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Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
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Learning on the Go Report for Aurora Public Schools

Dear Ms. Dortch:

We would like to thank the FCC Commissioners and staff for selecting Aurora Online High School to participate in the Learning on the Go pilot program. It is unfortunate that the Commission has decided to fund the pilot for only one year rather than continuing it for two or three years to allow the FCC to have a more complete data set to analyze. It is likely this decision will cause some of the programs to “shut their doors” after only one year due to lack of funding at the local level. We truly believe that alternative education and digital literacy is vital for the continued success of our children. Unlike many of the approved projects, our Online High School was in place prior to this program and will likely continue regardless of the loss of this vital funding source, though this decision could impact our future growth plans.

As required by DA 11-1181, enclosed is our interim report on the efficacy of our program. We hope the information will be informative to the Commission as it decides whether remote learning should be supported by the E-rate program in the years to come.

Project Benefits

(a) a description of how the wireless devices were integrated into the project's curriculum and objectives (including approximately how many times per week the wireless devices were used to access program materials remotely and how many wireless devices were used during this period of time);

Prior to APS Online's inclusion in the Learning on the Go pilot program the school had 148 students, one principal, and two instructors. Because of the success of our program and the Learning on the Go funding we have been able to increase the program to

include 212 students, one principal, one secretary, and four instructors.

We currently have 133 HP Netbook computers checked out for student use. All of the devices are configured with Verizon broadband cards that allow students to access their courses. Netbooks are furnished free of charge upon request by the student's family.

Students are required to log a minimum of 20 hours per week of online work to remain full time students in good standing at APS Online High School. Given the 133 students using the broadband-equipped computers provided by APS Online, there are more than 2,600 hours per week of online usage.

As explained in our original application for the pilot program, APS Online High School relies on Education 2020¹ for the design and sequence of the student learning. The following is an excerpt from the company's stated policy:

The e2020 Educational Model for Learning embeds the principles of Universal Design for Learning (UDL) in its foundational framework. e2020's team of highly-qualified teachers, instructional designers, and content-area experts prepares for and constructs unique course scopes and sequences by layering UDL principles with Quality Standards for Online Courses in accordance with the Southern Regional Education Board (SREB) and conducting research on state and national standards.

e2020 then designs each lesson with student-centered objectives that maximize the use of Bloom's Taxonomy of Learning Domains. Lessons are designed in order to provide the student with an optimal learning experience that is unique for each course. Students progress through the lesson with a series of activities such as, direct instruction videos by certified teachers; vocabulary instruction; interactive lab simulations; journals and essay writing; 21st century skill activities that include projects, design proposals, case studies, on-line content reading; and homework/practice before being formatively assessed with a quiz. Topic test and cumulative exam reviews are provided to reinforce mastery prior to students' taking summative assessments.

Benefits of using this model of learning include:

- Prescriptive, formative and summative assessments: Students receive randomized test items that are aligned to the lesson's objectives even after customized content changes are made.
- Individualized study plans: Create an optional prescriptive curriculum that only assigns the content that has not yet been mastered.
- Direct Instruction: A highly-qualified teacher in every lesson presents content in video-lecture segments and visual whiteboard displays.²

¹ Education2020 is a third party vendor that helps school districts provide core and elective instruction in a virtual school setting for students in grades 6-12. See www.education2020.com for additional information.

² E2020 provides video lectures taped by their highly skilled teachers, which are augmented by direct instruction from APS Online teachers.

- On-demand feedback: Students receive immediate feedback during activities and can track progress and performance on their home screen.
- eWriting and eNotes: Using the Six Traits of Writing rubric, writing and note-taking opportunities are integrated into each lesson.
- Integrated online content: Media-rich sites supplement additional content to apply concepts, engage learners and extend instruction.

In addition all content is customized to represent APS standard pacing guides for all classes. Guides are aligned to district curriculum and state content standards. More information regarding the benefits of the e2020 content development can be found at:

Course Structure: http://education2020.com/curriculum_course_structure.aspx

Platform Features: <http://education2020.com/platform.aspx>

Results: <http://education2020.com/results.aspx#research>

- (b) if available, a detailed summary of any data collected by the school or library on the project's outcomes and achievement of the project's goals, including usage of educational and research resources by students and library patrons and number of devices actually used;

From the beginning of the 2010 school year through February 1, 2012, APS Online students have completed 2,419 courses resulting in 604.75 credits being earned towards graduation³. In the 2010 school year 25 students graduated as a result of the program. To date 16 students have graduated in the 2011 school year with another 30 on pace to graduate by the spring of 2012. In the 20 hours each student spends on-line each week, they are expected to complete between 60 and 100 separate education activities, and their progress is tracked by the management software and the instructors.

- for schools, include any data collected regarding the impact on test scores or other measures of achievement levels for those students participating in the off-premises wireless project.

APS Online students taking the ACT test had a composite score 16.3 and the district average was 16.9. Given the fact that many of the APS Online students are some of our most disadvantaged students we are very proud of the fact that they scored nearly as well as students attending a traditional school. The charts below show how APS Online students fared in the Colorado Student Assessment Program (CSAP testing)⁴.

Reading

³ Aurora Public Schools is on a quarter system; therefore, each quarter earns a one-quarter of a credit for each class they take.

⁴ CSAP testing is only taken by the 9th and 10th grade students.

	Unsatisfactory	Partially Proficient	Proficient	Advanced
9 th graders (7 students)	0%	57%	43%	0%
10 th graders (17 students)	6%	41%	47%	0%

Writing

	Unsatisfactory	Partially Proficient	Proficient	Advanced
9 th graders (7 students)	0%	100%	0%	0%
10 th graders (17 students)	6%	76%	12%	0%

Math

	Unsatisfactory	Partially Proficient	Proficient	Advanced
9 th graders (7 students)	71%	14%	0%	14%
10 th graders (17 students)	53%	29%	18%	0%

- (c) if available, a copy of any results or summary of the results of any survey given to students, teachers, parents or library patrons to assess any aspects of the off-premises wireless project;

APS Online recently conducted a survey to assess student satisfaction and their reasons for choosing APS Online. Of the surveys returned 27% indicated the student would not be in school if it were not for the option to attend APS Online. APS Online's education was rated as better or much better than a traditional school in 67% of the surveys returned and 23% rated the education the same as a traditional school. Students were also asked why they chose APS Online and were given the ability to choose multiple reasons; 80% of the students cited family obligations and 60% cited outside employment as a reason for choosing APS Online.

Project Costs

- (a) an analysis of the per student or per patron cost of the off-premises connectivity;
- for schools, specify, by term used by the school (for example, by quarter or semester), the number of students and teachers involved or served as part of the project, the number of those students and teachers involved or served that were able to participate as a result of E-rate support, and, where appropriate, the number of students at each grade level using the wireless devices for Internet access for each specified term;

As explained above, our participation in the pilot program has provided discounted mobile broadband service to 133 netbooks. The mobile broadband has an associated cost of \$43 per unit or \$68,628 annually. The pilot program funding has, in part, allowed the program to grow from 148 students to 214 students. You will note that more students participate in the program than receive discounted broadband access. As explained in our original application, in order to keep costs down APS Online only provides broadband access to those students that do not have Internet connectivity available at home.

The chart below shows the number of students attending APS Online broken down by grade level.

Grade Level	Number of Students
9 th	7
10 th	33
11 th	65
12 th	109

Effectiveness of Protective Measures

- (a) a detailed description of the measures, including specific software or filtering mechanisms, that were taken to ensure compliance with the Children's Internet Protection Act as well as a description of measures that were taken to protect against waste, fraud and abuse; and

All APS students are subject to the Aurora Public Schools Technology Plan, which requires all APS Online students and parents to sign an appropriate Internet use policy statement in accordance with APS policy. This agreement is a district-wide document that requires students to use the district-provided equipment and resources for appropriate ends and prohibits students from accessing the Internet with district resources to engage in criminal or other inappropriate behaviors.

The District uses technology protection measures to block or filter access of visual depictions that are obscene, pornographic, and/or harmful to minors over the network. The District reserves the right to monitor users' online activities and to access, review, copy, and store or delete any electronic communication or files and disclose them to others as it deems necessary.

APS uses the FortiGate™ web filtering solution to help enforce its Internet Safety Policies. Below is information from the Fortinet web site⁵ that explains the various protection measures the solution offers:

Fortinet's ASIC-accelerated FortiGate™ multi-threat security systems enable educational institutions to secure their networks affordably without sacrificing the ease of access that students need for effective learning. They address the key network protection needs of educational institutions with real-time scanning of email, IM, Web and file transfer content at the network edge to block viruses, worms and other inappropriate and

⁵ See <http://www.fortinet.com/industries/education.html> for additional information.

malicious content. In addition, every FortiGate system includes built-in intrusion prevention, firewall, VPN, antivirus, Web content filtering, antispam, and traffic shaping functionality in one easy to install, maintain and update unit.

The available FortiManager™ and FortiAnalyzer™ centralized management and reporting appliances make it easy to secure thousands of desktops and laptops without overloading the IT budget or personnel. Extensive virtual domain and security zone capabilities enable administrators to craft policies specific to each department without sacrificing the performance of critical educational applications or access to necessary internal and external resources. And the CIPA-certified FortiGuard® Web Filtering Subscription Service helps schools and libraries attain compliance with HR4577.

- FortiGate systems provide cost-effective, comprehensive protection against threats, inappropriate content, and misuse of network resources without degrading performance of critical educational applications, network availability, or uptime.
- FortiGuard® Security Subscription Services provides continuous, automatic updates for antivirus/antimalware, intrusion prevention, Web filtering, and antispam functionality to keep educational institutions ahead of the latest threats.
- URL-filtering backed by industry-leading, CIPA-certified Web ratings database with over two billion rated pages offers comprehensive protection against malicious sites and inappropriate content.
- IM and P2P screening through traffic shaping and application control preserves network bandwidth and help control non-educational network usage.
- Easily-managed appliances with integrated, multi-threat protection reduce management burden and capital expenditures for lower TCO.
- FortiClient PC™ end-point security agents provide comprehensive, centrally-managed security for student personal computers and mobile laptops.
- Available FortiManager and FortiAnalyzer appliances ease management and help regulatory compliance with extensive logging and archiving capabilities.
- Extensive virtual domain and security zone capabilities for fine-grained control of network and application access (e.g., by department, by building, by room or floor, etc.).
- Simple per-device/unlimited-users licensing reduces costs.
- Any and all security functions available on every appliance for easy addition to existing solutions.

In addition to this robust control, users have no expectation of privacy regarding their use of district property, network and/or Internet access or files, including email. All APS computers used outside the APS Online Classroom are required to access the Internet through the APS Virtual Private Network (VPN) and are subject to the same filtering software used in other district schools and facilities.

The wireless cards in the netbook will not function unless the user authenticates through the APS VPN. Once authenticated through the VPN, the student's access to the Internet is subjected to the same filtering and firewall protections as a student accessing a computer from one of

Aurora's computer labs. If the user fails to authenticate through the APS VPN, they will not have Internet access.

We feel there is minimal risk of waste, fraud, or abuse given that all access must go through the district's filtered VPN. Additionally, APS Online has the right to monitor the student's use of the equipment to identify instances where the student may try to circumvent the controls put in place.

- (b) a detailed description of what, if any, issues arose in ensuring that the wireless devices were used only for educational purposes.

Aurora Online did have some limited instances of students accessing non-productive sites or materials. Unlike in a traditional environment with a teacher in the classroom it was somewhat challenging to identify these issues. To help mitigate this going forward we are now requiring students earn the right to spend more time at home. When a student first enters the program they are required to spend at least two hours a day at our physical location where they can be observed by our instructors. As the students demonstrate the ability to remain productive and on task they earn the right to come into the school less often, with a minimum of three hours per week.

Additionally, the management software allows instructors to review the time spent on activities and view the websites the student visits. We are also planning a more rigorous educational effort with our students and parents on appropriate and effective use of educational resources.

Lessons Learned

- (a) a description of any technical, operational, or administrative problems or issues associated with implementing the project (such as barriers in using the wireless devices or difficulties with the service) and a description of how those issues were addressed or are being addressed; and

One of the main challenges faced relates to access to our VPN. As it was originally set up, students were required to change their passwords every 30 days with each password containing upper and lower case letters, numbers, and special characters. It became very challenging for students to remember their passwords which resulted in an exorbitant number of calls to the help desk. To mitigate this problem we provided the students with static passwords that do not need to be changed.

Another challenge we face is that the students are very hard on the equipment. We are currently researching more durable devices that are still cost-effective. Yet another challenge is that students work as their schedules permit, which does not always coincide with the normal school day. From an instruction perspective, we have partially mitigated this by having teachers work alternating hours between 8:00am and 8:00pm. For after-hours technical support, the students rely on the instructors to resolve their issues and in most cases the instructors are able to resolve the issues.

- (b) a narrative of the lessons learned as a result of the off-premise wireless project (for example, based on what you learned from the project, how would you plan and implement your project differently if you were doing it over again?).

As explained above one of the lessons learned was that some students are not as productive as they could be when working remotely, which we have addressed by requiring students to earn the right to spend more time at home. Another challenge is that many of the parents are not technically literate and have a hard time ensuring their children are remaining on task and taking advantage of their opportunity. Having the parents being actively involved in their children's education is vital to the students' long-term success. We have addressed this by requiring parents and students to attend a two-day boot camp where they receive intense education on the equipment, the curriculum tools used, and how to effectively monitor the progress the student is making.

An additional lesson we learned is to adequately plan for the technical and instructional challenges that will be faced as the program is being ramped up. Ensuring technical and instructional support is available in off hours is vital to ensure the success of this type of program.

This concludes our interim report for the Learning on the Go Pilot Program. Again, we would like to thank the FCC Commissioners and staff for allowing APS Online to participate in the Learning on the Go Pilot Program.

If you have questions regarding our application, please contact our E-rate consultant Andy Easley using the contact information below:

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Sincerely,



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