To: Amy Dexter, Town Accountant

From: Mary Gormley, Superintendent of Schools

Date: 11/5/12

RE: 5 Year Capital Budget Expenses

As requested by the Capital Improvement Planning Committee, I have attached the School Department's 5-year Capital Plan. This plan represents our most recent planning regarding key capital priorities that will support and advance Milton's first-rate educational environment, protect our physical plant assets and ensure that we are able to keep pace with rapidly changing technology. The plan supports several key educational objectives and the technical objective of making the Milton Public Schools to be a 1:1 computing environment by fiscal year 2016. The plan provides the necessary networking infrastructure to support the additional wired and wireless devices and completes the outfitting of each classroom with SmartBoard technology. Finally, the plan includes physical plant improvements, athletic field repairs and security camera installations that are designed to protect the investment Milton taxpayers have made in our school buildings and grounds. Two spreadsheets are attached which separately address School Technology and School Facilities Requests. This memorandum provides detail on the Technology Request. The Director, Consolidated Facilities will address the Facilities Request as part of his discussion of town-wide Facilities Capital Needs.

The vision of the Milton Public Schools is:

"The Milton Public School System is a dynamic community that challenges all students to thrive and achieve. Our schools provide a well-funded teaching and learning environment in state-of-the-art facilities. In partnership with the community, we equip our students with the skills and knowledge necessary to adapt and contribute to a changing world."

Its core values are:

- High Academic Achievement for all Students
- Excellence in the Classroom
- Collaborative Relationships and Communication
- Respect for Human Differences
- Risk-Taking and Innovation for Education

An investment in the technology infrastructure and equipment is required to sustain the high academic achievement and excellence in the classroom core values. This will improve our ability to deliver quality, modern, and differentiated instruction to all students. The methods by which teachers deliver curriculum have changed from chalk and lectures to webcasts, digital textbooks, wireless tablets, and interactive SmartBoards. Years ago, the Milton Public Schools made a commitment to install SmartBoards in every classroom. Fortunately, due to the generosity of the Copeland Foundation, Milton Foundation for Education, Hillside, and PTO groups, we have almost 200 Smartboards in the district. This is a top priority and it is vital to complete this process by installing the SmartBoards in the remaining 30 classrooms. (See C below)

Also, due to the influx of equipment and infrastructure throughout the course of the schools' building project, it has not been necessary for the technology department to make large capital expense requests. However, the annual operational budget has not been able to make adequate technology updates and/or replacement of the now aging and dated equipment as is being proved necessary by the ever increasing demand for technology in the classroom.

Students can benefit from the vast amount of digital resources available on the Internet therefore; we need to provide all the tools necessary for teachers and students to access these resources. By getting wireless technology in the hands of as many students as possible, with a goal of 1 to 1 computing, students will have instant access to rich educational content conducive to independence of learning while also preparing them for the ever changing digital world.

Even with the trend of utilizing handheld devices, teachers' desktop computers are still the hub of the classroom, generating much of the digital educational content delivered to students. These computers need to be updated frequently in order to be able to maintain pace with the constant updates to Internet browsers, plug-ins, and software; making this another priority. Currently, more than half of our computers are below minimum standards to provide the best learning environment possible. (See G below)

Also a priority is deploying a wireless network throughout the district to enable the wireless handheld devices to function to their full potential. (See D below)

In order to handle the increased network traffic generated by modern, faster computers, the wireless handheld devices, and be prepared for future needs, the network hardware needs to be replaced. (See D below)

We make the following requests:

A. **Replace network hardware/wireless** – These two items for each school go hand in hand. Currently, most modern desktop computers have a 1GB network card. All of our network switches have only a 100MB connection to the computers and are quickly becoming dated and a source of network issues. With the increasing demand for network and web applications and information, a bottleneck develops at the switches resulting in slow connectivity hardware errors. To be prepared for the eventual 1:1 student to computer/device ratio, the switches need to replaced to be ready for the increased workload and network traffic generated by the additional devices; many of which will be wireless. (see below) Also, the current switches

cannot handle the requirement of the not so distant future PARCC testing requirements. Replacing these switches will have several benefits:

1. Eliminate the data bottleneck at the switch level enabling smooth, interruption free access to data, applications, and web resources.
2. Provide the ability to grow with future network demands.
3. Provide power over Ethernet cable to future edge devices (VoIP phones, wireless access points)

4. The wireless portion of this request is for full wireless network access in each building. This is a necessity because of growing need to use wireless devices and tablets in the classroom. We are currently in the testing phase of utilizing wireless tablets at Tucker, Milton High School, and Cunningham.

5. With the growing trend of BYOD (bring your own device) in schools, we will need to provide wireless access to these devices in order to deliver educational content to the students regardless of the type of device they bring, laptop, tablet, or smart phone.

6. Adding wireless to the network infrastructure will be more cost effective than adding addition wired switches and cabling throughout the building to support the demand for network and Internet access.

B. **Complete SmartBoard installs** – There are 30 classrooms (mostly at Collicot/Cunningham and Pierce) without SmartBoards. Over the years we have seen the impact SmartBoards have made on the delivery of curriculum in the classroom. The interactive nature of the board has fostered an engaging, inclusive teaching style that holds the attention of students and makes them more excited about learning. It is crucial to have a SmartBoard in every classroom to maintain equity in learning for all students.

C. **PC's to keep up with 20% annual replacement** – Over the course of the building project we were able to replace almost 85 percent of existing computers in the district. Our goal is to replace aging computers every five years to maintain pace with the rapidly advancing PC technology. Based on this policy and an inventory of about 1200 PC's, we should be replacing about 240 PC's per year. But, the operating budget has not allowed that rate of replacement. We've only been replacing about 100 PC's per year. That has left us with about half of our computers woefully slow and inadequate, many of which can't run the most recent SmartBoard software, sometimes leaving that vital teaching tool unused. Therefore, in year one, we need to replace 400 computers (in addition to the 100 from the operational budget) and 20% in subsequent years to maintain an annual 20% replacement policy. Each year this target is not met, the problem compounds and we fall into a deep hole where the computers that are 7, 8, and 9 years old can't run the required software and we can no longer support them. Another major reason this expenditure is necessary is to be prepared for future PARCC testing requirements.

D. **Replace critical servers** – We will replace aging school based servers under $10K from the operational budget. But, in FY17 a more robust, district wide server is scheduled to be replaced at an estimated cost of $11,500.

E. Upgrade network storage – Our existing network storage device is five years old; purchased at a time when large capacity hard drives were fairly cost prohibitive. With the ever increasing demand for disk space from large files and videos while continuing to archive older data, we need to replace/supplement the existing network storage device with a large capacity device. Since the price large hard drives has dropped significantly in recent years, we will be able to purchase a device that will have massive storage capacity and last for many years.

F. Phone System – Our current phone system is functioning normally, requiring only normal maintenance. However, it too is aging and will need to be replaced eventually. An analysis from Signet suggested the phone system could last another 5 to 7 years. A new, VoIP phone system would require new network hardware and the request for new network switches would prepare us for a new phone system in the future.

G. Wireless Tablets (iPads) – The 1:1 computing trend is upon us. Many schools are already deploying wireless tablets to their school population. The versatility of these tablets is astounding, allowing a robust, direct method of delivering educational content in an engaging way. In many cases, the tablets become a replacement for textbooks since most publishers now offer a tablet friendly version. Instead of carrying a backpack full of heavy books, students could be able to have all of their materials on a single tablet, accessible at any time. The tablets would allow for collaboration and operate as a 'response clicker' in the classroom, increasing participation and level of engagement. Also, in anticipation of PARCC testing requirements, students could take standardized tests on the tablets in addition to existing labs. 1:1 is a lofty goal, but it is the direction that most districts are going and working towards.

Schedule H - Capital Request
School Technology 5 year Capital Expenses - Summary Sheet
9/18/2012 - Post Fin Comm Review

Item	FY14 Year 1	FY15 Year 2	FY16 Year 3	FY17 Year 4	FY18 Year 5	Totals	New Replace
Replace Critical Servers	$ -	$ -	$ -	$ 11,500.00	$ -	$ 11,500	Replace
Upgrade network storage	$ 18,000.00					$ 18,000	Replace
Complete SmartBoards at C/C	$ 31,856.00					$ 31,856	New
Complete SmartBoards at Pierce	$ 87,604.00					$ 87,604	New
Replace Network Hardware - Tucker	$ 46,339.00					$ 46,339	Replace
wireless - Tucker	$ 21,000.00					$ 21,000	New
Replace Network Hardware - High School	$ 178,566.00					$ 178,566	Replace
wireless - High School	$ 48,000.00					$ 48,000	New
Replace Network Hardware - C/C		$ 163,146.00				$ 163,146	Replace
wireless - Collicot/Cunningham	$ 35,600.00					$ 35,600	New
Replace Network Hardware - Pierce		$ 128,820.00				$ 128,820	Replace
wireless - Pierce	$ 33,000.00					$ 33,000	New
Replace Network Hardware - Glover		$ 50,516.00				$ 50,516	Replace
wireless - Glover	$ 17,000.00					$ 17,000	New
Phone System					$ 654,028.00	$ 654,028	Replace
PC's to keep up with 20% annual replacement	$ 220,000.00	$ 82,500.00	$ 82,500.00	$ 82,500.00	$ 82,500.00	$ 550,000	Replace
Capital subtotal, natural evolution	**$ 736,965.00**	**$ 424,982.00**	**$ 82,500.00**	**$ 94,000.00**	**$ 736,528.00**	**$ 2,074,975**	

Per Town By laws Section 17, costs must be over $10k to eligible for the capital committee's consideration.

Wireless Tablets (iPads) - The big ticket cost all-in cost for the item is included below. Options for phasing, training, support, and other funding are being explored at this time.
There would be additonal costs to provide assistance and maintenance should we persue this type of endeavor.

	Per Item	Students	subtotal
Tablets for all high school students	$ 458.00	1,013	$ 463,954
Tablets for all Pierce students	$ 458.00	866	$ 396,628
Tablets for all elementary students	$ 458.00	2,100	$ 961,800
		3,979	$ 1,822,382

Total All Requests + wireless tablets (iPads) in all Schools			**$ 3,897,357**

Schedule H - Capital Request
School Facilities 5 year Capital Expense Request - Summary Sheet
9/18/2012 - Post Warrant Committee Review

	FY14	FY15	FY16	FY17	FY18		New
Item	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Totals**	**Replace**
MHS - Replace Brooks Field (Top layers)	$ 100,000	$ -	$ -	$ -	$ -	$ 100,000	Replace
MHS - Brooks Field Track Repairs	$ 15,000	$ 15,000	$ -	$ 17,500	$ 17,500	$ 65,000	Replace
MHS Asphalt Patching	$ -	$ 15,000	$ -	$ 15,000	$ -	$ 30,000	Replace
Tucker - Old '97 Roof Section EPDM Replacement	$ -	$ -	$ -	$ -	$ 147,402	$ 147,402	Replace
Tucker Gym Floors (Repairs, Paint, Stripe)	$ -	$ -	12,000			$ 12,000	Replace
Collicot Gym Floors (Repairs , Paint , Stripe		$ 12,000				$ 12,000	Replace
CO/CU Roof Section Replacements		$ 30,000				$ 30,000	Replace
DW HVAC Van Replacement	$ -	$ -	27,000			$ 27,000	Replace
DW VCT Tile Replacements				$ 10,000		$ 10,000	Replace
DW Floor Scrubber Replacement Rotation	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 50,000	Replace
Glover Old '92 Roof Section Replacement				$ 140,000		$ 140,000	Replace
Pierce Science Wing Roof Replacement	$ -	$ -	$ -	$ -	$ 90,000	$ 90,000	Replace
Pierce Retaining Wall, Back Field		$ 10,000				$ 10,000	Replace
Pierce Chain link fence, 300+ ft, rear field		$ 27,000				$ 27,000	Replace
Security Cameras - Glover	$ 75,000					$ 75,000	New
Security Cameras Tucker		$ 55,000				$ 55,000	New
Security Cameras CO/CU			$ 120,000			$ 120,000	New
Capital Subtotal	$ 200,000	$ 174,000	$ 169,000	$ 192,500	$ 264,902	$ 1,000,402	

Notes:Year placed into service, expected useful life and new/extended useful life if replaced or repaired info found in 2012 Facilties Study

Per Town By laws Section 17, costs must be over $10k to eligible for the capital committee's consideration.