



Budget Support FY2010

Summary (Vision)

Current technology requests support Wayland's progressive movement into the delivery of 21st century teaching and learning methodologies. This vision incorporates the development of a robust network infrastructure from which we will add technology resources required by teachers and students as we develop our globally competitive educational landscape.

- **Upgraded Internet and Network Access**
 - o Cloud Computing: Use of Internet resources provides a home to school connection
- **Consolidated Server Infrastructure**
 - o Easier to support, saves money on electricity (Green Initiative) and maintenance
 - o Virtualization, cost-cutting implementation of technology resources
- **Teacher and Student Computer Initiative for Teaching and Learning**
 - o Project-based interdisciplinary learning
 - o Virtual online learning
 - o Globally Competitive life-long learning and communication skills

Teaching and Learning (Vision)

Today the need to develop 21st century skills has change the way we teach and the way students learn. Teachers become guides on the side, and students become actively involved in constructing knowledge through research/inquiry-based projects that are interdisciplinary. The use of technology is paramount in this teaching and learning environment. This Capital request lays the foundation to continue to implement these new instructional methodologies in Wayland Public Schools to meet the needs of our future, for the children of Wayland, and to remain globally competitive.

The Massachusetts Technology Literacy Standards incorporate the Information and Communication Technology (ICT) Literacy skills developed by the Partnership for 21st Century Skills; the National Educational Technology Standards for Students (NETS«S) developed by the International Society for Technology in Education (ISTE); as well as ISTE's 2007 draft NETS Refresh. The Massachusetts Technology Literacy Standards fall into three broad categories:

Standard 1: Demonstrate proficiency in the use of computers and applications, as well as an understanding of the concepts underlying hardware, software, and connectivity.

Standard 2: Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society.

Standard 3: Demonstrate the ability to use technology for research, critical thinking, problem solving, decision making, communication, collaboration, creativity, and innovation.

Efficiencies (Cost Savings)

It is important to note that these upgraded technologies also provide us with a number of efficiencies in the way we do business as an educational institution in the 21st century. All of these initiatives are online and provide greener and cost cutting options for teaching and learning:

- Resources for research, writing, communication and global appreciation
- Assessments and portfolios that foster immediate data-driven instruction
- Individualized learning plans that can be easily shared and altered
- Software applications that provide differentiated instruction and remediation at home and at school
- Online learning that provides numerous, additional educational opportunities for all students
- Virtual field trips

The Facts (History)

In March 2008 MESPA Inc. (Massachusetts Elementary School Principals Association) conducted an extensive Technology Audit for Wayland Public Schools. This Audit can be found on the WPS District Technology Office website or at the following website address:

http://www.wayland.k12.ma.us/district/district_info/departments/technology_office/tech_audit_report.pdf

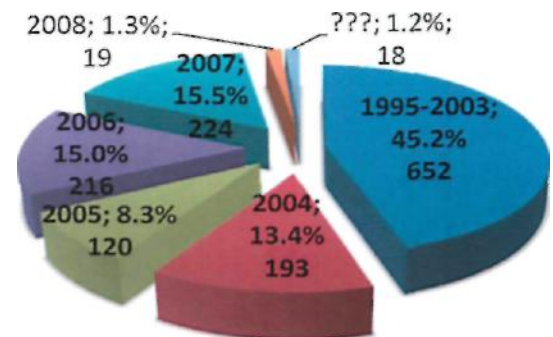
This audit concluded the following:

Wayland is poised to make significant changes in its use of technology to promote student learning. Its teachers are willing, its students are eager, and its technology department understands what needs to be done. What's missing, in priority order are:

- *\$\$\$ Ubiquitous access to up-to-date hardware for both teachers and students*
- *Sufficient communication between school, home, and community about what is happening in school regarding technology use*
- *\$\$\$ Adequate, consistent funding to support a reasonable replacement cycle for equipment and the network*
- *District network restriction policies that put instruction and learning as the top priority, including giving full administrative access to each school's technology specialists*
- *\$\$\$ Differentiated professional development for teachers in the area of technology integration practices*

Purchases since 1995 (History)

- H 2009: 845 (58.6%) computers are over 5 years old
- H These computers do not support the instructional needs of our teachers and students
- H Teachers and students become frustrated and do not bother to integrate technology



WPS Technology FY10

Purchases since 1995 (History - *continued*)

- H The history of Capital expenditures at Wayland has been on purchasing computers for all schools. However, a five year replacement cycle has not been implemented, so consequently we have a very large number of out-dated computers. Also, we still do not have upgrades and/or computers in key areas such as music, the arts, and language. These are significant interdisciplinary globally competitive areas we need to expand on. We also need to expand on STEM (Science, Technology, Engineering and Math) initiatives at the High School which will require additional hardware, software and infrastructure costs.
- H Proportionally, little money was spent on upgrading and maintaining the network infrastructure and data center, peripherals, software and professional development. All these areas have been underfunded.

	Peripherals	Computers	Networking	Software
FISCAL YEAR 2008	15%	46%	37%	3%
FISCAL YEAR 2007	15%	65%	12%	8%
FISCAL YEAR 2006	9%	56%	19%	16%

FY10 Capital (Plan)

Network Upgrade - Internet/WAN	\$110,000
Server Consolidation / Infrastructure Upgrade	180,000
Teacher Computers (Laptops for home-school use)	50,000
Student/Classroom Computers	100,000
Maintenance/Upgrades/Expansion	100,000
Peripherals / 21 st Century Classroom	10,000

Teacher Computers - \$1,000-\$1,300

Student Computers - \$300 - \$1,300 (We will be assessing the use of netbooks for students, a low cost computer used to access free web-based resources.

FY10 Operating Budget (Plan)

Technology budget funds will be spent in schools where teachers embrace the technology for teaching and student-centered learning. Grant requests for teacher laptops will be accepted and the first 50 teachers will act as teacher leaders to integrate technology and to teach others how to do so. Most of this year's Professional Development funds will go towards training the technology staff to support our new infrastructure and for teacher training (train the trainer model using a Summer Workshop model) centered around 21st century teaching and learning methodologies integrated with technology. We will use a blended learning approach, were teachers will learn face to face and complete tasks and collaborate as students using online resources.

We hope to assess and purchase web-based software solutions for ELA and Math assessment and remediation. This will allow for a home to school connection with software resources being used. We will also move forward with many free web-based resources for education, such as Google Apps for Education.

Wayland Capital Technology- Actual Spending FYIO

FYIO - Capital Expenditures / Explanation	Initial Request	Projected 1 Cost
Replacement of 50% of out-dated computers (300 Computers) Computer Labs & Laptop Carts, Classroom Computers Computer Replacement cost \$500 / computer	300,000	170,000
Fiber Dedicated (Schools & Town) Loker, MS, HH & High School	0,000	85,000
*Network Controllers, Switches & Wireless Access Point Hardware Happy Hollow, Claypit Hill & Loker	110,000	100,000
*Network Server Consolidation & Upgrade - Microsoft Exchange Server Network Infrastructure to Support Apple & Microsoft Computers: hardware, software, and related installation costs	280,000	150,000
Teacher Computer Initiative (Switched FY09 Network upgrades with Laptops for teachers.) High School, Middle School & Loker Teachers - 25 @ \$1,200	50,000	45,000
Peripherals: projectors, interactive whiteboards, printers, iPods, etc.	10,000	0
	\$750,000	\$550,000

List Price for Juniper donations:

\$219,250

Wayland Public Schools Foundation - Technology Donations:

\$39,120

FY10 Remaining Funds: \$20,000 in Network Server Consolidation

Wayland Capital Technology Planning - FYII Request

FYII - Capital Expenditures / Explanation Description		Cost
1	Fiber Installation - High School - Central Office - Claypit Hill School (Note: Includes Town Building, Police & Library Buildings)	100,000
2	Teacher Computer Initiative Happy Hollow, Claypit Hill, SPED Teachers - 100 @ \$1,500 / computer	150,000
3	Replacement of out-dated computers (500 purchased before 2006) Computer Labs, Laptop Carts, Classrooms, Offices Student/Curriculum Computer Initiative	350,000
4	Network Expansion Additional Switches and Access Points for additional computers, Central Office Upgrade	100,000
5	Peripherals: projectors, interactive whiteboards, printers, iPods, etc.	50,000
A		B

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Wayland Educational Technology Planning - FY11 Notes

- 1) Dedicated fiber installation cuts costs and improves performance through centralized services and improves educational resources through virtualized program access. It has also allowed us to introduce Thin Client computing not only on new computers but also on older MAC computers, thus extending the life of our old, out-dated computers. Long-range savings will be incurred from improved performance, reduced hardware needs and easier centralized management of expanded usage.

Note: Industry ratio for support is 60-125 computers: 1 technician, depending on the number of operating systems supported, **the use of centralized management capabilities** and technical expertise of users. Our current ratio is 300:1. A centralized and virtualized infrastructure will help with our ability to support expanded computer use in the District.

800 MACs, 2 operating system; 550 PCs

(1250 used for Teaching and Learning, 100 used for Administration)

- 2) The Teacher Computer Initiative empowers the teacher to develop rich lessons through the use of technology and provides professional development on computer maintenance and use. As teachers build their expertise they will continue to use the technology for interactive instruction, assessments, and remediation. This is an important step in developing a school system that fully incorporates 21st century teaching and learning methodologies. In particular, the district will focus on teaching approaches designed to meld with the FY11 student laptop initiative (see item 5, below).
- 3) The following statistics reflect the computers in our inventory that were purchased before 2006 and need to be replaced in 2010. This request to replace computers is based on a 5 year replacement cycle and is less than what we truly need.

300 MACs (2005 and older)

200 PCs (2005 and older)

The Student/Curriculum Computer Initiative is the beginning of a model 21st century school design in preparation for the opening of the new High School in 2012. The goal is to expand on teaching and instruction at the High School with online project based methodologies that are similar to those used in higher education and the workplace. The plan for FY11 is to equip more students with laptop computers for expanded one to one classroom instruction initiatives. In addition, the District will experiment with student supplied computers, with an eye towards having students supply the majority of computers in FY12, redeploying the District computers to those students who do not have or choose not to use student supplied computers. The District will pursue private fund-raising, for instance from alumni and/or local/national companies, to partially offset the cost of the Student Computer Initiative.

- 4) Additional data center upgrades include a centralized management system and engineering for software deployment and maintenance of the MACs and PCs. Network expansions are needed throughout the District to increase our wireless access to expand computer use in the classrooms and study areas. This includes the need to add switches and access points. Central Office network upgrade needs to be completed to bring the support and maintenance of Administrative computers to the centralized data center that will be connected by way of the newly installed fiber.

- 5) Funding for projectors and projector replacements, interactive whiteboards, interactive response clickers, and other technology resources used to engage students and enhance teaching and learning.

Professional Development

Professional Development initiatives focus on integrating technology into all curriculum based training. Teachers develop lessons using the technology based resources and learn as they do so. In a recent training session on Everyday Math, teachers brought laptops and learned how to install the teacher component and how to use the online resources for teaching and learning. Technology instruction was integrated into the curriculum instruction. Wayland's Integrations Specialists also work one on one with teachers to assist them in incorporating lessons that are rich with new technology resources and provide before, during and after school sessions for teachers. Many teachers are signing up for Virtual classes for teachers through VHS. (<http://www.aovhs.org/Pages/ProfDev-Home>) and through other resources (<http://wayland-pd.wetpaint.com/page/Fee+Based+Online+Courses>) Our first Annual Digital Boot Camp was held in August 2009 and teachers attended these sessions to learn about Google Gmail and Google Applications for use in administrative and instructional settings. We plan to begin our own online Moodle (<http://moodle.org/>) initiative for teachers for Professional Development in FY11.