Appendix 3

To: Board of Education

From: Dr. Terri Bresnahan, Director of Technology

Date: April 22, 2013

Subject: Board Advanced Technology Committee Report, Part II

BACKGROUND:
During the April 8 Board meeting, Board members and the community had the opportunity to hear from the Board Advanced Technology Committee. In its presentation from its members, a vision for one-to-one computing to facilitate 21st century learning was recommended.

The report below recaps the recommendation summary and then offers specific options for implementation and pacing in order to achieve that vision. It concludes with the financial considerations based on the preferred option.

For additional details and to reference all materials presented, please visit the BATC Recommendation website at: https://sites.google.com/a/d64.org/batc-recommendation/

RECOMMENDATION SUMMARY:
Based on its findings, **the committee believes learning in District 64 should be: collaborative, creative, connected to the real world, flexible, differentiated, self-paced, inquiry-based, and integrated with technology.**

In order to achieve this type of learning and support the District's implementation of the Common Core State Standards with technology integration, the committee agrees that students should be connected to one another and the world through the use of technology.

The following beliefs were guiding factors in developing this recommendation:

- Students should be engaged and motivated throughout the learning process.
- 21st century skills, such as communication, collaboration, creativity, and critical thinking are vital to prepare our students for high school, college, careers, and beyond.
- Students should be empowered in the classroom and play active roles in their learning.

- The use of the Internet and digital resources, when integrated under the guidance of a teacher, extends learning beyond the classroom and allows for access to a richer and deeper learning experience.
- Students today are "digital natives" who are accustomed to navigating a technology-rich world.
- Learning with technology is not about the device, it is about the connection to resources and the way in which they are used to support rigorous and higher-level learning.
- Teachers need ongoing, job-embedded professional development to transform the way in which they teach.

Therefore, it is the recommendation of the Board Advanced Technology Committee that all students in District 64 have equal access to the digital resources necessary to support 21st century learning in a one-to-one computing model.

FOCUS ON LEARNING:

The vision for 1:1 computing is founded in quality 21st century teaching and learning. The primary focus for this initiative will continue to be providing students with the type of learning opportunities that will prepare them for high school, college and beyond.

The following considerations are included in the recommendation from the BATC:

- **Professional Development:** Instructional Technology Coaches will continue to be used to support teachers as they implement new technologies and teaching strategies in their classrooms. The existing coaches are recommended to continue at each building to meet the needs of staff as we transition to and fully adopt a 1:1 computing model.
  Additionally, steering committees will be formed to further investigate and explore innovative teaching strategies such as inquiry-based learning and the flipped classroom model. These committees will include teachers from all levels on the technology proficiency spectrum in order to capture all existing viewpoints.

- **Measurements for Success:** This year, rubrics are being developed to facilitate data collection for the impact of Instructional Technology Coaches on the mastery of the National Educational Technology Standards for Teachers (NETS-T). This tool will also be adapted to allow for teachers to self-evaluate and identify their strengths and areas for improvement related to those standards. The tool can be used to benchmark progress throughout the year beginning in 2013-14. Similar tools will also be developed based on the NETS for Students in

order to measure the progress of students as they develop in the area of 21st century learning.

- **The Right Tool for the Job:** In addition to the recommended Chromebooks and iPads, other technology tools will be necessary to meet the specific needs of a variety of learning situations. Computer labs, laptops, iPads on carts, specialized software, projection devices, SmartBoards, etc. will continue to be supported throughout the District to address those needs.

    - **SmartBoards:** In all cases, SmartBoards are being recommended for all remaining elementary classrooms and middle school math classrooms. The costs for these remaining boards have been included in the preliminary technology budget. Regardless of the computing model, the advantages of the SmartBoard at the elementary level, especially in the primary grades, are worth the investment.

      The District began implementing SmartBoards four years ago and has increased the number of boards each year. By purchasing the remaining boards, all elementary classrooms in K-5 will have consistent access to SmartBoard technology.

- **Infrastructure:** With all options, an upgrade to the District's infrastructure will be necessary. Based on an analysis done of the current wireless network, additional switches (1 per building) are recommended as well as wireless access points for each classroom. This will ensure proper coverage and capacity for the anticipated increase in wireless connectivity based on a 1:1 initiative. In addition, there may be some network cabling necessary for the installation of the new access points.

  Lastly, an increase in bandwidth is also recommended in order to accommodate the District's Internet traffic, which has been steadily increasing over the past several years due to an increase in usage and number of devices. We currently purchase 100Mbps and utilize up to 90% of that total bandwidth allocation. The recommendation for 2013-14 is to purchase an additional 100 Mbps of bandwidth for a total of 200Mbps. The technology department monitors Internet usage on a daily basis to ensure optimal access to the Internet. As a 1:1 model is implemented, additional upgrades may be necessary.

IMPLEMENTATION & PACING OPTIONS:

Below are three options for achieving 1:1 computing to support student learning; all options would require two or three years. Regardless of the model selected, the

primary focus will continue to be the implementation of the Common Core State Standards with the integration of technology.

Financial considerations, as well as the impact on student learning, must both be taken into account in order to select the model that will best meet the needs of all learners in District 64.

Please see Attachment 1 for details regarding device selection, pricing and options for iPads and Chromebooks.

Option 1:
This option would target two grade levels for a 1:1 computing initiative in 2013-14 with the goal of reaching 100% 1:1 in grades 3-8 across the span of three years. Based on feedback from the committee, 3rd grade and 6th grade would be ideal starting points for the implementation plan. Having experience with a 1:1 rollout at both the elementary and middle school levels would enable the District to plan for future rollouts on a larger scale and prevent overwhelming any one particular school.

In this plan, the Chromebook would be the recommended device for grades 3-8. Devices would be provided to all students in grades 3 and 6 in Year 1. Additional Chromebooks on carts would also be made available at all schools to ensure that all grade levels continue to have greater access to devices. In Year 2 (2014-15), grades 3, 4, 6 and 7 would be fully implemented with 1:1 computing. Finally, in Year 3 (2015-16), all grades 3-8 would be practicing a 1:1 approach.

The strengths of this model would include the following:

- Gradual implementation to allow for problem-solving over a three-year time period
- Expanded time for professional development and feedback, while still making progress towards the goal of 1:1
- Exposure to the use of Chromebooks for all grades 3-8 students and teachers

The areas of concern for this model would include the following:

- Current 3rd grade students would not experience a 1:1 computing model until 6th grade
- Current 6th grade students would never experience a 1:1 computing model
- Gaps in professional development for teachers participating in 1:1 versus those who are not
- Pacing of this would not be aligned with the pacing of technology innovations

Option 1: Chromebooks Grades 3-8

	Year 1 (2013-14)	Year 2 (2014-15)	Year 3 (2015-16)
Grade 3	1:1	1:1	1:1
Grade 4	Chromebooks on Carts	1:1	1:1
Grade 5	Chromebooks on Carts	Chromebooks on Carts	1:1
Grade 6	1:1	1:1	1:1
Grade 7	Chromebooks on Carts	1:1	1:1
Grade 8	Chromebooks on Carts	Chromebooks on Carts	1:1

For grades K-2, the focus will be to establish an iPad to student ratio of 1:4 in the first year of implementation. Given the existing number of iPads available, it would be feasible to purchase a limited number of iPads for 2013-14 to reach the 1:4 ratio. In Years 2 and 3, the goal would be to increase the ratio to 1:3 and 1:2, respectively.

Option 1: iPads Grades K-2

	Year 1 (2013-14)	Year 2 (2014-15)	Year 3 (2015-16)
Kinder	1:4	1:3	1:2
Grade 1	1:4	1:3	1:2
Grade 2	1:4	1:3	1:2

Option 2:

The second option is more accelerated in achieving the goal of a 1:1 computing model for grades 3-8. Through this model, each student in grades 3-8 would have access to a Chromebook in two years, by the 2014-15 school year. This would directly align with the fifth and final year of the Strategic Plan, as well as with the new PARCC assessment to be administered online in 2014-15.

In the first year, grades 3, 5, and 7 would begin their 1:1 adoption. In the second year, those students would advance to the next grade with their Chromebooks and a second installation of 1:1 devices would be made for the next group of students in grades 3, 5, and 7.

The strengths of this model would include the following:

- Ability for all students participating in 1:1 to complete the first year of the PARCC assessment in 2014-15 using their own devices
- Less time before all students can benefit from the 1:1 computing model
- Allows for the exploration of online textbooks within two years
- Ability to have a "pilot" before full implementation

The areas of concern for this model would include the following:

- Gaps in grade levels participating in 1:1 computing
- Gaps in professional development for teachers participating in 1:1 versus those who are not
- Unknown factors related to student fees which could impact the financing of the devices
- Students and teachers in grades 3, 5, and 7 would have a short time to prepare for the 1:1 implementation

Option 2: Chromebooks Grades 3-8

	Year 1 (2013-14)	**Year 2 (2014-15)**
Grade 3	1:1	1:1
Grade 4	Chromebooks on Carts	1:1
Grade 5	1:1	1:1
Grade 6	Chromebooks on Carts	1:1
Grade 7	1:1	1:1
Grade 8	Chromebooks on Carts	1:1

For grades K-2, the pacing would accelerate slightly to achieve a 1:2 model in two years versus the three years in the former model.

Option 2: iPads Grades K-2

	Year 1 (2013-14)	**Year 2 (2014-15)**
Kindergarten	1:4	1:2
Grade 1	1:4	1:2
Grade 2	1:4	1:2

Option 3:
The third option would move the District forward at its current budget pace for the 2013-14 school while laying essential groundwork to prepare for accelerated implementation in the 2014-15 school year.

The District would shift from purchasing new MacBook Pro laptops to replace outdated computers for students and opt to infuse Chromebooks into the inventory. For every one MacBook Pro, the District would be able to purchase approximately four Chromebooks. This model would also continue to increase the number of iPads available to students and focus their use at the K-2 level.

During the 2013-14 school year, professional development in the areas of the Common Core State Standards with technology integration will remain a focus and will continue to be provided through the roles of the Instructional Technology Coaches, Curriculum Specialists, and other teacher leaders. The first year would concentrate on building the capacity of teachers and students for a 1:1 computing model through District-wide support for grades 3-8.

Also during this developmental year, infrastructure would be upgraded as needed, teachers and students would become familiar with the Chromebook as a device for teaching and learning, and baseline data would be collected to determine the needs of staff and students in relation to the National Educational Technology Standards (NETS). The Community Finance Committee (CFC) student fees study also would be completed during this first year to allow for exploration of funding options for the 1:1 initiative.

In the second year (2014-15), a 1:1 computing model would then be implemented for all grades 3-8. The existing Chromebooks used in Year 1 would be reallocated for students in grades 3-5 for their 1:1 experience. With policies, professional development, and baseline data in place, a full 1:1 initiative would have the greatest chance of success.

The strengths of this model would include the following:

- An increased number of devices available to students in 2013-14 at a faster pace than in years past
- Preparation for students and teachers on the use of Chromebooks in the classroom prior to implementing a 1:1 model
- Time to explore student fees and the implications for funding a 1:1 initiative
- Time for continued professional development prior to implementation of a 1:1 model

The areas of concern for this model would include the following:

- A prolonged wait time for 1:1 at any grade level

Option 3: Chromebooks Grades 3-8

	Year 1 (2013-14)	Year 2 (2014-15)
Grade 3	Chromebooks on Carts	1:1
Grade 4	Chromebooks on Carts	1:1
Grade 5	Chromebooks on Carts	1:1
Grade 6	Chromebooks on Carts	1:1
Grade 7	Chromebooks on Carts	1:1
Grade 8	Chromebooks on Carts	1:1

For grades K-2, the pacing would be the same as in Option 2 to achieve a 1:2 model in two years versus the three years in Option 1.

Option 3: iPads Grades K-2

	Year 1 (2013-14)	Year 2 (2014-15)
Kindergarten	1:4	1:2
Grade 1	1:4	1:2
Grade 2	1:4	1:2

RECOMMENDATION FOR IMPLEMENTATION & PACING:

Based on the strengths and areas of concern of the above options, the Board Advanced Technology Committee, along with input from the District's administrative team, believe Option 3 would best meet the needs of students and staff, while continuing to make progress towards accelerating the use of advanced technology.

The committee believes that by investing our time and energy in 2013-14 towards professional development, infrastructure, and capacity building, we will have a solid foundation for a successful 1:1 computing initiative in 2014-15 to support 21st century learning.

Once the District is able to successfully implement 1:1 computing for grades 3-8, it is recommended to further evaluate the use of iPads at the K-2 level and consider further decreasing the ratio to 1:1 to achieve equitable access to personal computing devices for all grade levels in District 64.

FINANCIAL DETAILS:

Below are the financial details related to the preferred Option 3. The budgets for Year 1 and Year 2 are shown separately. A total is provided at the end.

YEAR 1 -- 2013-14:

- Maintain the existing budget for hardware purchases.
- Utilize funds to purchase Chromebooks instead of refreshing outdated MacBook Pro laptops.
- Increase iPad ratio for grades K-2 to 1:4

1:4 iPad to Student Ratio Grades K-2, iPads on Carts for K-5

*K-2 Students (1068)	267
# of iPads on Carts for K-5	140
Total # of iPads Needed	407
# of Existing iPads	337
# of iPads to Purchase	**70**
Approximate Total Cost for iPads for Year 1 (2013-14) ($400 per Unit)	**$28,000**

***Kindergarten count represents FTE**

***2 carts of iPads will remain at each middle school (numbers not included above)**

Chromebooks on Carts for Grades 3-8

	Elementary	Middle School	Total	Cost Per Unit	Total Cost
Existing budget: # of Laptops Budgeted to Replace	99	58	157	$1,200	$188,400
Alternate use of budget: # of Chromebooks	425	250	675	$280	**$189,000**

As noted earlier in this report, SmartBoards are being recommended for all remaining elementary classrooms and middle school math classrooms.

SmartBoards

SmartBoards for K-5	72
SmartBoards for 6-8	12
Total Cost for SmartBoards for Year 1 (2013-14) ($2,800 per Unit)	**$235,200***

***Total cost currently budgeted in existing technology budget for 2013-14**

Infrastructure

Wireless Access Points & Switches	$129,212
Network Cabling	$12,000
Bandwidth Upgrade (200 Mbps)	$13,200 ($1,100 per month)
Approximate Total Cost for Infrastructure for Year 1 (2013-14)	**$154,412**

TOTAL APPROXIMATE COSTS FOR YEAR 1 -- 2013-14

iPads (1:4 for Grades K-2)	$28,000
Chromebooks (On Carts for Grades 3-8)	$189,000
SmartBoards	$235,200*
Infrastructure	$154,412
SUBTOTAL	$606,612
Amount Currently Budgeted	$453,660*
TOTAL APPROXIMATE ADDITIONAL COST FOR YEAR 1 (2013-14)	**$152,952**

***$118,800 already budgeted in Tech Budget for 2013-14 for elementary laptop purchases, $99,660 for middle school laptop and iPad purchases, and $235,200 for SmartBoards for a total of $453,660.**

YEAR 2 -- 2014-15:

1:2 iPad to Student Ratio Grades K-2

*K-2 Students (1,050)	525
# of Existing iPads for K-2	267
# of iPads to Purchase in 2014-15	258
Approximate Total Cost for iPads for Year 2 (2014-15) ($400 per Unit)	**$103,200**

***Kindergarten count represents FTE**

1:1 Chromebooks for Grades 3-8

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	TOTAL
# of CBs	430	477	465	474	525	531	2,902
Approx. Cost ($320 each)	**$137,600**	**$152,640**	**$148,800**	**$151,680**	**$168,000**	**$169,920**	**$928,640**

Number of Chromebooks for Grades 3-8	2,902
Number of Existing Chromebooks from 2013-14	675
Total Number to Purchase for 2014-15	2,227
Approximate Total Cost for Chromebooks for Year 2 (2014-15) ($320 per unit)	**$712,640**

TOTAL APPROXIMATE COSTS FOR YEAR 2 -- 2014-15:

iPads (1:2 Grades K-2)	$103,200
Chromebooks (1:1 Grades 3-8)	$712,640
Infrastructure Upgrades	Completed in 2013-14
SUBTOTAL	**$815,400**
Amount Currently Budgeted*	$453,660*
TOTAL APPROXIMATE ADDITIONAL COST FOR YEAR 2 (2014-15)	**$362,180**

***Budget amount based on a 0% increase above the 2013-14 tentative technology budget.**

Based on the above-recommended financial considerations, the District's two-year commitment would be **$515,132** above the planned technology department annual budgets for 2013-14 and 2014-15. In addition, it does not take into consideration any cost-sharing with families leading to ownership of the devices. Any potential arrangement could be considered during Year 1 as the CFC Student Fee Study is completed.

APPROXIMATE TOTAL ADDITIONAL INVESTMENT FOR PREFERRED OPTION

Total Approximate Additional Cost for Year 1 (2013-14)	$152,952
Total Approximate Additional Cost for Year 2 (2014-15)	$362,180
APPROXIMATE TOTAL ADDITIONAL COST ABOVE PLANNED 2-YEAR BUDGET	**$515,132**

Insurance Options:
Options for insurance will be considered when the final selection of which option to implement the 1:1 computing model is chosen. Depending on the decision for device ownership, either third party insurance or District-managed insurance should be considered.

In District 207, parents will have the ability to purchase an insurance plan through a third party provider for $32-$39 per year for coverage of the Chromebook.

NEXT STEPS:
The committee will continue to provide answers to any questions the Board may have and facilitate any further discussion regarding the recommendations.

The Board Advanced Technology Committee will request approval for this recommendation at a Board meeting later this spring.

THANK YOU:
Thank you again to all members of the Board Advanced Technology Committee who have dedicated their time and talents to accelerating the use of advanced technology in District 64, without whom this recommendation would not be possible.

Co-Facilitators:

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Dr. Terri Bresnahan, Director of Technology

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Liaisons:

Hank Thiele, Director of Technology, Maine Township High School District 207
Bernadette Tramm, District 64 Public Information Coordinator
Scott Zimmerman, District 64 Board of Education Vice President

Device Selection:

The committee explored a variety of tools to meet the needs of 21st century learners. The following factors were considered in choosing the most appropriate tool for students:

- Needs of the curriculum
- Current tools used in District 64
- Exemplary models in other districts
- Articulation with Maine 207 high schools
- Management capabilities
- Requirements for PARCC assessment (screen size, keyboard, etc.)
- Cost
- Durability

Based on the above criteria, the committee reached consensus on continuing to utilize iPads for the primary grades (PK-2) in a dedicated classroom environment. It also recognized the advantages to having access to iPads for grades 3-8 and thus, recommended maintaining iPads on carts that would be available on a checkout basis for those grade levels.

The benefits of the iPads for grades PK-2 include:

- Touchscreen capabilities to support fine motor development
- Affordability
- App-driven to support small group learning and targeted skill practice
- Existing effective use of iPads at the elementary level

For grades 3-8, the committee researched a variety of 1:1 models utilizing iPads, MacBooks and other laptop devices. However, with the announcement of District 207's Chromebook initiative, the committee felt this device merited further consideration. After reviewing the criteria and having the opportunity for hands-on exploration of the Chromebooks, the committee fully supported these devices for use in District 64.

The benefits of the Chromebooks for grades 3-8 include:

- Management capabilities for teachers in the classroom
- Management of devices on the District's network
- Ability to filter easily
- Fully integrated with Google Apps for Education
- Full keyboard
- Battery life (5-7 hours approx.)
- Best value
- Built-in memory
- Ports to support peripheral devices (USB, memory slot, etc.)

- Fully supported by NWEA for MAP testing
- Fully meets minimum requirements for PARCC assessment
- Able to use in District 207 when students enter high school

Device Pricing and Specifications:

	iPad	**Chromebook**
Internal Memory	16GB	16GB
Keyboard	N/A (sold separately for $20-$60)	Integrated
Case	Approx. $20	Approx. $20
Management System & Collaboration/Monitoring Tool	N/A	$50 per device
Unit Cost	$379 (iPad 2) $479 (iPad 3)	$249
Compatible for PARCC	Yes, but only with keyboard	Yes
TOTAL COST	**$399-$499**	**$319**