



## FY12 Technology Capital Request

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### I. VISION

The Wayland Public Schools are committed to the effective integration and meaningful use of instructional and information technologies to support, enrich, and extend student learning throughout the curriculum. Through integrated learning experiences, students will develop the technology literacy needed to acquire and manage knowledge, to succeed in school, and to thrive in an ever-changing, globally competitive world. In the Wayland Public Schools, all members of our school community will use technology to excel as learners and to develop as leaders. Technology is a means for learning, not an end product of learning. Thus, technology will play a vital role in the process of teaching and learning that incorporates contextual learning, critical thinking, creativity, problem solving, and collaboration.



## OBJECTIVES

### *A. Wayland's educational technology objective is to improve educational outcomes while lowering operating costs.*

#### **1. Improving Educational Outcomes Means:**

- Increase the diversity of skills for teachers and students who meet [NET Standards](#)
- Provide instruction rich with technology that helps graduates develop 21st century skills to be:
  - Problem solvers
  - Good communicators
  - Good collaborators
  - Information and technology literate
  - Flexible and adaptable
  - Innovative and creative
  - Globally competent
  - Environmentally literate
- Develop students who are better prepared for college and/or who can better assimilate into today's work environment
- Engage students to be active participants in their learning
- Support measured learning that drives better instruction through technology-based assessments
- Offer better individualized instruction for ALL students (differentiated learning)
- Provide enhanced/additional course offerings through online courses
  - Provide a blended learning environment (online and face to face) to expand differentiated instruction
  - Provide additional course offerings through online resources

#### **2. Lowering Costs Means: (Click on links for supporting information)**

The dollar amounts listed below is FY10 spending in these areas. We estimate that a percentage of this cost would be reduced as computer use increases.

- Reduce SPED & Intervention programs because of differentiated instruction in the classroom through technology applications and blended learning curriculum, where appropriate (RTI)
  - Long range substantial saving on current SPED costs
    - FY10: \$4,562,199 In District
    - FY10: \$1,595,953 Out of District
  - RTI, use of technology to assess data, assess students and remediate accordingly
- Reduce textbook costs by utilizing online textbooks, resources and learning opportunities (e.g. [Teaching History](#)) – Reduce cost and provide a better, interactive interface, including visuals, video, and current content
  - Current spending: \$110,000/year on textbooks
- Reduce printing needs
  - Current spending on Printers, Copiers, Paper & Toner

- Copier Paper/Supplies \$18,000
- Combine smaller classes through online courses with neighboring communities
  - [TEC Online Academy](#)

## II. CURRENT INVENTORY AND USE

### A. *What is our current inventory?*

1. For computers: ([see inventory spreadsheet](#))
  - 1,769 computers
  - 510 computers (approx. 29%) 5 years old in 2011
2. For projectors and document cameras: ([see inventory spreadsheet](#))
  - 175 projectors and document cameras
3. For peripherals: ([see inventory spreadsheet](#))

### B. *How are these computers and peripherals currently used in the classroom?*

1. A survey of teachers tells us: ([see survey results](#))
  - 50% teachers responded
  - 75% of respondents use technology for instruction
  - 95% of respondents use technology with students

### Teacher Survey Quote

"Having teacher laptops has made such a difference in both how a teacher prepares for and delivers lessons. If we can have laptops for students it will make a similar leap in how students interact with, learn from, and share knowledge about the curriculum. It will also allow them to connect with the outside world to gather information and resources and to then publish their creative works to a wider community."

~Wayland Classroom Teacher

## High School Social Studies / Business Department Head

"Over the past year the Social Studies-Business Department has made a concerted effort to take our teaching and learning into the 21st century. Inspired in part by the prospect of a new high school, the Future Committee's work, and Virtual High School courses, in 2009-10 we engaged in a major project-based learning professional development initiative and the results were overwhelmingly positive. Students collaborated to create virtual field trips, multi-layered wikis on important historical topics, iMovie documentaries (digital storytelling; see <http://whshistoryproject.org/digitalstories/> ) and much more."

"Building on this success, this year we have been leaders in the Wayland Rises professional development program and are significantly expanding technology integration. For example, several of our courses are now entirely on-line through the district's new portal It's Learning. In so doing, most of the department have not only moved well towards paperlessness, but courses now routinely feature integrated online discussions, assignments, and blogging in addition to a range of teaching applications to complement and deepen tried-and-true practices. We have found, however, that we're hitting a wall with the hardware itself, as eleven full-time teachers share one building iCart, our new and extremely useful mobile computer lab. What's especially beneficial about the iCart is that teachers can use it for elements of lessons, such as collaborative work using google docs features. The more we integrate technology to facilitate learning, the more we're discovering that computers are often used in short spurts that don't warrant formal period-long stints in an out-of-building lab. We have reached a point where we need additional hardware to support our use and request a second iCart. As the one-to-one initiative moves forward, these MacBooks can be used either in support of that effort or redeployed elsewhere in the district."

*~Kevin Delaney, Social Studies*

### 2. The initial findings of the two student pilots tell us:

- Math Pilot
  - *Depth and breadth of instruction is clearly enhanced.*
  - *Pilot teachers are ahead of other classes in curriculum content delivery.*
  - *New content has been integrated through the ease of use of technology resources.*
  - *Students are more actively engaged in the learning process.*

## Math Pilot Teacher

"Having Geometers' Sketchpad available at our fingertips has let us explore topics that would otherwise have been absent from the curriculum. Most recently, we explored triangle centers and their properties. Four days and four GSP lessons made for deep connections that would have taken a month using pencil and paper. In past years, we used GSP for demonstration only. This year, we have used GSP 16 times so far, and students have acquired enough GSP skills to open doors to discovery. For 10 years, we have been talking about integrating GSP into the curriculum. Having computers in the classroom has finally let us do it."

*~Matt Daniels, Math Pilot Teacher*

### ▪ Science Pilot

- *Students are accumulating material digitally to assemble end of year digital portfolios.*
- *Laptops have been used from within the "It's Learning" environment in the following ways:*
  - online discussions
  - interacting with multimedia
  - conducting research
  - developing presentations
  - providing assessments
  - conducting simulations
  - graphing
- *Future plans include data collection, and greater use of simulations and assessments.*

**C. What professional development is currently offered?**

1. For Middle and High School Teachers:
  - [Wayland RISES](#) - 6 online classes / 7 face to face classes
2. For Elementary Teachers:
  - Integrated into Curriculum PD & RTI
  - 1:1 Training Days throughout the school year

**III. GOALS**

**A. In order to achieve these objectives, we must meet the following goals:**

1. Provide an infrastructure (network, hardware, software and peripherals) that maximizes learning opportunities and provides connectivity to the global community;
2. Provide town funded “one-to-one” computer access for all educators throughout district;
3. Provide relevant and ongoing professional development to foster the meaningful integration and innovative use of technologies to meet the needs of diverse learners; and
4. Provide appropriate “one-to-one” or periodic access to computers for students, rolled out in a phased plan at the high school, middle school, and elementary school levels.

**B. In order to meet these goals, our schools need to look like the following:**

**1. Minimum Computer Specifications**

	PC Student	MAC Student	PC Teacher	MAC Teacher	PC Admin	MAC Admin
Memory (GB)	2.0	1.0	4.0	2.0	2.0	n/a
Processor Pentium (GHz)	3.2					
Processor Core Duo (GHz)		1.8	2.5	2.0	2.5	
Age (Years)-Replacement	5.0	5.0	3.0	3.0	3.0	

#### IV. TECHNOLOGY FUNDING

*A. In order to meet these goals, the following capital request for FY12 is needed:*

	<b>FY12 Capital - Technology</b>	<b>Request</b>	<b>Actual</b>
1	Replacement of out-dated computers <ul style="list-style-type: none"> <li>• Computer Labs, Laptop Carts, Classrooms, Offices</li> <li>• 510 are 5 years old in 2011</li> </ul>	440,000	200,000
2	Network Upgrades <ul style="list-style-type: none"> <li>• Claypit Hill Lab wired, Central Office Rewiring, Hub/Switch replacements in classrooms, wired and wireless network growth</li> <li>• Loker, HH &amp; CH Office Re-Wiring</li> <li>• Loker, HH &amp; CH Library Re-Wiring</li> </ul>	50,000	50,000
3	Data Center Upgrades/Expansion <ul style="list-style-type: none"> <li>• VDI Integration, <del>Additional Blade Server, Upgrade SAN (storage);</del> Upgraded Backup System; PC Management Software</li> </ul>	100,000	50,000
4	Peripherals <ul style="list-style-type: none"> <li>• Interactive Whiteboards / Grade Level K-8</li> <li>• Projectors / Grade Level K-8</li> <li>• Interactive Response Clickers</li> <li>• eReaders</li> <li>• Printers</li> </ul>	85,000	50,000
		<b>675,000</b>	<b>350,000</b>

*B. How has technology been funded in prior years? (See attached spreadsheet)*

*C. What are the technology funding requirements looking forward? (See attached spreadsheet)*

## V. NEXT STEPS

### ***A. As we continue to move ahead with these initiatives we will:***

1. Set measurable objectives.
2. Share improved educational outcomes through assessments and ePortfolios.
3. Track short and long-term cost savings.

### **Measuring Success of 21<sup>st</sup> Century Skills Integration**

- Learning.Com Skills Assessment
  - <http://www.learning.com/21st-century-skills-assessment/>
- US ED has hired two groups to develop new assessments that align with 21<sup>st</sup> century curriculum and expectations. (\$350 million was set aside from Race to the Top money.)
  - [Partnership for Assessment of Readiness for College and Careers \(PARCC\)](#)
  - [Smarter Balanced Assessment Consortium \(SBAC\)](#)
- Maine 1:1 Research: Using Laptops to Facilitate Middle School Science Learning
  - [Research Brief](#)
- Assessment of 21<sup>st</sup> Century Skills
  - <http://www.p21.org/documents/Assessment092806.pdf>
- ePortfolio – it's learning LMS
  - <https://wps.itslearning.com/index.aspx>
- ETS iCritical Thinking Assessments
  - <http://www.ets.org/icriticalthinking/about>
  - [http://www.certipoint.com/portal/common/pagelibrary/icriticalthinking\\_demo.html](http://www.certipoint.com/portal/common/pagelibrary/icriticalthinking_demo.html)

## VI. RESEARCH AND SUPPORTING DOCUMENTATION

- [Boston College](#)
- [K-12 Computing Blueprint](#)
- [eSchool News](#)
- NYC, Boston Public, [Beverly](#), Newton, Weston, Natick, Millis
- State of Maine; Windham NH

## Technology Vision for the New High School

Current research by the Technology Task Force and High School staff has defined a student 1:1 computer/mobile device initiative to be a favorable option for students when the new high school opens in 2012. The goal is to begin this 1:1 initiative in FY13. Further research being conducted by the TTF will support this initiative and determine the best financing option for moving forward. A presentation to the School Committee is planned for June 2011.

### **Funding Source to be Determined**

- Each student will have access to:
  - 1 laptop

Option A – Computer Lease using WPS Operating Budget Funds

Option B – Computer Lease by families

Option C – Fund through Capital Improvement Plan (Not currently in the plan.)

### **Funded by WPS Capital Technology**

- Each teacher will have: (100% complete)
  - 1 laptop

### **Funded by New High School Project**

- Each classroom will have:
  - 1 interactive whiteboard with mounted projector
  - 1 document camera
- Each computer lab (2)
  - 30 MAC Computers
- Fine Arts Lab
  - 16 MAC Computers
- Each administrator and administrative support staff member
  - 1 laptop
  
- Updated Network Infrastructure
- IP Video Management System
- New Copier/Printers
- Language Lab
- Digital Signage (3)
- Business Lab Wall Monitors
- Video Production Lab