which is insufficient to address the future needs of schools.

The proposed upgrade to 10 Gbps will provide schools an effective throughput of 500Mbps which is expected to service schools well for the next 5-7 years.



The WAN upgrade would see us utilizing Hydro One and Rogers equipment, this would bring further reliability to our network, as these vendors can afford far more in the way of redundancy than we can. Presently the routers are housed in 10 secondary schools, when there is an issue with equipment in the secondary school it could affect up to 40 other schools.

Internet Upgrades

An Internet Architect views the Internet as plumbing. The analogy is important. If one views the connection to the Internet as a “pipe” then the amount of data (water) that can flow is limited by the size of the “pipe”. We have two Internet “pipes” that serve internet from three providers.

ORION / Cogent:

ORION is a private Ontario research network that connects to universities, school boards, and certain government institutions and high tech businesses. ORION is important as it gives PDSB the opportunity to connect directly to the internet service provider hub in downtown Toronto. This in essence gets us directly on the internet highway which means we receive better speed connections to favored internet sites such as Google.

We connect to ORION through a dedicated 1Gbps link. This link from time to time has seen 100% utilization. Its average utilization is around 80 – 85%. The plan is to upgrade the connection to ORION from 1Gbps to 10Gbps.

The upgrade to 10Gig Internet will require an upgrade in the electronics and certain security appliances so that they can process data flows at speeds approaching 10Gb.

Procurement of the Infrastructure and Learning Technology

As outlined in the Board's Vision for Learning and Instructional Technology, the school environment is rapidly changing and the classroom of today and tomorrow needs to have access to new computer technology and use it as an integrated educational tool.

The platform needed for this new learning environment to develop is the hardware and software infrastructure outlined in the WLAN upgrade plan and Classroom Management and Active Directory Implementation. These new infrastructure upgrades will support and enable the integration and use of a variety of new computer devices as educational tools for both Teachers and Students.

In addition, the Board will provide more technology product and service options that are flexible enough to allow Educators and Students to have FREEDOM TO LEARN. Freedom to connect, to deliver, to support, to collaborate, to share, to question, to explore, to assimilate, to understand, to innovate, to grow and to contribute. All these to take place anytime, anywhere without any barriers.

To achieve this Learning and Instructional Technology vision, several departments and user groups from various schools have been and will be collaboratively working to implement the plan. LTSS and Instructional Initiative Team have been working with Purchasing Department to develop requirements and specifications for products and services in order to acquire the best solutions that the market place has to offer at the most competitive price. The Purchasing Department will contribute to the development of the Board's Vision for Technology by striving to procure the planned products and services in a timely manner at the lowest acceptable prices with special emphasis on quality and functionality.

The Procurement process will allow for a wider range of device models and configurations per product line and category in order to accommodate for various type of activities and applications at various school levels. For example, there are learning environments that require the use of devices that have less features and processing power while still addressing the basic universal needs. Such devices will have entry level configurations and enough processing power to cater to less demanding applications and most importantly can be purchased at a much lower cost than fully configured devices with highly specialized processing power. The Board will make accommodations for multiple offers and options in the new Computer Technology RFP which will encompass requests for entry, medium and high level performance devices per product category.

The goal is also to allow schools to have flexibility and acquire a higher number of technology tools for more educators and students while managing their budgets and purchasing devices at a lower or higher cost according to the level of functionality required for specific grade levels and a variety of educational applications.

Core Technology Standards and consideration to equity issues will still be in place and the departments of Learning Technology and Curriculum Instruction in collaboration with school user groups will continue to look at the technology standard selection and adjust it according to ongoing classroom needs and requirements and as technology progresses.

The Purchasing Department in collaboration with and input from LTSS, CISESS and school committee user groups will work on the procurement of technology products and services through the release of several RFPs (Request for Proposals) to the market sector. Having participation of user groups from schools on the RFP committee will ensure that requirements

and specifications will reflect the various needs and functions of different user groups at different school levels resulting in more product options available for purchase.

RFPs that have been and will be released to the market are:

- Wireless Access Points, Identity Management and Access and Closet Switches. The RFP has already been released and has a closing date of April 4th, 2012. Following is the analysis process which will entail of the evaluation and testing of the proposed solutions. Based on the timing of award to the successful vendor the project will immediately start implementation and roll out of wireless access availability at schools.
- Classroom Management System and Active Directory Design and Implementation has been released and has a closing date of April 4th, 2012. After the evaluation and testing stages and award to the successful vendor a pilot will commence at a limited number of schools to ensure proper setup and configuration in our environment. The intent is to start the rest of the implementation and roll out in parallel with the wireless access implementation.
- Computer Technology RFP for Desktop Computers, Notebook/Laptop Computers, Ultralight Notebook Computers, Netbook Computers, Apple Computers and Laptops, Tablet Computers - Windows 8 OS, Android, Playbooks, iPads, iPods, eReaders. Purchasing Department is developing requirements and specifications with LTSS, CISESS and a user group with representation from several schools.
- Other upcoming Technology RFPs: Document Cameras, Video Projectors, Interactive Whiteboards, Printers, etc.

4. Upgrading the Infrastructure

In order to deliver the key components needed to achieve the Board's vision for Learning Technology, a number of projects need to be undertaken. The first three phases deal with upgrading the infrastructure:

1. Design and "Proof of Concept"
2. **System Implementation Blitz**
3. **Sustainment**

Phase 1: Design and Proof of Concept - March, 2012- September, 2012

- 1.1 Wireless Implementation in test sites - 1 Elementary and 5 Secondary Schools
- 1.2 Complete new RFP for Computers and Projectors
- 1.3 Complete new RFP for Wireless Technology.
- 1.4 Develop Technical Architecture including Active Directory and Imaging Management System Design
- 1.5 Provision Projectors in Phase 1 Secondary School Classrooms
- 1.6 Test Cloud-based File Services for Students
- 1.7 Develop a Model for Support of Instructional Apple iPads and Macs
- 1.8 Upgrade the Board's Wide Area Network Infrastructure
- 1.9 Upgrade Internet Capacity

Phase 2: System Implementation Blitz- September 2012 (to August 2013)

- 2.1 License Personal Devices for the Board's Network
- 2.2 Complete implementation of Wireless in all Schools
- 2.3 Provision projection capability in all classrooms,
- 2.4 Replace Novell (Zen) Image Management
- 2.5 Implement Cloud-based file services for Students
- 2.6 Enhanced Security in schools

Phase 3: Sustainment

- 3.1 Active Directory Management and realignment of Cloud Services
- 3.2 Instructional Technology Sustainability
- 3.3 Novell (Zen) Image Management system phase out
- 3.4 WAN, Wifi, and Security Management

5. Financial Plan

Budget for Learning and Instructional Technology Plan

	Cost Estimates One Time
Phase 1: Design and Proof of Concept - March 2012 - September 2012	
Test Wireless Implementation in 1 Elementary and 5 Secondary Schools	\$270,000
Technology Architecture, Class Management, Active Directory, Imaging Design	\$250,000
Provision a projector in Pilot Secondary School Classrooms (\$700 per classroom)	\$227,000
Upgrade Board's Wide Area Network (Under Negotiation)	\$300,000
Upgrade Internet Capacity - Equipment	\$340,000
Phase 2: Implementation - September 2012 - August 2013	
Teaching with Technology Initiative - Teacher Support	In budget
Personal Device Licensing (Microsoft Connector Licenses)	\$30,000
Implementation of Wireless in remaining Secondary Schools	\$1,550,000
Implementation of Wireless in Adult and Cont. Ed Locations	\$40,000
Wireless in Elementary Schools with Grade 8	\$1,020,000
Wireless in every Elementary School without Grade 8	\$1,350,000
Test Class/Image Management/Active Directory in New Schools	\$663,000
Implement Cloud-based file services for Secondary Students	\$20,000
Enhanced Security in Secondary Schools (802.1x) (Switch upgrade)	\$250,000
Complete implementation of Classroom/Image management and Active Directory	\$690,000
	\$7,000,000

POLICIES AND REGULATIONS

Policy #78**APPROPRIATE USE OF TECHNOLOGY**Statement of Policy

The Peel District School Board provides users with access to the Board's technology to support teaching and learning and to enable efficient Board administration and communication. Technology should be used for these intended purposes.

Policy #78 - Appropriate Use of Technology, is aligned with and supports the principles and expectations of the Board Human Rights Policy #51 and Equity and Inclusive Education Policy #54.

Definitions

Technology – Technology resources include but are not limited to computers, phones, cellular/mobile technology, servers, networks, Internet services, computer applications, data, email and collaboration tools, as well as third-party Internet services provided to the Board. Examples of third-party web services include E-Learning Ontario and on-line text book providers.

User – A user is any individual granted authorization to access Board technology. Users may include students, parents, employees, volunteers, visitors, contractors, or individuals employed by service providers.

A. Responsibilities

a) *Superintendents, principals, and managers are responsible for:*

- *Ensuring that staff are aware of the Board policy*
- *Instructing and modeling for staff and students, the appropriate use of technology*

b) *Teachers are responsible for:*

- *The supervision of student use of technology within the teacher's assigned teaching area*
- *Instructing and modeling for students, the appropriate use of technology*

c) *All users are responsible for:*

- *Ensuring that technology is used in accordance with Board policies and procedures*

- *Using technology in a responsible and ethical manner consistent with the purposes for which it is provided*

B. Scope

This Policy applies to all Board technology, regardless of where technology is accessed, and to all personally-owned technology used on Board premises. The application of this Policy includes:

- The use of all Board-owned technology, such as computers, phones and mobile devices, networks, applications, and web sites regardless of where they are used. This includes the use of Board-owned technology when used off Board premises.
- The use of personally-owned technology, including personally-owned computers and mobile devices, when used on Board property or when used to access Board resources.
- Any access to Board technology resources regardless of the location and ownership of the device used to access Board resources. Specifically, the policy applies to home, remote, or wireless access to the Board network, web sites, and applications.
- The use of third-party IT services provided to the Board. This includes Internet services provided by the Ministry of Education.

C. Guiding Principles

There are five guiding principles for the appropriate use of technology:

1. **Intended use:** Board technology is provided for educational and administrative purposes; technology should be used for these intended purposes.
2. **Security and safety of Board data:** Users should take reasonable precautions to ensure that the data that they use is secure and safe. Data should be used for the purposes intended.
3. **Responsible resource usage:** The Board's technology resources are shared and limited. Users should use technology resources responsibly and should not waste resources.
4. **Legal compliance and adherence to Board Policies:** Users are expected to comply with federal and provincial legislation as well as Board Policies and corresponding Operating Procedures.
5. **Ownership of data:** Board technology and all data stored on Board technology are owned and may be accessed by the Board. Users should have no expectation of privacy in anything they create, store, send or receive using Board technology.

C.1 Intended Use

Board technology is provided for educational and administrative purposes. Technology should be used for these intended purposes.

Prohibited uses of Board technology include, but are not limited to:

- Personal use that is not limited and/or occasional
- Use that violates federal or provincial laws
- Use of Board technology for commercial or political party purposes
- Use that contravenes Board Policies and/or Operating Procedures
- Theft of resources including electronic data theft
- Unauthorized access, alteration, destruction, removal and/or disclosure of data; this includes the unauthorized disclosure of Board email addresses, distribution lists, and user account information
- Displaying, storing, sending or creating fraudulent, harassing, sexually explicit, profane, obscene, intimidating, defamatory or otherwise inappropriate or unlawful materials
- Copying, downloading, transferring, renaming, adding or deleting information protected under copyright law
- Use that could reasonably be expected to impair the Board's computing facilities or interfere with others' use of Board technology (e.g. viruses, spam) including the sending of electronic "chain" mail
- Agreeing to license or download material for which a fee is charged to the Board without obtaining express written permission from the Board's Information Technology staff. Purchasing of materials and services must comply with all procurement policies and procedures.

C.2 Security and Safety of Board Data

Users should take reasonable precautions to ensure that data that they use is secure and safe. Staff are given access to data in order to perform their job functions. Data should be used for the purposes intended; other uses of data are strictly prohibited.

Data may include but is not limited to student records, employee records, confidential assessments, and other personal information. Data may be held in more than one format such as an electronic document (e.g. Word Document) or in a system such as Email or the Student Information System. All Board data is included in this Policy.

Users are responsible for managing the accounts and passwords that provide access to data. Users are responsible for applying passwords to any personal device that accesses or holds Board data. Users will not attempt to gain unauthorized access to Board technology or data nor will they will not attempt to disrupt or destroy data.

Users must exercise reasonable care to ensure the safety of the data entrusted to them. All confidential data not held on Board-owned servers must be fully encrypted. This applies to all confidential data stored on Board and personally owned computers. The storage of confidential Board data on the Internet is strictly prohibited.

Users must comply with any security measures implemented by the Board. All files downloaded from the Internet must be scanned with Board-approved virus detection software; disabling virus scanning is strictly prohibited. Users are responsible for implementing virus scanning on personally-owned devices that hold or access Board technology. All downloading of software from the Internet must be approved in advance by the Board's Information Technology staff.

Remote or wireless access to Board resources is only permitted through the Board's approved infrastructure. Users will not attempt to by-pass the Board's security.

C.3 Responsible Resource Usage

The Board's technology resources are shared and limited. Users should use technology resources responsibly and should not waste resources. As such, the Board reserves the right to limit any activity that consumes a high level of resources that may impact Board services or other users. Examples of shared resources include file storage, network bandwidth, and Internet access.

Access to Internet web sites and services that significantly impact the Board Internet or network performance will be limited. Users are not permitted to circumvent the Internet and network controls put in place.

Personal materials not relevant to educational and administrative purposes will not be stored on Board servers. The Board may impose retention periods for various information classes, either temporarily or permanently. A user should not download, copy, store files that exceed the user's data storage limit; users that do so will experience data loss.

C.4 Legal compliance and adherence to Board Policies

Users are expected to comply with all federal and provincial laws and regulations (e.g. Ontario Human Rights Code, Criminal Code, Education Act, Municipal Freedom of Information and Protection of Privacy Act, Copyright Act, Highway Traffic Act). The storage of unlawful materials on Board property or premises is strictly prohibited. Board resources may not be used in any manner to create, store, send, display or make available to others material that contravenes federal or provincial laws or regulations.

Users are expected to comply with Board policies and procedures including but not limited to the following policies: Safe Schools, Code of Conduct, Human Rights and, Equity and Inclusive Education.

In addition, everyone is expected to comply with the school Code of Conduct and adhere to the principles of academic integrity.

C.5 Ownership of Data

Board technology resources and all data stored on Board technology are owned and may be accessed by the Board. Data stored on Board technology, including email, electronic files, and information in computer systems, is Board property and may be reviewed, monitored and accessed by authorized individuals as needed. Data is also subject to relevant legislation and may be accessed through Freedom of Information requests.

Users should have no expectation of privacy in anything they create, store, send or receive using Board technology resources. Any documents created, stored, sent or received using Board technology resources may be accessed and reviewed by the Board without notice to the user where there is a reasonable basis for believing that the user breached any applicable policy or law and notice may frustrate the purpose of the search.

Information stored on personally owned devices is the responsibility of the device owner/user. However, personally owned devices on Board property which are used for displaying, storing, sending or creating fraudulent, harassing, sexually explicit, profane, obscene, intimidating, defamatory or otherwise inappropriate or unlawful materials will result in a full investigation and necessary action will be taken where appropriate.

The Board collects data to assist in monitoring the health and usage of systems. Examples include network, application, and Internet access logs. These logs may be reviewed periodically.

D. Consequences: Remedial and Disciplinary Action

Individuals who do not comply with this Policy will be subject to appropriate consequences in accordance with the circumstances of the event, and within the parameters of any applicable

Peel District School Board Policy 78 pg. 6

legislation. Consequences *may* include, but are not limited to the following, either singularly or in combination depending on the individual circumstances:

- Limitations being placed on access privileges to the Board's technology resources
- Suspension of access privileges to the Board's technology resources;
- Revocation of access privileges to the Board's technology resources;
- Appropriate disciplinary measures, up to and including dismissal;
- Appropriate disciplinary measures within the Safe Schools Act; and
- Legal action and prosecution by the relevant authorities.

Approved: April 26, 2011

Peel District School Board

Safety of Wireless Internet Technology (Wi-Fi)

Background

- More and more schools across Ontario are introducing wireless internet technology (Wi-Fi) that allow high-speed Internet access and services, such as wireless local area networks (WLANs). These wireless networks have also become common in many homes, offices and public areas, such as airports, hospitals, hotels and restaurants, to connect users to the Internet.
- WLANs allow technology within schools to operate without cables and wiring, enabling greater access to the Internet through electronic devices that help to boost teaching and learning.
- Wi-Fi is the most prevalent form of wireless technology in Canada after cellular phones.¹
- Wi-Fi uses radiofrequency (RF) band energy. The RF band is part of the electromagnetic spectrum.

Safety Standards and Guidelines:

- Health Canada specifies the maximum recommended human exposure levels to RF energy from radiation-emitting devices in the document: *Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3kHz to 300 GHz*, commonly referred to as *Safety Code 6*.
- Health Canada scientists continually review scientific studies in this area to ensure safety guidelines are sufficient for the protection of the health and safety of Canadians.
- Health Canada's RF safety guidelines are consistent with the findings of other international bodies and regulators, including; the World Health Organization, the International Commission on Non-Ionizing Radiation Protection, the Institute of Electrical and Electronics Engineers and the U.K. Health Protection Agency.
- Industry Canada regulates RF in Canada and has adopted *Safety Code 6* which was revised in 2009. It protects human health from the adverse effects of RF exposure, by setting exposure limits.
- Exposure limits (Safety Code 6) – for radiofrequency-exposed workers: 5 mW/cm² (50 W/m²) when averaged over 0.1 hour (6 min) and when spatially averaged. For persons other than radiofrequency-exposed workers (i.e., general population): 1 mW/cm² (10 W/m²) when averaged over 0.1 hour (6 min.) period and when spatially averaged.

¹ Health Canada. Wi-Fi Equipment. Retrieved March 13, 2012: <http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/wifi/index-eng.php>

- Maximum and median Wi-Fi exposures measured were significantly below the exposure limit of 10 W/m² (Ontario Agency for Health Protection and Promotion²).
- The specified limits for public exposure apply to everyone—including the elderly, individuals with health concerns, children and pregnant women—and allow for continuous, 24/7 exposure.

Peel board Wi-Fi

- The Peel board takes advice from Peel Public Health regarding health issues. They have provided information from the Ontario Agency for Health Protection and Promotion (OAHPP) that says there have been numerous studies on radiofrequency exposure and its impacts on human health, but that to date there is no evidence of adverse health effects of Wi-Fi.
- In Peel board schools, all wireless equipment complies with Health Canada's Safety Code exposure limits for the general public.
- Health Canada maintains that: "Based on information to date and the weight of evidence from ongoing scientific literature reviewed by Health Canada scientists, the Department is confident that Canada's RF exposure limits remain current and valid."

For additional information and resources:

Ontario Agency for Health Protection and Promotion. Your Health - Wi-Fi safety:
<http://www.oahpp.ca/about/whatsnew/your-health-wi-fi-safety.html>.

Health Canada. Wi-Fi Equipment:
<http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/wifi/index-eng.php>

Ministry of Health and Long-Term Care. On the Safety of Wi-Fi - Statement from the Chief Medical Officer of Health:
http://www.health.gov.on.ca/en/news/bulletin/2010/cmoh_wifi.aspx

If staff have additional questions/concerns, the principal should contact Louise Barker, the board's manager of health, safety and wellness, at 905-890-1010 ext. 2409 or by email at louise.barker@peelsb.com.

March 19, 2012

²Ontario Agency for Health Protection and Promotion. Wireless Technology and Health Outcomes: Evidence and Review. Retrieved March 19, 2012.
<http://www.oahpp.ca/resources/documents/Wireless%20technology%20and%20health%20outcomes.pdf>