2016-2019 DIGITAL LEARNING PLAN

Blue Mountain Union SD 21
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B M U MISSION STATEMENT

The Blue Mountain Union School mission is to develop citizens who:

RESPECT *others and themselves*

THINK *creatively, collaboratively and critically*

THRIVE *locally and globally*

PERSEVERE *through challenges*

UNLEASH THEIR POTENTIAL *by finding and using their voice*

This plan was developed by the following individuals serving on the BMU Technology Committee:

Emilie Knisley	Superintendent
Scott Blood	Principal
Kate Davie	Librarian
Todd Powers	Systems Administrator
John Munson	Technology Coordinator & Teacher
Kate Lester	Teacher
Colleen Rumsey	Teacher

This Digital Learning Plan was approved by the school board on June 15, 2016

Introduction

A Digital Learning Plan (formerly known as the Technology Plan) is not presently required at the federal level, as it previously was with the E-Rate and Title IID programs. However:

> "*the Vermont Agency of Education still sees tremendous value in having Supervisory Unions and Supervisory Districts create and turn in a three year plan for how technology will support learning. This will become one of the artifacts reviewed in the Education Quality Review process.*"[1]

The reason for this is simple; planning makes good sense. In technology you can go along almost indefinitely reacting to the daily challenges that arise, never knowing necessarily where you hope to go or knowing when you have arrived. A digital learning plan steers the process, and is instrumental in providing for a favorable outcome. We have clearly seen this to be the case at BMU, where we have had a technology plan in place for the past fifteen years. Also, it is entirely possible that a federal program in the future will reprise the required aspect of digital learning plans.

Blue Mountain Union is a unique educational environment serving the towns of Groton, Ryegate & Wells River. One of the best aspects of overseeing the technology at Blue Mountain is the fact that the entire district student and staff population resides under one roof. Maintaining the technology infrastructure, such as broadband access, local area and wireless networking, classroom troubleshooting, and on, is made easier by having the support staff housed in the same building, familiar with all installations and available for timely support.

Blue Mountain Union is also a rural district, somewhat isolated from other geographic areas of Vermont. As of March 2016, the pre-K through 12 population was 407 students and 56% of these students participated in the National School Lunch Program (NSLP). This presents certain socioeconomic challenges for our students, and access to technology - known as 'digital divide' - is chief amongst these. BMUSD continues to participate in the E-Rate program that reimburses schools and libraries telecommunication charges proportional to NSLP data.

The district presently contracts with Charter Business for fiber optic, synchronous broadband access of 50 Mb down/up speed, providing the backbone for our internet, voice and data services. The district also maintains facility-wide wireless network access for staff and students, as well as for the general public.

We are in the second year of a roll-out of a significant digital learning initiative: a one-to-one laptop program at the high school level. As of now, our freshman and sophomores, and high school faculty, all are in possession of a laptop, which they will keep for their high school tenure. At BMU this

1 http://education.vermont.gov/educational-technology/state-plan

is program of much potential, as the socio-economics of the district makes it likely that many of our high school students wouldn't otherwise have equal access to computers. This, however, necessitates that the district continue in its commitment to annually purchase laptops for each incoming freshman class.

In general, the state of digital learning is solid at Blue Mountain and heading in the right direction. Though there have been funding challenges in recent budget years resulting in such events as loss of a computer lab, lab monitors and the temporary inability to stay with a five year computer replacement plan; there have simultaneously been many steps taken in the right direction. The Digital Learning Plan is our vehicle for providing a reflective process and a means to an end. We have seen over the past fifteen years that our plan has been central in helping BMU attain such goals as:

- developing a technology curriculum, including direct instruction at the high school level with five courses offered, rotationally.
- implementing a server-based network.
- deployment and maintenance of 150+ computers, including the five year replacement schedule for computers
- addition of a full-time systems administrator
- integration of technology throughout BMU's classrooms
- providing staff professional development
- providing internet safety and media literacy training to students
- subscription to an internet content filtering service.
- operation of two computer labs, necessary for classroom access, direct instruction, and computerized testing (i.e. SBAC)
- development of a long term design plan for the library "Learning Commons"(2012-2015)
- upgrading of the school website and providing a 'content management system', which allows faculty & staff to have a web presence (2012-2015)
- student participation in distance learning and school partnering with VTVLC (2012-2015)
- installation of classroom multi-media equipment throughout the school (LCD projectors, document cameras and interactive whiteboards).

Goal 1: One-to-One Laptop Initiative

Blue Mountain has implemented a 1:1 computer program (school year 2014-2015) that provides students in their freshman year with a laptop computer. Presently we have laptops deployed in grades 9 &10, and we are looking at full implementation two years from now (9/17), and then continuing annually from there.

Conditional to the terms specified in a signed agreement (*see attached*), the laptop then remains with the student through their BMU high school career. The goals of the program include the following:

- The promotion of student engagement and enthusiasm for learning
- Increases in student computer literacy
- Abatement of 'Digital Divide' (i.e. addressing the issue of 'haves' and 'have nots' in terms of technology access - a known issue in our district)
- Preparation for the 21st century workplace
- Improvements in student writing

The laptops are the property of Blue Mountain, on loan to the student so long as the terms of the signed agreement are adhered to. Upon graduation, and only upon graduation at BMU, Blue Mountain will transfer ownership of the laptop to the student.

BMU, in compliance with the "Children's Internet Protection Act" (CIPA) provides internet content filtering on these laptops that meets the CIPA requirements. The filtering works both at school and at home. There is also an annual non-refundable fee of $25 per student for participation in the program.

Action Plan

BMU will continue to implement this program on an annual basis for the duration of this Digital Learning Plan. Periodic review of the effectiveness of the program will be carried out, with the guidance of the technology committee, and will include feedback from high school faculty and students.

Students and faculty will be provided with training, as needed, to ensure the proper and successful use of the laptops. The Systems Administrator is the designated BMU staff person who oversees the implementation and servicing of this program.

Budgeting

The 1:1 laptop initiative will continued to be funded through the general budget for the duration of this Digital Learning Plan.

Goal 2: Support of Classroom Technology Initiatives

BMU has invested heavily into classroom technology over the years. This includes providing school-wide wireless and wired internet access. This also includes classroom technology equipment, such as LCD projectors (29), interactive whiteboards (9), desktop computers, iPads, cameras (document, video & still), TV's, classroom response systems, and on.

Classrooms are also supported by having access to two computer labs (40 computers). The Library also has computers (8) and iPads (9) for classroom use. These are necessary for providing the copious access to technology that teachers and students need. The computer labs are also critical for direct instruction in technology (HS courses, grade school keyboarding), and testing (i.e. SBAC)

The continued procurement, upgrading and maintenance of this equipment and facilities are critical to the success of the modern classroom.

Action Plan

We will continue to work on providing multi-media equipment to each classroom. There still are a few of our classrooms that don't have this equipment available to them. Each year, to the extent that budgeting will allow, we will endeavor to add new classrooms, with the ultimate aim to have all of our classrooms possess appropriate access to multi-media equipment. The Technology Coordinator is the BMU staff person that manages the multi-media equipment in the building and will coordinate these efforts.

We will continue to service all of our classroom technology equipment. The Systems Administrator takes responsibility for computers and the network, and the Technology Coordinator takes responsibility for multi-media equipment (projectors, interactive whiteboards, cameras, etc.). This means keeping inventory on hand of perishables (e.g. LCD lamps, cables), managing licenses and warranty information, and maintaining service relationships with various vendors. This also means providing the necessary day to day technical support to all users, staff and students alike.

We will be trialing new Learning Management Software (Canvas) to evaluate the use of a 'blended learning' environment in our classrooms. This means the use of a specialized web-based portal for teacher and student interaction. The first use of this will be in John Barone's History class this upcoming 2016-2017 school year.

There is a possibility that before district consolidation occurs, it may be possible to leverage the fund balance to assist with our efforts at outfitting all of our classrooms with up-to-date multimedia equipment. In fact, our recent VT Agency of Education EQR Review stated very clearly that we, as a district, should continue to invest in classroom technology. There was an awareness during the review process that not all classrooms had equal or full access to up-to-date multimedia equipment. Attached are two addenda (addendum 1 & 2). Addendum 1 details where our present multimedia equipment is

installed, an Addendum 2 shows where we would install multimedia equipment upon making a large capital investment.

Budgeting

The BMU budget will be the source of all funding for the above initiatives. There may also be opportunities for funding through various grant sources, as there has been in the past. The large capital investment shown in Addendum 2 would total an estimated $25,000.

Goal 3: Implementation of the RUS Grant

BMU was awarded a grant from the USDA in 2014, which is just coming to fruition now. This is a RUS DLT (Rural Utilities Service Distance Learning & Telemedicine) grant entitled "Project IDEAL" (*Integrated Distance Education for All Learners),* which involves several participating Vermont school districts and educational units (e.g. Marlboro College, Vermont Agency of Education) organized into a consortium. This is a very large grant ($500,000), though Blue Mountain's share is to be around $34,000. This money will be dispersed, in the form of technology equipment (*see attached*) through the summer of 2016. This grant will be significant in assisting us with our distance learning objectives. Of course, there are strings attached and various objectives of the grant itself must be reported on and endeavored to be met.

Here is an excerpt taken from the grant application that gives an overview of the project:

"*Project IDEAL is innovative in its approach for engaging students in learning to achieve improved academic achievement. The participating schools have struggled with helping students meet the AYP goals for No Child Left Behind. Traditional methods and responses of changing curricula and bringing in experts have resulted in slow progress.*

By incorporating MinecraftEDU into core curricula, teachers will create a level of instruction that engages students in intellectually challenging, authentic and relevant assignments that foster student motivation and addresses multiple learning styles more effectively. Adding to this innovation will be the ability to share best practices and engage in real-time shared learning across sites.

Adding to the uniqueness of this learning strategy is the ability of classes to collaborate on long term projects across sites utilizing MinecraftEDU. An elementary class at two sites may be studying geography. Each class would have to recreate their town using resources such as maps, photographs, landmarks, road signs, etc. After creating an effective geographic representation using appropriate elements to demonstrate an understanding of relative location, direction, size, and shape of the community, each class would give a presentation to the other about their community. Over time they would expand their virtual world to include more communities,

perhaps eventually creating the state.

Project IDEAL will create access for students to participate in Vermont's recently passed Flexible Pathways legislation to provide opportunities for students to become college and career ready. The legislation provides for increased access to dual enrollment through the use of vouchers. The Statewide Dual Enrollment Program provides vouchers to take college courses and earn credits tuition-free. Each eligible student can take up to two courses. Combined with the Early College Program, a student could complete a full first year of college while still in high school. While dual enrollment is not new, the innovative application in this proposal is providing distance access to college courses and encouraging eligible students to take advantage of this opportunity to encourage continued pursuit of higher education and to lower the financial burden of college attendance." (p. 199)

Here are a few of the objectives of the grant:

- Teachers will collaborate on the development of curricula that embeds MinecraftEDU and can be delivered as a shared learning project in the distance learning environment across school sites. It will be operated in a secure cloud space accessible only by students and teachers.

- Students will experience a higher level of learning and show an improvement on assessment scores.

- Students will develop teamwork skills.

- Students will be taught using a variety of teaching strategies that incorporate different learning styles. Teachers will have professional development opportunities for growth and certification, such as graduate level classes and CEUs. This will include offerings through Marlboro College's Center for Graduate and Professional Studies, such as its MA in Teaching with Technology degree program.

- Students will have access to a broad range of courses currently unavailable to them such as foreign languages, advanced placement and advanced sciences. This will allow more students to take a complete schedule of rigorous courses rather than having to settle for what classes fit in to their schedule. Students will have access to content based on their interests and strengths

Action Plan

The annual reporting necessary for this grant will be completed by the Technology Coordinator. The implementation of the grant, which involves the installation of 16 computers (11 in the library and 5 in the VTVLC area) will be conducted by the grant vendors along with BMU's Tech Staff. The software involved in the grant will be installed and maintained by BMU Tech Staff.

Budgeting

No further budgeting should be necessary to attain this goal.

Goal 4: Continued Monitoring of our Student Use of Digital Resources Policies & Procedures

The use of student and staff digital resources is administered through two policies and procedures:

- Acceptable Use of Electronic Resources (2454 & 2454 PR)
- Cell Phone & Other Electronic Communication Devices (2455 & 2455 PR)

In general Blue Mountain provides for 'liberal' and relatively unrestricted access to digital devices, encouraging the use of such equipment to support and enrich the curriculum and to foster success of students in the global community. Of course all of this must occur within the context of existing federal and state law, as well as to meet our own district standards of acceptable use.

An ongoing challenge for acceptable use pertains specifically to student use of cell phones and similar handheld digital devices. The ubiquitous nature of handheld digital devices is still a relatively new phenomenon and figuring out how best to integrate this into an educational environment is very much a work in progress.

It is important to note that the use of cell phones and similar handheld digital devices in school is a privilege and not a right. There have been times when these devices have created very significant distractions to the learning environment at Blue Mountain. With this in mind it is important to monitor the use of these devices to determine how they can best peacefully co-exist within our overall educational objectives.

Action Plan

During the three years of this Digital Learning Plan, at the direction of the school principal, the Technology Committee, along with overall school faculty, will continue to monitor and reflect on the effectiveness of our various student use of digital resources policies.

A worthwhile event that we have held in the past has been a 'Middle School Media Literacy Day'. Our last was held in 2014 and it was quite successful. The literature says that if you are going to impact on student internet and digital device habits you need to start early. We will plan on holding another of these events within the time of this plan, and topics that we will explore will include internet safety, appropriate use of social media, update on school policies, and media literacy.

Budgeting

No further budgeting should be necessary to attain this goal.

Goal 5: Continued Explorations of STEM (science, technology, engineering & mathematics) Topics with Students

Taken from the U.S. Dept. of Education website:

"*All young people should be prepared to think deeply and to think well so that they have the chance to become the innovators, educators, researchers, and leaders who can solve the most pressing challenges facing our nation and our world, both today and tomorrow. But, right now, not enough of our youth have access to quality STEM learning opportunities and too few students see these disciplines as springboards for their careers*."

We recognize the importance of exposing all BMU students to STEM topics. The jobs of tomorrow will be deeply enmeshed with these topics. One good entrance point school wide for interjecting STEM into the curriculum is during the international "*Hour of Code*", which is an initiative that provides content for student and teacher use on STEM topics. This past school year the Technology Coordinator was able to work with five teachers on STEM topics using such resources as the OZOBOT mini-robot and www.code.org coding resources.

BMU is also in the second year of hosting a "Robotics & Coding Club" which has been quite successful with about a dozen students participating. This has included taking part in an annual robotics tournament.

Action Plan

This upcoming year (2016-2017) we are planning to commence in offering a high school course in robotics and coding. This will be a quarter long course held in the computer lab. This will require the purchasing of equipment and the providing of professional development for the teacher.

Through the duration of this Digital Learning Plan we will be continuing with our STEM efforts by continuing the Robotics & Coding Club, the "Hour of Code" classroom activities, and through the introduction of the new "Robotics & Coding" High School course.

The preliminary work to add formal STEM curricula in the form of a robotics & coding course has already begun. The appropriate classroom materials have been identified (VEX Robotics "Swept Away" Classroom Bundle). Professional development has been identified for the instructor through the Carnegie Mellon Robotics Academy. There will also need to be shelving and other organizational efforts made to control the inventory for the course, which consists of hundreds of items necessary for robot construction. The Technology Coordinator, the teacher of the robotics and coding course, will take the lead on these efforts.

Budgeting

The necessary money to create this course will hopefully be coming from, at least in part, from our partnership with VSAC. The remaining money will need to procured from the general budget, or other sources, as directed by BMU Administration.

Goal 6: Printing Resources & Electronic Sharing of Documents

Going forward, it is the goal of the district to a) enable more electronic sharing of digital documents, and b) reduce our printing costs. These goals are tied very much together; the more documents are shared electronically, the less the need to print them. We endeavor to improve upon this for both environmental and economic reasons. That said, the district is committed to continuing to provide printing services to staff and students, knowing that a 'paperless' society is certainly not possible at this time. All along, though, we will simultaneously be doing what we can to be moving towards significantly reduced paper use.

Action Plan

Taken altogether the purchasing, leasing, and maintaining of printers, along with the supplying of toner and paper, represents a major annual expense to the district. We will continue to explore ways to deploy printers in the most cost-effective manner, while simultaneously considering the efficiencies and convenience for staff and students involved.

Once we are fully deployed with the High School 1:1 laptop initiative, we will be in a position where digital documents should, by default, be shared electronically. Classrooms will be able to use Google Classroom and other web-resources for the sharing of documents.

Our school computer network also allows for much sharing of digital documents through the use of logical drives (e.g. S: Drive, P: Drive). We will continue to provide training to staff and students on how to best utilize these resources.

Evaluation

The evaluation process to reflect on the effectiveness of this Digital Learning Plan will be undertaken primarily through the ongoing work of the standing Technology Committee. This committee consists of:

Librarian (Co-chairman)
Technology Coordinator (Co-chairman)
Principal
Systems Administrator
Teachers, various

Given that the Digital Learning Plan is an official document of BMU it will also be subject to review by any willing party, such as the School Board (note, the organization of the School Board due to ACT 46 will be in flux during the three year duration of this plan) or the state of Vermont's EQR Team.

Respectfully Submitted,

John Munson, Co-chairperson of the BMU Technology Committee

Kate Davie, Co-chairperson of the BMU Technology Committee

Addendum 1: Current Multimedia

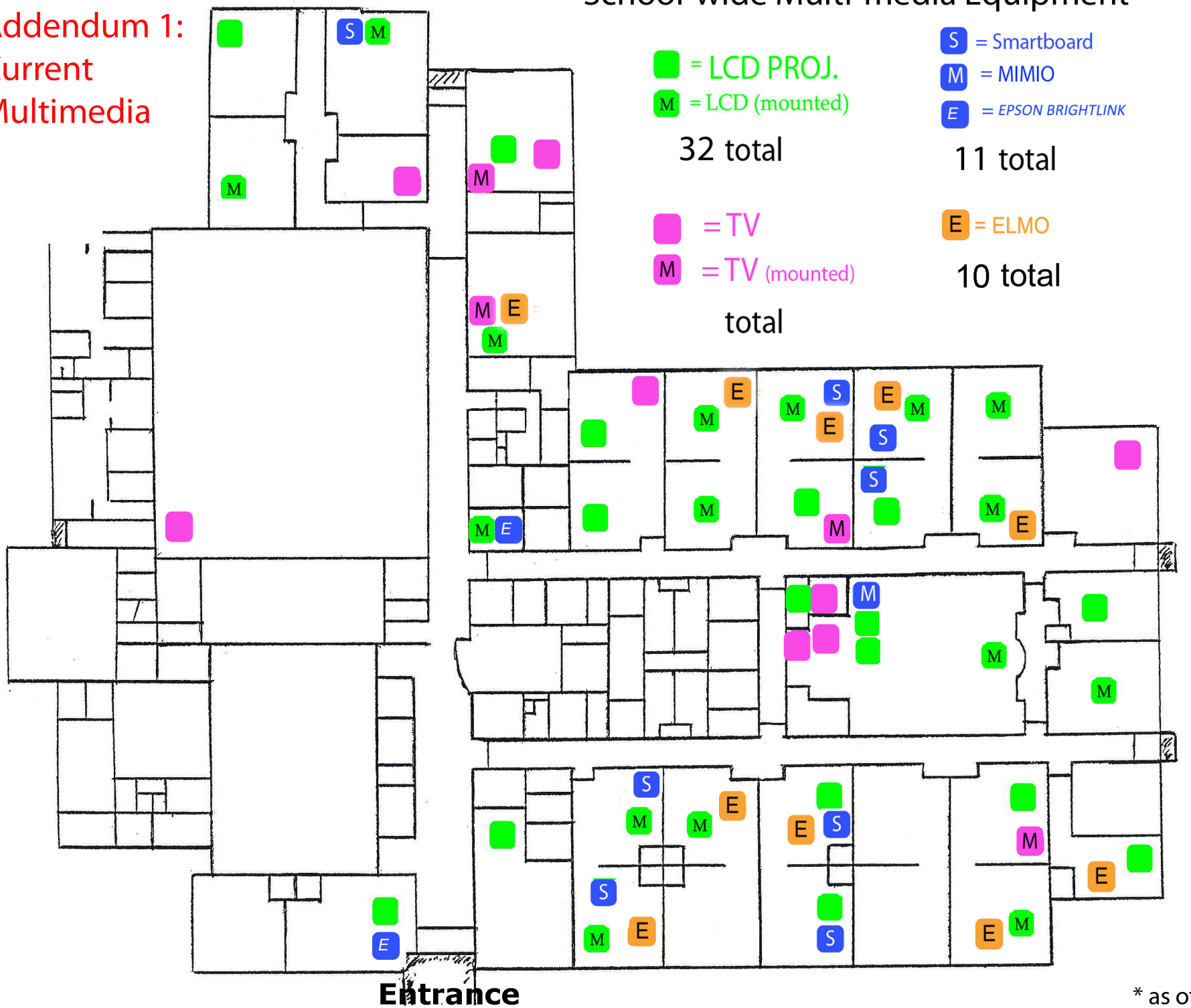
School-wide Multi-media Equipment *

= LCD PROJ.
M = LCD (mounted)
32 total

S = Smartboard
M = MIMIO
E = EPSON BRIGHTLINK
11 total

= TV
M = TV (mounted)
total

E = ELMO
10 total



* as of 5/2016

Addendum 2: Proposed Multimedia

School-wide Multi-media Equipment *

= LCD PROJ.

M = LCD (mounted)

32 total

= TV

M = TV (mounted)

total

S = Smartboard

M = MIMIO

E = EPSON BRIGHTLINK

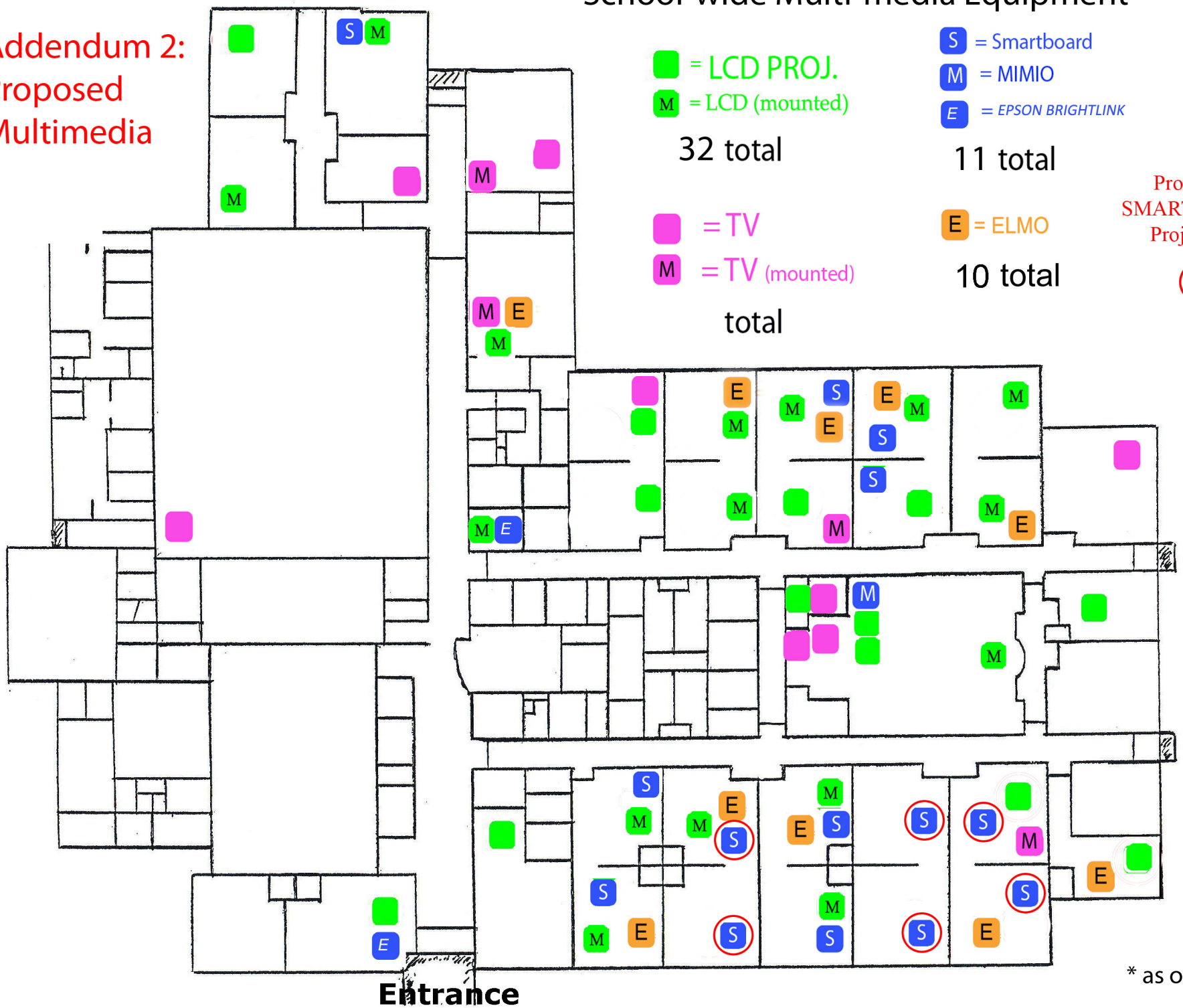
11 total

E = ELMO

10 total

Proposed SMART Boards/ Projectors

S



* as of 5/2016