Hopkinton School District

To: Mr. Chamberlin and the Hopkinton School Board

From: Matthew Stone

Date: June 2nd, 2017

Re: Report from the Technology Director

As we approach the end of the year, we are busily wrapping up end of year academic projects in all buildings, planning our busy summer maintenance period, and beginning to work on budget items for the 2018-19 budget cycle. It means for a period that we are reflecting on three separate school years, covering projects already completed, planned and still to come. It is a good time to take a long-term look at major capital expenditure areas and see strengths, weaknesses and future needs.

Classroom Technology

Our classroom technology reflects a commitment to giving students a variety of experiences and matching equipment to need in a cost-efficient way. We have Chromebooks in all classrooms in grades 1-6 to give teachers and students an easy way to research, write and complete online assignments without having to reserve or retrieve a mobile cart. We also have additional Chromebooks and Windows machines available to signout so that they can do whole class activities using technology.

In last year's budget cycle, we switched from a long-term purchase plan (3 year lease to own) to a year to year plan, planning on taking advantage of emerging technology and saving interest. While we remain committed to that plan, it has created something of "bow wave" of computers and Chromebooks needing replacement from the last lease. This makes the next two purchasing years vital to level out that wave. In the coming summer, we plan to update three laptop and Chromebook carts, plus one instructional lab.

In addition to the Chromebooks and computers, we maintain classroom projectors in all instructional spaces as well as some interactive whiteboards. The majority of these were installed between six and twelve years ago, and are nearing replacement ages. As we did not choose to install a large number of interactive boards in the past due to high cost, we are interested in emerging systems offering teachers and students some physically interactive systems, particularly in the elementary schools.

Network Infrastructure

In my last report, I gave some details on the explosive growth in wireless devices and traffic that hit our networks every day. This has required significant growth in our wireless infrastructure, as it was first built to provide coverage for all instructional spaces. With the growth in usage, we have needed to support density as well as coverage, since a single wireless access point (AP) can provide a signal to several classrooms but cannot handle the traffic from all the devices in them. As a result, we have approximately doubled the number of APs in the district since the initial implementation. These newer APs support newer and faster wireless standards and will be a part of the solution for years to come. The APs that we purchased as part of the initial deployment are reaching their end of life and will need to be replaced over the next two years.

As I mentioned in my last report, the fiber Internet circuit that feeds the district has been a welcome upgrade, offering vastly improved speed and reliability. Our current usage of the circuit hovers around 75% capacity during a typical day, which some peaks do max the circuit. This likely indicates a need for higher bandwidth in the near future. In planning, we have been consulting a report from the State Educational Technology Directors Association (SEDTA) called The Broadband Imperative II: Equitable Access for Learning available at http://www.setda.org/wp-content/uploads/2016/09/SETDA-Broadband-ImperativeII-Full-Document-Sept-8-2016.pdf. This report has also been adopted by the FCC as guidance to schools for broadband planning and the targets are as follows:

Broadband Access for Teaching, Learning and School Operations	2014-2015 School Year Target	2017-2018 School Year Target	HSD current bandwidth
An external Internet connection to the Internet Service Provider (ISP)	At least 100 Mbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff	200 Mbps

Internal Wide Area Network (WAN) connections from the district to each school and among schools within the district	At least 1 Gbps per 1,000 students/staff	At least 10 Gbps per 1,000 students/staff	100 Mbps

(where 1 Gbps = 1000 Mbps)

Therefore we have met the 2014-15 school year target, but are well short of the 2017-18 goal. Our current contract with Comcast has one more year to run and we are exploring options to increase our bandwidth at a similar cost. A non-profit organization named EducationSuperHighway has been particularly helpful in exploring options and offering guidance on writing the RFPs for fiber service. There are three fiber providers that offer service in our area and responded to our first RFP: Comcast, TDS, and FirstLight. I am hopeful that the availability of competition will ensure good prices.

Server Infrastructure and Hosted Services

The district has a number of mission-critical applications for various school and business purposes. Given our small size, we have chosen to have three of our main applications hosted by the vendor in a Software as a Service model. These are the Aspen school information system, eFinancePlus finance/HR/payroll platform, and Destiny library management system. These systems have met our expectations for availability and performance, offering the kind of reliability that would be difficult to offer at our scale.

In addition to the hosted services, we maintain a small onsite set of servers to host the remaining services need to run the schools: directory, file and print, phone system, configuration management. We have been making small upgrades to this equipment to try to increase reliability and resilience, given the mission-critical nature of Internet access. We have already budgeted and cut a server upgrade project during the last two budget cycles, recognizing that an upgrade is needed, but not yet critical. We continue to explore options with vendors to find a cost-effective solution for a district of our size.

Quick Notes

- We continue the search to replace our technical support position. We have conducted some interviews but have not yet found the right candidate.
- The recent WannaCry ransomware attack highlighted the importance of keeping systems updated; the vulnerability that enabled the attack had been patched in March. No district systems were affected and almost all had been patched prior to the attack.
- The Technology Committee is working to complete the district technology plan, which will be coming to the Board this summer. This is the three-year strategic plan for educational technology, instruction and professional development.
- The summer tech purchases involve an RFP due to the size of the order. That RFP will come to the Board for approval at a future meeting.

As always, the end of the year is a wonderfully busy time, both finishing the school year and preparing for the next. For the tech department, we are looking forward to changing from a support role to a project-orientated role for the summer, readying the schools and systems for the next year.

Respectfully submitted,
Matthew Stone