

FY14 Capital Budget Presentation Technology

Presented to School Committee
November 13, 2012

WELLESLEY
PUBLIC SCHOOLS



Technology Capital Budget Development

The Technology Capital Budget Request was developed with a focus on:

- Sustainability
- Strategic alignment with district goals
- Long-term planning
- Improving teaching and learning

Technology Snapshot

- Supporting Infrastructure
 - Network
 - Servers
- Interactive Whiteboards
- Computers & Tablets

Supporting Infrastructure

Network Infrastructure

- 10 Buildings
- Fiber WAN (MLP)
- Over 3,500 network drops
- 101 switches
- 305 wireless access points

Network Replacement Plan

FY11-13:

- WAN Core
- Elementary School LANs
- Middle School LAN
- High School LAN and Wireless (New HS Project)

FY14:

- Middle School Wireless Phase I
- Elementary School Wireless Phase I

FY15-FY16:

- Elementary School Wireless Phase II
- Middle School Wireless Phase II

FY17-FY18:

- Internal Connection Replacement

Servers

- 24 physical servers
- 26 virtual servers
- 1 server chassis (5 blades)
- 1 SAN (storage)
- Virtual migrations continuing in FY13 and FY14

Server Replacement Plan

FY14:

- SAN storage expansion

FY15:

- Additional server blades

FY18:

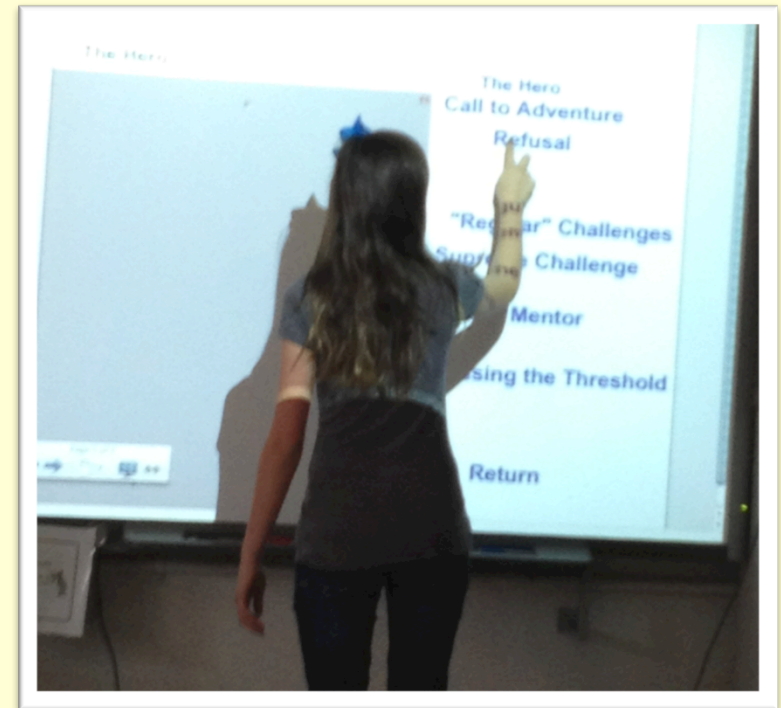
- Server blade replacement

Additional storage and blade capacity needs to be evaluated on an annual basis.

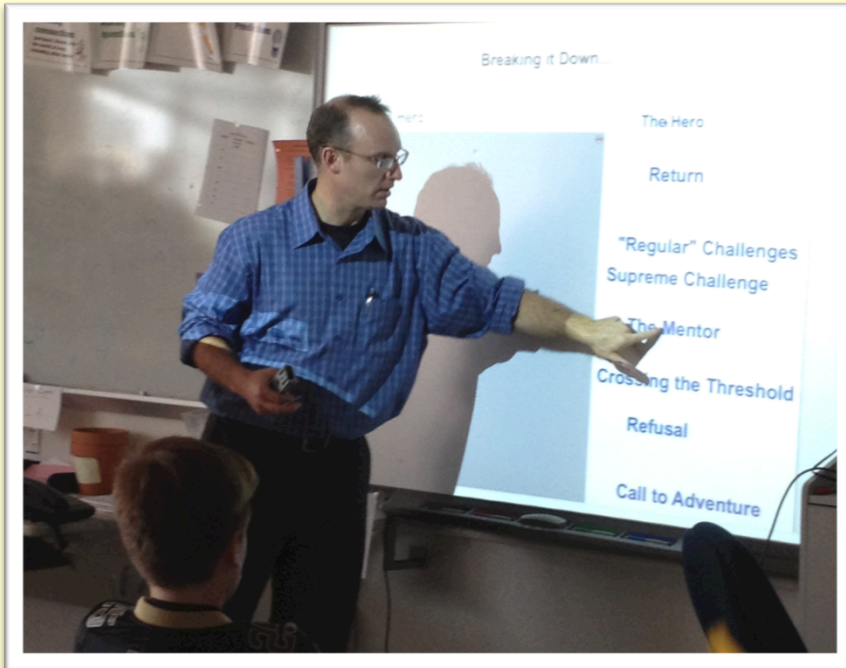
Interactive Whiteboards

Interactive Whiteboards

- Improve engagement and appeal to both visual and tactile learners
- WPS are pioneers in the use of Smartboards for the MCAS-Alt assessment
- Professional development shifting towards a focus on student engagement and curriculum-specific applications



Interactive Whiteboards



- 41 Smartboards from the old High School reinstalled at the Middle School, Sprague, Bates, Fiske, and the Preschool
- Smartboards in every K-12 classroom and learning center
- Reached our K-12 goal through a successful partnership between PTOs, WEF, private donors, and the citizens of Wellesley through the capital budget

Interactive Whiteboards - FY14-FY15

- Complete Preschool classrooms in FY14-FY15
- Two additional enrollment and program-driven installations in FY14

Computers & Tablets

Computers & Tablets

- Used by faculty and students
- Integrated into every aspect of the curriculum
- Support activities including assessment, instruction, response to intervention, data collection and analysis, collaboration, and more
- Student computers are predominantly shared laptop carts
- Demand currently well exceeds supply



Computers & Tablets

| | OS X* (Apple) | Windows/Linux (Dell/HP/Wyse) | iOS (Apple) | All |
|--------------|--------------------------|---|------------------------|------------|
| Desktops | 641 | 59 | | 700 |
| Laptops | 1,695 | 10 | | 1,705 |
| Netbooks | | 219 | | 219 |
| Tablets | | | 284 | 284 |
| Thin Clients | | 30 | | 30 |

** Includes ~60 Macs dual-booting Windows and OS X*

Replacement Cycle

| Item | Cycle Length |
|-----------------|--------------|
| Laptop Macs | 5 |
| Laptop Windows | 5 |
| Desktop Macs | 7 |
| Desktop Windows | 6 |
| Netbook | 3 |
| Tablet | 4 |

Computers & Tablets – Replacement Cycle

| Item | FY14 | FY15 | FY16 | FY17 | FY18 |
|-----------------|------|------|------|------|------|
| Desktop Macs | 13 | 108 | 60 | 139 | 98 |
| Desktop Windows | 9 | 0 | 2 | 34 | 1 |
| Laptop Macs | 186 | 235 | 166 | 590 | 376 |
| Laptop Windows | 1 | 0 | 1 | 3 | 1 |
| Netbooks * | 0 | 58 | 0 | 0 | 0 |

** Netbook replacement has been deferred due to faculty feedback regarding instructional limitations.*

Pressures on Replacement Cycle

- Increased demand from faculty for greater access, particularly driven by assessment, response to intervention, and a greater reliance on 21st century tools in the classroom.
- “One-Time Purchases” partially alleviate demand, but create future funding cliffs:
 - ARRA purchases
 - Special Education inclusion budget
 - Grants and donations
 - New High School project
- PARCC assessment and data collection to support the new evaluation system will further strain the replacement cycle.

FY14-FY18 Replacement Cycle (Prior to Balancing)

| Ref #: | Project Description | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|-------------------------------|-------------------------------------|------------------|------------------|------------------|------------------|------------------|
| REP-1 | Desktop Mac Replacement | \$13,624 | \$113,184 | \$62,880 | \$145,672 | \$102,704 |
| REP-2 | Desktop Windows Replacement | \$8,379 | \$0 | \$1,862 | \$31,654 | \$931 |
| REP-3 | Laptop Mac Replacement | \$178,932 | \$226,070 | \$159,692 | \$567,580 | \$361,712 |
| REP-4 | Laptop Windows Replacement | \$1,034 | \$0 | \$1,034 | \$3,102 | \$1,034 |
| REP-5 | Netbook Replacement | \$0 | \$26,042 | \$0 | \$0 | \$0 |
| REP-6 | Alphasmart Neo & Neo 2 Replacement | \$0 | \$0 | \$0 | \$0 | \$0 |
| REP-7 | Workgroup Laser Printer Replacement | \$4,075 | \$4,075 | \$5,705 | \$6,520 | \$6,520 |
| REP-8 | Network Inkjet Printer Replacement | \$2,250 | \$2,250 | \$2,250 | \$2,250 | \$2,250 |
| REP-9 | Network Infrastructure Replacement | \$85,912 | \$85,733 | \$85,489 | \$65,000 | \$65,000 |
| REP-10 | Server Replacement | \$14,699 | \$16,800 | \$0 | \$0 | \$16,800 |
| REP-11 | UPS Replacement | \$9,044 | \$0 | \$0 | \$0 | \$0 |
| REP-12 | Projector Replacement | \$25,642 | \$25,642 | \$25,642 | \$28,491 | \$40,838 |
| REP-13 | Projector Lamp Replacement | \$12,650 | \$14,720 | \$17,020 | \$19,550 | \$22,540 |
| REP-14 | Digital Video Camera Replacement | \$2,580 | \$2,580 | \$2,580 | \$2,580 | \$2,580 |
| REP-15 | Flatbed Scanner Replacement | \$300 | \$300 | \$300 | \$5,400 | \$300 |
| REP-16 | Document Scanner Replacement | \$920 | \$920 | \$920 | \$920 | \$920 |
| Total Capital Requests | | \$360,041 | \$518,316 | \$365,374 | \$878,719 | \$624,129 |

FY14-FY18 Replacement Cycle (Proposed Shift)

| Ref #: | Project Description | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|-------------------------------|-------------------------------------|------------------|------------------|------------------|------------------|------------------|
| REP-1 | Desktop Mac Replacement | \$13,624 | \$113,184 | \$62,880 | \$145,672 | \$102,704 |
| REP-2 | Desktop Windows Replacement | \$8,379 | \$0 | \$1,862 | \$31,654 | \$931 |
| REP-3 | Laptop Mac Replacement | \$178,932 | \$226,070 | \$159,692 | \$567,580 | \$361,712 |
| REP-4 | Laptop Windows Replacement | \$1,034 | \$0 | \$1,034 | \$3,102 | \$1,034 |
| REP-5 | Netbook Replacement | \$0 | \$26,042 | \$0 | \$0 | \$0 |
| REP-6 | Alphasmart Neo & Neo 2 Replacement | \$0 | \$0 | \$0 | \$0 | \$0 |
| REP-7 | Workgroup Laser Printer Replacement | \$4,075 | \$4,075 | \$5,705 | \$6,520 | \$6,520 |
| REP-8 | Network Inkjet Printer Replacement | \$2,250 | \$2,250 | \$2,250 | \$2,250 | \$2,250 |
| REP-9 | Network Infrastructure Replacement | \$85,912 | \$85,733 | \$85,489 | \$65,000 | \$65,000 |
| REP-10 | Server Replacement | \$14,699 | \$16,800 | \$0 | \$0 | \$16,800 |
| REP-11 | UPS Replacement | \$9,044 | \$0 | \$0 | \$0 | \$0 |
| REP-12 | Projector Replacement | \$25,642 | \$25,642 | \$25,642 | \$28,491 | \$40,838 |
| REP-13 | Projector Lamp Replacement | \$12,650 | \$14,720 | \$17,020 | \$19,550 | \$22,540 |
| REP-14 | Digital Video Camera Replacement | \$2,580 | \$2,580 | \$2,580 | \$2,580 | \$2,580 |
| REP-15 | Flatbed Scanner Replacement | \$300 | \$300 | \$300 | \$5,400 | \$300 |
| REP-16 | Document Scanner Replacement | \$920 | \$920 | \$920 | \$920 | \$920 |
| Total Capital Requests | | \$360,041 | \$518,316 | \$365,374 | \$878,719 | \$624,129 |

FY14-FY18 Replacement Cycle (Final Request)

| Ref #: | Project Description | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|-------------------------------|-------------------------------------|------------------|------------------|------------------|------------------|------------------|
| REP-1 | Desktop Mac Replacement | \$13,624 | \$113,184 | \$62,880 | \$145,672 | \$102,704 |
| REP-2 | Desktop Windows Replacement | \$8,379 | \$0 | \$1,862 | \$31,654 | \$931 |
| REP-3 | Laptop Mac Replacement | \$178,932 | \$226,070 | \$159,692 | \$567,580 | \$361,712 |
| REP-4 | Laptop Windows Replacement | \$1,034 | \$0 | \$1,034 | \$3,102 | \$1,034 |
| REP-5 | Netbook Replacement | \$0 | \$26,042 | \$0 | \$0 | \$0 |
| REP-6 | Alphasmart Neo & Neo 2 Replacement | \$0 | \$0 | \$0 | \$0 | \$0 |
| REP-7 | Workgroup Laser Printer Replacement | \$4,075 | \$4,075 | \$5,705 | \$6,520 | \$6,520 |
| REP-8 | Network Inkjet Printer Replacement | \$2,250 | \$2,250 | \$2,250 | \$2,250 | \$2,250 |
| REP-9 | Network Infrastructure Replacement | \$85,912 | \$85,733 | \$150,489 | \$0 | \$65,000 |
| REP-10 | Server Replacement | \$14,699 | \$16,800 | \$0 | \$0 | \$16,800 |
| REP-11 | UPS Replacement | \$9,044 | \$0 | \$0 | \$0 | \$0 |
| REP-12 | Projector Replacement | \$25,642 | \$25,642 | \$54,133 | \$0 | \$40,838 |
| REP-13 | Projector Lamp Replacement | \$12,650 | \$14,720 | \$17,020 | \$19,550 | \$22,540 |
| REP-14 | Digital Video Camera Replacement | \$2,580 | \$2,580 | \$2,580 | \$2,580 | \$2,580 |
| REP-15 | Flatbed Scanner Replacement | \$300 | \$300 | \$300 | \$5,400 | \$300 |
| REP-16 | Document Scanner Replacement | \$920 | \$920 | \$920 | \$920 | \$920 |
| Total Capital Requests | | \$360,041 | \$518,316 | \$458,865 | \$785,228 | \$624,129 |

1:1 Technology

1:1 Tablet Pilot

- Funded through a WEF grant.
- Schofield 5th grade classroom.
- 1:1 (in-school only).
- PD during summer and continuing throughout the year.
- Documented and assessed through video and student survey data throughout the year.

Key Findings



- Addressed a practical need for more access.
- Having a 1:1, instant-on device in the classroom created new and authentic learning opportunities.
- Increased access to tools to practice skills and track progress and enabled new forms of formative assessment.
- Shifted student perception of technology from toy to tool.
- Supported differentiated instruction and individualized learning without stigma.

1:1 Vision

We are at a crossroads - faculty are demanding increased access, but our capital budget is already under pressure just to maintain current levels of access.

At the same time, students are becoming masters in the use of tablets, computers, and other personal electronics as diversions and media consumption devices, while lacking the skills and knowledge to use these devices as tools for productivity, collaboration, and creativity.

"We're going to need the collective effort of everyone – parents, teachers, business leaders – to create the digital learning experiences that will prepare our children for success in the knowledge-based economy." – Arne Duncan

1:1 Vision

Our Vision of a 1:1 Environment:

- Increases access, facilitating formative assessment, supporting general instruction, and enabling new modes of differentiation.
- Prepares students to be innovators by shifting their perception of technology from toy to tool.
- Promotes equity by addressing the "digital gap" that denies some students access to online supports at home.



1:1 Proposal

1. Expand on the success of the 1:1 pilot by introducing a 1:1 program district wide in grades 5-8.
2. Continue to research appropriate models for 1:1 and tablet use in grades PK-4, utilizing the existing pilot carts.
3. Convene a 1:1 exploratory committee at the High School in FY14.

Proposed 5th-8th Grade Expansion

- All 5th grade students and a 6th grade house pilot in FY14. Rolls up by one grade each year.
- Take-home, with an in-school responsible use and tablet care learning period in September/October.
- Supported by professional development, infrastructure investments, and support staff.
- Ongoing parent workshops.
- Steering committee evaluates program with instruments including surveys, interviews, and analysis of data.
- Partnership between schools, families, and the community.

Proposed Funding Model

A funding partnership between the district, families, and community organizations:

Capital Budget:

- Network infrastructure improvements
- Tablets for students with a financial need

Operating Budget:

- Professional development
- Program logistics

Community Organizations:

- Faculty and staff devices, charging carts and A/V upgrades
- Summer professional development institute

Families:

- Student devices

Tentative Family Options

Option 1:

Recommended

- iPad
- Instant loaner
- Four years of repair/replacement
- Accidental damage (2 incidents)
- Management license
- Standard app suite
- Parent training

Annual Cost:

\$ 155

Option 2:

Family provided iPad

- Instant loaner
- Management license
- Standard app suite
- Parent training

Annual Cost:

\$ 40

Capital Budget Impact

| Year | Capital Cost | Offsets* | Capital Impact |
|------|--------------|----------|----------------|
| FY14 | \$55,097 | \$36,556 | \$18,541 |
| FY15 | \$68,197 | | \$68,197 |
| FY16 | \$82,069 | | \$82,069 |
| FY17 | \$33,264 | | \$33,264 |
| FY18 | \$34,214 | | \$34,214 |

* Offsets:

- FY14: 38 laptop computers removed from replacement cycle
- Additional FY15-FY18 offsets likely through reductions in replacement cycle pool at the Middle School

1:1 Next Steps

- Further engage faculty
- Begin a dialogue with families and community organizations
- Incorporate into capital & operating budgets
- Convene a steering committee

Additional New Requests

Enrollment, Program, and Class Size Requests

NEW-1: Special Education Program Growth

- Computers to meet IEP and program driven needs at WMS and WHS
- \$9,620

NEW-2: Computer for Preschool Nurse

- Provide secure access to student medical records
- \$1,048

NEW-3: Laptops to Reach Two Carts per Elementary

- 77 Laptops and carts to reach the district goal of two laptop carts per Elementary School.
- Originally projected at 168 units across two years.
- \$77,302

Enrollment, Program, and Class Size Requests

NEW-4: Laptops to Support Secondary Max. Class Sizes

- Laptops to support larger class sizes in Middle School robotics and High School business classes
- \$5,772

NEW-7: Laptops for Main Offices

- Laptops to facilitate clerical and administrative activities
- \$8,658

NEW-12: Computers for Enrollment and Program Changes

- Computers to support projected changes in staffing and sections due to enrollment and program changes.
- \$24,105

Miscellaneous Requests

NEW-5: Document Scanner for Middle School Nurses

- Handling of student medical records
- \$460

NEW-11: Middle School Workgroup Printing Transition

- Voluntary pilot program to replace classroom inkjet printers with shared workgroup printers.
- \$3,260

NEW-13: Tablets to Support New Evaluation System

- Tablets to support data collection under the new evaluation system. Cost has been substantially offset through PTO donations.
- \$9,823

FY14-FY18 New Requests

| Ref #: | Project Description | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|---------------------------|---|------------------|------------------|------------------|-----------------|-----------------|
| NEW-1 | Computers for Special Education Program Growth | \$9,620 | \$0 | \$0 | \$0 | \$0 |
| NEW-2 | Computer for Preschool Nurse | \$1,048 | \$0 | \$0 | \$0 | \$0 |
| NEW-3 | Laptops (77) to Reach Two Laptop Carts Per Elementary | \$77,302 | \$0 | \$0 | \$0 | \$0 |
| NEW-4 | Laptops to Support Secondary Max. Class Size Changes | \$5,772 | \$0 | \$0 | \$0 | \$0 |
| NEW-5 | Document Scanner for Middle School Nurses | \$460 | \$0 | \$0 | \$0 | \$0 |
| NEW-6 | Tablets for Elementary Special Education | \$0 | \$3,222 | \$0 | \$0 | \$0 |
| NEW-7 | Laptops for Main Offices | \$8,658 | \$0 | \$0 | \$0 | \$0 |
| NEW-8 | Smartboard/Projector Installations | \$27,783 | \$19,845 | \$0 | \$0 | \$0 |
| NEW-9 | Bates Cafeteria Projection System | \$0 | \$0 | \$0 | \$0 | \$5,601 |
| NEW-10 | Bates Cafeteria Audio System | \$0 | \$0 | \$0 | \$0 | \$6,408 |
| NEW-11 | Middle School Workgroup Printing Transition | \$3,260 | \$4,890 | \$4,890 | \$4,890 | \$4,890 |
| NEW-12 | Computers for Enrollment and Program Changes | \$24,105 | \$5,149 | \$5,149 | \$5,149 | \$5,149 |
| NEW-13 | Tablets to Support New Evaluation System | \$9,823 | \$0 | \$0 | \$0 | \$0 |
| NEW-14 | 1:1 Tablet Program | \$55,097 | \$68,197 | \$92,069 | \$33,264 | \$34,214 |
| Total New Requests | | \$222,928 | \$101,303 | \$102,108 | \$43,303 | \$56,262 |

FY14-18 Technology Requests

| Request Type | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|----------------------|------------------|------------------|------------------|------------------|------------------|
| Replacement | \$360,041 | \$518,316 | \$458,865 | \$785,228 | \$624,129 |
| New Requests | \$222,928 | \$101,303 | \$102,108 | \$43,303 | \$56,262 |
| Other (Installation) | \$7,500 | \$7,500 | \$7,500 | \$7,500 | \$7,500 |
| Total | \$590,469 | \$627,119 | \$568,473 | \$836,031 | \$687,891 |

Phone System Replacement

- Current systems 15+ years old
- Can only be backed up to floppies
- Must be shut down to backup
- New parts are no longer available
- Expensive POTS/Centrex lines

Replacement Plan:

- Centralized "Master" system at MS
- Satellite systems at each Elementary School
- Shift to T1 and SIP lines, potentially saving \$12-18,000 per year
- Leveraging existing wiring and equipment
- Supporting a shift to VOIP
- \$409,000
- Recommended to be debt funded



FY14-18 Technology Requests w/ Phone System

| Request Type | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 |
|--------------------------|------------------|------------------|------------------|------------------|------------------|
| Replacement | \$360,041 | \$518,316 | \$458,865 | \$785,228 | \$624,129 |
| New Requests | \$222,928 | \$101,303 | \$102,108 | \$43,303 | \$56,262 |
| Other | \$7,500 | \$7,500 | \$7,500 | \$7,500 | \$7,500 |
| Phone System Replacement | \$409,000 | \$- | \$- | \$- | \$- |
| Total | \$999,469 | \$627,119 | \$568,473 | \$836,031 | \$687,891 |

Analysis for Cash Capital

| | |
|-------------------------------------|-----------|
| Total District Technology Requests: | \$999,469 |
|-------------------------------------|-----------|

| | |
|-------------------------------|-----------|
| Recommended Debt-Funded Work: | \$409,000 |
|-------------------------------|-----------|

| | |
|---|------------------|
| Total FY14 Cash Capital Request: | \$590,469 |
|---|------------------|

| | |
|----------------------------------|------------------|
| <i>FY14 Cash Capital Budget:</i> | <i>\$591,728</i> |
|----------------------------------|------------------|