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Office of the Superintendent of Schools
MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

July 15, 2014

MEMORANDUM

To: Members of the Board of Education

From: Joshua P. Starr, Superintendent of Schools

Subject: Strategic Technology Plan—Creating 21st Century Learning Spaces

Executive Summary

Today's presentation to the Board of Education provides an update on the implementation of the Strategic Technology Plan, which was first presented to the Board of Education on May 30, 2013. The Strategic Technology Plan will provide greater access to the school system's expanding digital curriculum and allow our instructional staff to create 21st century learning spaces in all of our schools. The critical next step in the Strategic Technology Plan is to begin purchasing mobile computers for all of our schools. These purchases, which also are included in the July 15, 2014, Board of Education agenda for your approval, will be funded through the Technology Modernization (Tech Mod) Project in the Fiscal Year (FY) 2015–2020 Capital Improvements Program (CIP) and $3 million included in the FY 2015 Operating Budget that were approved by the County Council on May 22, 2014. In addition to the roll out of mobile computing devices, we also will begin using a collaborative, cloud-based learning platform in all schools. This effort extends our comprehensive efforts to strengthen our technology infrastructure to support teaching and learning, which most recently has included completing the implementation of Promethean interactive technology across elementary schools and wireless networks in all schools.

Beginning this summer, we will infuse a variety of tablets, Chromebooks, and lightweight laptops directly in our classrooms at Grades 3, 5, and 6 and in high school social studies classrooms. The integration of these mobile technologies and a collaborative learning platform will facilitate learning environments that allow teachers to use digital curriculum and instructional resources to empower students to be creative learners. Continued budgetary support and the use of federal Education Rate (E-Rate) funds will enable us to provide a sustainable funding mechanism to pay for this technology.

Background

The purchase of mobile computers to allow for the innovative use of technology in our schools is a strategic budget enhancement that was approved in the FY 2015 Operating Budget as well as

the Tech Mod Project in the FY 2015–2012 CIP. The school system's expanding digital Common Core State Standards (CCSS) curriculum and our dynamic computing infrastructure are enabling timely access to content and instructional activities that require students to think critically, solve complex problems, work collaboratively, and communicate effectively. The use of technology provides students with technology literacy, information literacy, and other skills necessary for the 21st century workplace.

We believe mobile learning environments strengthen teachers' efforts to provide differentiated learning and flexible formative and performance-based assessments. Advances in mobile, social, information, and cloud technologies are facilitating new opportunities for how we teach and learn. The convergence of these four technologies present opportunities to redesign our learning environments. Since mobile devices wirelessly connect to the network, we can integrate these technologies into existing classroom configurations and support teachers as they implement a variety of technology-enhanced, student-centered teaching strategies.

The work to implement wireless networks across our schools is an essential element of this initiative. Enabling a robust wireless infrastructure paves the way for the integration and expansion of mobile technologies in our classrooms. This includes the use of mobile devices provided by Montgomery County Public Schools (MCPS) as well as staff- and student-owned devices. The ability for students to bring and securely use their own devices is an essential element in the long-term affordability of the initiative. Schools will be able to allow students, staff, parents, and community members to use their personal devices on the MCPS network at the beginning of the 2014–2015 school year once agreements on acceptable use guidelines and practices are in place.

In September 2013, we completed the first phase of the wireless installation. This effort included the installation of wireless access points, controllers, and licenses for all schools that did not have wireless. All major enhancements to the wireless infrastructure are expected to be completed by the beginning of the 2014–2015 school year.

Moreover, there is a need for far greater concurrent access to computers for students to take the Partnership for Assessment of Readiness for College and Careers (PARCC) exams. The new state assessment requirements expand mandatory online testing to students in Grades 3 through 11. In addition, the Maryland State Department of Education's recommended PARCC testing requirements specify a one-to-one computer-to-student ratio within the largest tested grade level. This is necessary due to the number of testing sessions, the length of the tests, the duration of the testing window, the number of students we must assess online during the testing window, and the increased times during which students will be assessed (PARCC will be administered in the spring and again at the end of the school year). These were not the requirements for the optional online administration of the Maryland School Assessment and High School Assessment. As a result, we need 20,000 new mobile devices for MCPS to comply with the state's PARCC online assessment requirements.

The Rollout Plan

Our goal is to operationalize the Strategic Technology Plan's core objective of anywhere, anytime access to collaborative learning for staff and students. To accomplish this, the plan is to deploy approximately 30,000 devices in Grades 3, 5, and 6 in the 2014–2015 school year. In future years, we will deploy computers to the next grade levels (Grades 4 and 7 in FY 2016) to ensure that as students articulate to the next grade level, they will continue to have access to these mobile learning technologies. At the high school level, the plan is to implement these technologies by content area across grade levels, beginning with the purchase of approximately 10,000 devices for social studies classes in the 2014–2015 school year.

For Grades 3 through 12, Chromebooks will be the primary device, while Android-based tablets will be the principal devices for Kindergarten through Grade 2. These devices will utilize mobile, cloud-based, and collaborative technologies to transform our classrooms. In addition to other mobile and web-based technologies, the initiative will leverage the power of the cloud-based Google Apps for Education platform to provide dynamic resources that promote effective communication and collaboration among students and staff. MCPS will use this platform to provide access to a rich set of tools and services that include online storage and web-based communication and collaboration applications. MCPS students and staff will be assigned secured accounts to the learning environment. Students and staff will be able to access their account through any web-enabled device using any mainstream web-browser. The assigned student and staff accounts will enable document sharing, collaborative work, and assessment opportunities in this cloud-based platform.

However, students will be restricted to sending and receiving messages only from other authorized MCPS account holders. This means that only authorized MCPS staff will have access to communicate with students. We are working with Google to ensure all precautions and configurations are enabled to protect the privacy and confidentiality of all student and staff information, and to restrict access to Google Apps for Education to students and staff in a closed and secure environment that is not accessible to anyone outside of MCPS. Furthermore, MCPS access to the Google Apps for Education platform is governed by Google's detailed privacy policy and security measures. MCPS is working with Google to ensure that this environment complies with MCPS standards, as well as applicable laws, including the *Family Educational Rights and Privacy Act* and the Children's Online Privacy Protection Act regulations.

Funding

The Tech Mod Project approved by the County Council in the FY 2015–2020 CIP and funding approved in the FY 2015 Operating Budget enable us to move forward with this important initiative. The cost of the 40,000 mobile devices that will be purchased this year is $15 million, which includes the cost of the devices, carts to secure the devices, software licenses, and an extended warranty. The County Council's funding of our technology initiative will not only support the purchase of mobile devices, but also will provide instructional software and resources for students, and provide software that enables teachers to support students and ensure

appropriate use of the technology. In addition, the Tech Mod Project funding is essential for making finance payments for prior year hardware expenditures; upgrading eight-year-old network printers that we have delayed replacing; enhancing key components of the telecommunications infrastructure required to support and integrate these mobile devices; replacing school servers; beginning the deployment of a virtualized desktop and application services solution that will help to extend the use of existing computing devices and support staff and student use of their own technology devices at our schools; and rolling out cloud-based access to Microsoft Office applications.

Funding this initiative is sustainable if we assume the County Council's continued support for the district's existing practice of using E-Rate reimbursements through the supplemental appropriation process and that we continue to receive the same level of funding in the operating budget. The County Council's approval of the Tech Mod Project assumed that in the first two years of the CIP, the Board of Education would request supplemental appropriations to expend E-Rate reimbursement funds to make up the difference between our request and the amount the County Council funded. The CIP in FY 2015 is $2.047 million less than our request and the CIP in FY 2016 is $3.0 million less than our request. For FY 2015, the E-Rate reimbursement is projected to be $2.040 million and $1.900 for FY 2016 through FY 2020. Again, the Council's expectation is MCPS will request supplemental appropriations of approximately $2 million to make up the difference.

In assessing the cost of this initiative, we also considered the ongoing cost to support this mobile technology. Since these devices are Internet appliances that connect to online and cloud-based software, the amount of support time and cost is expected to be reduced in comparison to the current infrastructure. In preparation for the shift to a greater use of mobile technology, we have partnered with the Service Employees Union Local 500 to develop a professional development program for the technology support staff. This program broadly focuses on the professional growth and development of these technical support staff, and includes professional learning opportunities that will strengthen the development of the skills required to effectively support our mobile learning environments.

Professional Learning and Supports

The rollout of new technology is aligned with and supports Curriculum 2.0. In June 2010, MCPS embarked on a transition to Curriculum 2.0 at the elementary school level beginning with kindergarten. Grades 4 and 5 teachers implemented Curriculum 2.0 in the 2013–2014 school year. This unique, integrated curriculum has been designed anticipating technology-rich learning communities that foster the creative and critical thinking skills and academic success skills needed to nurture lifelong learners. As a result, elementary schools are well positioned to begin using the new technology devices in instruction.

At the secondary level, the English/Language Arts curriculum has been revised and implementation is underway in Grades 6 through 12. CCSS was implemented in Algebra 1 during the 2013–2014 school year and Geometry and Math 6 will be implemented this school

year. Office of Curriculum and Instructional Programs staff already has started working to identify ways in which teachers will be supported to effectively integrate and infuse these technologies through the curriculum. In addition, central services staff are identifying new online instructional resources. In courses such as biology, Algebra 1, and geometry, these resources will be available to teachers and students and include text, photos, videos, assessments, and practice exercises. Teachers also will have the option to upload content, including their notes for students. Staff will collect feedback from teachers and evaluate the effectiveness of these new resources during the 2014–2015 school year.

The successful implementation of technology in the classroom requires a comprehensive, differentiated, and sustained plan for professional development and support. To that end, staff in several central services offices are collaborating on designing a variety of professional learning experiences and options on implementing high quality instructional practices that effectively integrate digital technologies and mobile devices in teaching and learning. Central services instructional specialists have begun to meet with Grades 3, 5, and 6 teachers and high school social studies teachers in schools scheduled for Tech Mod this summer. Through these meetings, teachers will be provided an orientation to this initiative and have an opportunity to explore these interactive, mobile technologies. In addition, teachers will be provided options for summer professional development and ongoing, job-embedded coaching supports that they can expect at the beginning of next school year.

Throughout the summer and next school year, school leaders will be using these technologies in their professional learning experiences. Working with the Office of Curriculum and Instructional Programs and the Office of School Support and Improvement, professional development sessions during Resource Teacher Week, the Montgomery County Education Association Curriculum Writing Academies, the Literacy and Leadership program, curriculum training, school library media programs, and the Principals' Curriculum Update meetings will include the use of these technologies to promote these districtwide initiatives. Further, collaboration with the Department of Instructional Leadership Support and the Leadership Development Unit is underway for professional learning experiences for staff development teachers, school leadership teams, and administrators.

Conclusion

We know that when technology is used effectively in learning, it supports students' engagement with complex, authentic lesson activities in reflective and collaborative learning environments. We are committed to providing our teachers with the professional learning opportunities that will enable them to use these mobile and collaborative technologies to differentiate and scaffold learning opportunities that meet the needs of all our students. Sustaining appropriate funding for the Tech Mod Project is essential to transform our learning environments for teaching and learning in the digital age.

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