

Community Consolidated School District 181
BOARD REPORT

CONTACT: Don White, Ph.D., Superintendent; Kelley Gallt, Assistant Superintendent of Learning (C&I); Matt Kunesh, Director of Technology

TITLE: Digital Learning Environment Proposal (*REVISED 11/14/16*)

DATE: November 14, 2016

Digital Learning Environment Proposal

This document includes 1) a formal recommendation for implementing a Digital Learning Environment and the Board-approved device ratio and 2) answers to previously shared questions related to implementation of the Digital Learning plan, with details divided into the following categories:

- Plan Clarity
- Current State
- Professional Development
- Cost
- Assessment
- Keyboards
- PTO Considerations
- Measures
- Next Steps

Administrative Recommendations

The administration recommends the following as part of the Digital Learning Environment.

1. Grades K-2 shared device ratio, with the number of devices at Grades K-2 equal to the school's grade level with the greatest enrollment. This will likely create a shared environment of one device per three students.
2. Grades 3-5 1:1 device ratio with iPads plus keyboards.
3. Grades 6-8 1:1 device ratio with Chromebooks that are similar to the device purchased by Hinsdale D86. (For year one of the initial implementation, Grade 8 students will be provided a MacBook Air that is already in use at the middle school level.)
4. A three-year implementation plan that maximizes the use of current devices that have been determined to be reliable for instructional purposes during the implementation cycle. Devices that may still be usable but cannot be relied upon for instruction will remain in the school until the device can no longer be supported by the D181 Technology Department.
5. Collaboration with the identified Parent-Teacher Organizations (PTOs) in order to more closely maintain the 2016-17 device ratio during implementation of the Digital Learning Environment plan. This includes but may not be limited to the Monroe, Madison and Oak PTOs whereby the PTO supports the District by purchasing additional devices during the phase-in of the Digital Learning Environment implementation plan.
6. Implementation of a technology fee to offset the expense for purchasing new devices.

7. Integrated technology as a part of the professional development connected to curriculum development and the resource selection process.
 8. Development of a technology skills map during the 2016-17 school year to address the teaching of specific technology skills in Grades K-8, with initial implementation during the 2017-18 school year.
 9. Creation of a staffing plan to support an integrated technology model of instruction, to be developed during the 2016-17 school year.
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CLARITY OF PLAN

What is the plan by year? How are existing devices re-deployed? Will PTO-bought devices stay in their school?

Three data sets are provided in summary form on the following pages.

- Table 1: A current inventory and deployment summary
- Table 2: An updated current student device ratio
- Tables 3-7: An updated year-by-year plan that shows how each school and grade level shifts over the entire phase-in period.

Existing devices that are appropriate for instruction (still reliable) will be redeployed within each school in Grades K-2, 4, 5, 7, and 8. Devices confirmed as purchased by the PTO are scheduled to remain in that PTO's school. Devices purchased by the District may be moved among grade levels and schools as needed. It is possible that during the phase-in, there will be iPads at the elementary schools used beyond the desired and recommended three-year cycle renewal, and there will be MacBook Airs used beyond the four-year desired and recommended renewal cycle. Our plan calls for some of these devices to continue to be used while they are functional to ensure maximum output from these investments, but as the older devices fail, the current device ratio may not be maintained.

Table 1: Current Inventory and Deployment Summary

Count of Current Deployment	Column	Elm	Madison	Monroe	Oak	Prospect	The Lane	Walker	CHMS	HMS	Grand Total
1 to 1		64	66	79	91	205	74	31		3	613
iPad 2										1	1
iPad Air (32 GB Space Gray)		64	66	79	91		74	31		1	406
iPad Mini 2 (32GB)						80					80
iPad Mini 3 LTE (64 GB Space Gray)										1	1
iPad Mini with Retina						70					70
iPad Mini with Retina (32 GB Space Gray)						55					55
Shared		234	250	282	194	244	269	225	528	469	2695
iPad 2		35	1	30		25	59			29	179
iPad 2 (16 GB)			19	30		27				1	77
iPad 3rd Gen		11	30		20				20	25	106
iPad 3rd Gen (16 GB)				5	5						10
iPad 4th Gen (16 GB Black)						2					2
iPad 4th Gen (32 GB Black)			51	24					33		108
iPad Air (32 GB Space Gray)			18					2	12		32
iPad Air 2 (64 GB Space Gray)		34		28						2	64
iPad Mini		29			65	30	29	50			203
iPad Mini (Wi-Fi Only)					3			2			5
iPad Mini with Retina		20			1	6		60			87
iPad Mini with Retina (32 GB Space Gray)		5		3		15	1	9			33
iPad Mini with Retina (64 GB Space Gray)								2			2
MacBook Air (11-inch Early 2015)				13			25		305	315	658
MacBook Air (11-inch Mid 2011)			9	8		19	33				69
MacBook Air (11-inch Mid 2013)		100	122	141	100	120	122	100		29	834
MacBook Air (13-inch Early 2015)									36	35	71
Chromebook 11									90		90
Series 3 Chromebook									32	33	65
Grand Total		298	316	361	285	449	343	256	528	472	3308

New Table: PTO-Purchased Devices by School and Device Type

School	PTO MacBook		PTO
	Airs	PTO iPads	Cromebooks
Elm	0	137	0
Madison	0	81	0
Monroe	14	66	0
Oak	0	93	0
Prospect	6	274	0
The Lane	26	30	0
Walker	0	114	0
CHMS	0	2	90
HMS	0	0	0
Total:	46	797	90

Table 2: Updated Current Student Device Ratio

	K-2	3	4	5	6-8
Elm	1.0	1.0	1.0	1:1	
Madison	.7 - .9	.7 - .9	.7 - .9	1:1	
Monroe	.7 - .9	.7 - .9	1:1	.7 - .9	
Oak	1.0	1.0	1:1	1:1	
Lane	.7 - .9	.7 - .9	.7 - .9	1:1	
Prospect	1.0	1:1	1:1	1:1	
Walker	1.0	1:1	1.0	1.0	
CHMS					
HMS					.5 - .6

Tables 3-7: Year-by-Year Plan
(How each school and grade level shifts over the entire phase-in period)

2017-18 Device Ratio							
	K-2	3	4	5	6	7	8
Elm	0.7	1:1	0.7	1:1			
Madison	0.7	1:1	0.7	1:1			
Monroe	0.8	1:1	1:1	0.8			
Oak	0.9	1:1	1:1	1:1			
Prospect	1.1	1:1	1:1	1:1			
The Lane	0.8	1:1	0.8	1:1			
Walker	0.8	1:1	0.8	0.8			
CHMS					1:1	1:1	1:1
HMS					1:1	1:1	1:1
New Device							
Existing Device							

Tables 3-7: Year-by-Year Plan
 (How each school and grade level shifts over the entire phase-in period)

2018-19 Device Ratio							
	K-2	3	4	5	6	7	8
Elm	1.1	1:1	1:1	1:1			
Madison	1.0	1:1	1:1	1:1			
Monroe	0.8	1:1	1:1	0.8			
Oak	0.8	1:1	1:1	1:1			
Prospect	1.5	1:1	1:1	1:1			
The Lane	1.0	1:1	1:1	1:1			
Walker	0.9	1:1	1:1	0.9			
CHMS					1:1	1:1	1:1
HMS					1:1	1:1	1:1
New Device							
Existing Device							

2019-20 Device Ratio							
	K-2	3	4	5	6	7	8
Elm	1.5	1:1	1:1	1:1			
Madison	1.2	1:1	1:1	1:1			
Monroe	1.3	1:1	1:1	1:1			
Oak	1.7	1:1	1:1	1:1			
Prospect	1.2	1:1	1:1	1:1			
The Lane	0.9	1:1	1:1	1:1			
Walker	1.9	1:1	1:1	1:1			
CHMS					1:1	1:1	1:1
HMS					1:1	1:1	1:1
New Device							
Existing Device							

2020-21 Device Ratio							
	K-2	3	4	5	6	7	8
Elm	0.37	1:1	1:1	1:1			
Madison	0.34	1:1	1:1	1:1			
Monroe	0.35	1:1	1:1	1:1			
Oak	0.34	1:1	1:1	1:1			
Prospect	0.35	1:1	1:1	1:1			
The Lane	0.36	1:1	1:1	1:1			
Walker	0.35	1:1	1:1	1:1			
CHMS					1:1	1:1	1:1
HMS					1:1	1:1	1:1
New Device							
Existing Device							

Tables 3-7: Year-by-Year Plan
(How each school and grade level shifts over the entire phase-in period)

2021-22 Device Ratio							
	K-2	3	4	5	6	7	8
Elm	0.40	1:1	1:1	1:1			
Madison	0.35	1:1	1:1	1:1			
Monroe	0.36	1:1	1:1	1:1			
Oak	0.34	1:1	1:1	1:1			
Prospect	0.36	1:1	1:1	1:1			
The Lane	0.37	1:1	1:1	1:1			
Walker	0.35	1:1	1:1	1:1			
CHMS					1:1	1:1	1:1
HMS					1:1	1:1	1:1

Does the plan call for extra devices?

The implementation of the plan as outlined will require the purchase of extra devices. This includes adding devices to specific grades and purchasing extra devices that are targeted for student check-out if the device is not functional or when students forget their devices. When purchasing new devices moving forward, we intend to have a device inventory of approximately 5% above the anticipated 1:1 requirement so that (1) students do not have an extended wait time if their device needs to be repaired or replaced, (2) we can account for the potential of new students beginning after the start of the school year, and (3) we have sufficient devices for staff. This +5% is included in the budget as shown.

What is the anticipated ratio in K-2?

Each year will not be consistent in regard to K-2 ratios, as shown in the phase-in plan, as the amount of available devices varies based on purchases and re-deployments in the upper grades. Ultimately, students in K-2 will have a ratio of approximately one device per three students.

Why isn't 5th grade using Chromebooks?

While we recognize there is a transition that will occur from iPad to Chromebook while a student is in D181, the plan intentionally provides this transition opportunity as a student moves to middle school. Fifth grade has been using iPads for several years. The teachers have adapted their instruction to iPads and to the resources available on an iPad. Changing to Chromebooks would create a situation unnecessarily requiring the need to purchase all new resources / apps, teachers to redesign their instruction, and new professional development. Further, it is sensible to maintain the same device in a school for colleague-to-colleague support, building-based professional development, and tech support. Previous conversations with teachers have shown great support for maintaining iPads at the 5th grade level.

What is the rationale for starting 1:1 in third grade instead of waiting until fourth grade?

Third grade is the year when instructional expectations for using technology to assimilate, analyze, and create information becomes more of a focus. As an example, we start to instruct students in more purposeful writing and new writing types, as seen in the Common Core State Standards, and students are expected to use technology to communicate their learning. There is also an expectation of testing using a device (i.e. PARCC)

so it is beneficial when students are familiar with the device as a regular tool of instruction. In addition, when students have devices in a 1:1 setting, we can more effectively teach specific technology skills. Waiting until fourth grade to start a 1:1 environment will put our students at a disadvantage, as they will not have proper exposure to technology skills and the use of a device to access information and demonstrate their learning as described above. Previous conversations with teachers have supported this concept, and this was the recommendation of the Digital Learning Initiative committee.

What are the consequences of delaying implementation at the elementary level and just focusing on middle school first?

The original plan presented in June 2016 was to begin with the middle schools during the 2016-17 school year. However, financial conditions led to a recommendation that the implementation be delayed until the 2017-18 school year. Following the revised timeline, new devices will be deployed for 3rd grade and 6th grade in August 2017. Given that the original implementation plan would have been mid-year, the main consequence is not giving students and teachers access to the devices for an additional half school year.

CURRENT STATE

What is the status of the current devices related to renewal cycle?

The cycle as previously approved is outlined in the following chart:

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Elementary Student Laptops	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3
Teaching Staff Laptops		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2
Middle Student and Other Staff Laptops			Year 1*	Year 2*	Year 3*	Year 4*	Year 1

* = Lease

PROFESSIONAL DEVELOPMENT (PD)

How is PD impacted by a multi-year phase-in? Is the level of required PD manageable along with the aggressive curriculum work that is taking place?

A multi-year phase-in requires strategic professional development planning to ensure 1:1 teachers receive PD on both effective technology integration and content/subject areas (i.e. math, science). However, it is important to note that, in general, technology is not intended to be a stand-alone PD topic. As we complete curriculum work, technology is interwoven and integrated, just as it is in classroom instruction. We are fully confident that the Department of Learning can lead the necessary PD planning, in partnership with the HCHTA and HESS leadership, and the D181 Staff Development Committee. The benefit of a phase-in is that capacity is built over time and staff can learn from one another as expertise increases.

A staffing plan will be recommended during the 2016-17 school year that demonstrates how we will instructionally support staff during the 2017-18 school year following the formal professional development training experiences provided to all targeted staff. This plan may or may not introduce the addition of new staff. The plan may incorporate current staff positions and job descriptions to be updated and/or changed in order to best support classroom instruction. This plan is expected to be shared during an upcoming Academic Success Committee and Board of Education meeting following the involvement of identified HCHTA members. If there are suggested financial implications, the Department of Learning will bring those recommendations to the Finance Committee prior to introducing the staffing plan during a regularly scheduled Board of Education meeting.

COST

How is this going to be funded?

Our recommendation is a combination of funds earmarked in the District budget and a fee payable at the time of student registration, in amounts as follows (showing potential fee per student):

Grade Level	Fee 2017-18	Fee 2018-19	Fee 2019-20
K	\$25	\$25	\$25
1	\$50	\$50	\$50
2	\$50	\$50	\$50
3	\$100	\$100	\$100
4	\$50	\$100	\$100
5	\$50	\$50	\$100
6	\$100	\$100	\$100
7	\$75	\$100	\$100
8	\$50	\$75	\$100
Estimated Revenue	\$210,675	\$240,836	\$270,997

As shown above, the fee amounts are higher in years when the student receives a new device (3rd, 6th, and 7th grade for 2017-18). In reviewing the fees charged by other area districts, we believe these recommended amounts are fairly typical. As shown above, the District has a current lease for middle school and other staff laptops that will expire at the end of the 2018-19 school year. The lower fee for students can offset the continuation of that lease, which has already been in the District budget.

Leasing costs of the 2017-2018 device acquisition of iPads and Chromebooks are shown below. The Apple lease contains 650 iPads along with cases and wired keyboards. These devices will be deployed to staff, 3rd grade students 1:1, and Oak’s 4th & 5th grades 1:1. The Chromebook lease contains 935 Chromebooks along with associated licensing and services. These devices will be deployed to all 6th & 7th grade students. The costs as detailed in the chart below are based on quotes received from Apple and CDWG. These quotes are for budgeting purposes only, and will not be valid by Spring when the District would potentially move forward with purchases. At that time, new quotes will be needed. It is unlikely to see a price increase, however this is a possibility. The costs below for subsequent years is an estimate and provided for demonstration purposed only. The subsequent lease or purchase of devices will be presented to the Board as part of the budget process.

DLE Hardware Acquisition Lease Pricing and Revenue Estimates

	Implementation Yr. 1	Implementation Yr. 2	Implementation Yr. 3
2017-18 New iPad Lease	\$98,145	\$98,145	\$98,145
2017-18 New Chromebook Lease	\$124,645	\$124,645	\$124,645
2018-19 New iPad Lease		\$69,615.00	\$69,615.00
2018-19 New Chromebook Lease		\$58,695.00	\$58,695.00
2019-20 New iPad Lease			\$70,380.00
2019-20 New Chromebook Lease			\$59,985.00
TOTAL ANNUAL LEASE	\$222,790	\$351,100	\$481,465
REVENUE FROM FEES	\$210,675	\$240,836	\$270,997
NET DISTRICT FUNDING	\$12,115	\$110,264	\$210,468

**The table above includes some staff iPad devices to support the iPad 1:1 environments. The table does not include the cost of staff laptops, which would be brought forth as part of future Board action.*

What if we don't have funding for one year of the multi-year plan?

The budget for this initiative will need to be reconsidered every year. If the administration and Board of Education are not able to make this expenditure a priority in a given year, we would need to determine which grade levels, if any, would receive new devices and may need to extend the use of current devices. Ultimately it is the administration's recommendation that the phase-in become a budget priority like the purchase of textbooks.

What is the Finance Committee's perspective on fees?

The perspective of the Finance Committee will be as part of the 2017-2018 budget discussion at the meeting on November 9. The outcome of that discussion will be shared at the Board meeting on November 14.

ASSESSMENT

How do we know recommended devices will be successful in assessments?

The District has been using both iPads and Chromebooks in various instructional settings for several years. We have enough experience with both to know their strengths and limitations. Further, we are aware of other districts using these devices for state assessments, and both PARCC and MAP have confirmed that their assessments will perform properly on either. (The District chose to have all students use paper/pencil for the 2015-16 Illinois Science Assessment (ISA) as a Mac app was not available until just before the assessment.) Students will have experience with their particular device during the school year in advance of taking the MAP and PARCC assessments. If a future assessment is not compatible with devices we have, we will administer the test with paper/pencil based on State guidance. If during the phase-in we do not have enough devices for

an assessment, we may temporarily move devices amongst grade levels within a school to support testing as is current practice.

KEYBOARDS

Is there an issue of a delay (lag time) with Bluetooth keyboards?

Based on our experience, delays with Bluetooth keyboards are a very rare occurrence. As devices age, a few devices may experience lag time with functions like Bluetooth, opening applications, etc., which is why it is important that we maintain an appropriate replacement cycle to the greatest extent possible. It is also important to note that as devices continue to improve, these issues have become less apparent. For example, first generation iPads may have experienced this problem in the past. We have not witnessed similar issues with more recently purchased iPads. Given the logistics of pairing Bluetooth keyboards in classes with potentially 20+ iPads and keyboards being paired at a given time, the current expenditure includes wired keyboards instead of Bluetooth.

Are keyboards included with all iPads (for new purchases and current devices)?

The keyboard cost is factored in with the total cost of iPad purchases.

Are we going to pilot / test a variety of keyboard options?

We anticipate piloting keyboards during the current school year. We are also contacting other districts to learn about their successes with different models. One of our considerations will be keyboards that are appropriately sized for elementary children.

PTO CONSIDERATIONS

What is going to be PTO involvement moving forward?

The PTOs have been very generous in their support of technology purchases over the years. It is my recommendation that, when fully implemented, the District eliminate the reliance on PTO funding for the purchasing of devices because iPads and Chromebooks are tools for learning in a 21st century environment that should be provided by the District, as well as coordinated at the District level. In conversation with the PTO Presidents, they have supported the need for this shift. As described above, the administration believes we may need to consider a continued partnership with a small number of PTOs in the short term to ensure that current ratios are maintained during the initial phase-in period. For example, we are currently partnering with the Monroe PTO to determine their ability to support the purchase of some iPads. PTO Presidents have expressed understanding of this concept as well, knowing that more discussion will be needed. Once we complete the phase-in, there should be no need for further PTO purchase of devices because Grades 3-8 will be 1:1 and at the K-2 level, we will not want more devices than the shared ratio of one device per the highest single grade enrollment for the school's K-2 enrollment (likely producing a 1:3 shared environment). Therefore, once the phase-in is complete, it is recommended the schools work with the PTOs only for the purchase of different, above-and-beyond technology tools that teachers can use to enhance learning in the classroom or through extra-curricular activities. This may include but might not be limited to whole-class presentation tools, software for enhancing information or providing additional skills acquisition opportunities for students, and other technology solutions that are not a part of the Digital Learning Environment outlined in this document. Any technology purchase recommendations from school PTOs will be required to go through an approval process at the District level, involving the Department of Learning and the Technology Department.

MEASURES / NEED

Does research show a 1:1 environment results in academic gains (i.e. increase in test scores)?

As previously shared, research on the statistical relationship between the implementation of a 1:1 solution and test scores is mixed. There are studies which show that a 1:1 environment results in improved academic results; however, there are also studies that show minimal, if any, direct academic gains. While we will continue to monitor our results, the main goals of this initiative include timely access to information, increased student engagement, and providing a 21st century learning environment for our students that prepares them for the high school experience as well as colleges and careers. Currently District 181's Strategic Plan has identified a combination of MAP, PARCC, and District Common Assessments as key performance indicators to be used following the implementation of the Digital Learning Initiative. While it also incorporates the use of propensity scores, it may be better to use the ECRA benchmark and growth scores as an indicator of success, since it incorporates all universally given assessments.

NEXT STEPS

We have further work to do in considering a parent component of the Digital Learning Environment plan, which needs to highlight topics such as filtering content at home to maintain a safe online environment, proper care of devices, and how to effectively support a child's instruction related to technology. We already have an effective system in place for collaborating with families of the grade levels that are currently 1:1, which we plan on strengthening and streamlining. Similarly, we need to ensure consistent messages and training are provided to students on care of device, appropriate behavior, safety, how to access school materials, etc.