From Airfields to Amphitheaters: Mount Greylock High School Outdoor Placemaking Project

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PROJECT GOALS

This report proposes several possible site plans for outdoor spaces at the renovated high school that will encourage students to engage with their environment and connect classroom learning with the outdoors. We explored the possibilities for four main spaces: the outdoor seating area for lunch, the bus loop area where students pass through before and after school, the open space behind the new school, and an outdoor classroom space. In addition, Principal Mary MacDonald is interested in outdoor features that will help students with disabilities improve their motor skills, such as an adult-sized swing set. In order to learn what features would most benefit a student body and faculty team hoping to spend more time outdoors, we conducted student and faculty focus groups. We also administered online surveys. After collecting input from the Mount Greylock community, we have merged our ideas with their input and the guidance received from our client, Stephanie Boyd (Green Building Committee and Conservation Committee) in order to construct site plan recommendations for the four aforementioned spaces.

BACKGROUND

The site of Mount Greylock Regional High School (MGRHS) was once an airfield and farm owned by the Cole family. It was purchased in 1959 for construction of a new regional high school serving Lanesborough and Williamstown. An additional wing was built in 1968 to accommodate a growing student body (approx. 800 to over 1300 enrolled students), all on one level. Repairs and additions since have included the greenhouse (donated by Williams College Biology department in 1998), conversion of some old airplane hangar space to storage, and bathroom/roof work. Overall, little has been done to update MGRHS since its establishment in 1960. Despite being “well maintained” throughout its life according to the 2016 Mount Greylock Regional School Addition/Renovation Summary Report, the school’s long life has naturally led to deteriorating and dangerous conditions for the students and staff that work there.

These failing interior conditions are well documented and plentiful. In addition, the student population has recently shrunk, leaving the school, built to serve 1200 students, oversized for the 600 it currently serves. MGRHS has poor ventilation and heating systems that detract from the air quality of the school in all seasons. Two faculty members contracted sarcoidosis in 2005. The existing building is structurally outdated and unsound. With failing boilers, a locker room ceiling that collapsed in 2009, and a sprawling layout that prevents collaborative learning and obstructs the application of new technologies, MGRHS has proved itself deserving of a renovation in the past decade. A 2005 report by four students in Williams College’s Environmental Planning Workshop class suggested that a complete rebuilding project (other than the auditorium and gymnasium) would be the most feasible and cost-effective option moving forward.

This 2005 report helped push forward a successful effort to renovate the school that persevered through a decade of contentious deliberations. MGRHS sought the financial support of the Massachusetts School Building Authority (MSBA) in 2011. The school was granted eligibility in 2013 and underwent a feasibility study in 2014. It was then identified as the “highest priority for the town” in Williamstown’s 2015 Annual Report, signifying the widespread bureaucratic support for the project within the town. In January of 2016, the
MSBA granted $33.2 million for a rebuilding project in 2016. A vote in both Lanesborough and Williamstown then approved the $64.8 million school project in March of that same year, demonstrating that the majority of citizens were in favor of the new school. The final project includes a relocation of the main school campus within the site and a complete rebuilding of all interior structures other than the auditorium and gymnasium. Preliminary construction began in the summer of 2016, and the full project aims to finish in the fall of 2018.

Background studies like the 2005 Environmental Planning Workshop report and the 2016 MGRHS Addition/Renovation Summary Report largely focus on the fact that “several spaces indoors need significant improvement” and hope for creating indoor spaces that better match the needs of the future MGRHS student. There is little mentioned about outdoor spaces. The Massachusetts School Building Authority reported in its feasibility study that current students often enjoy the outdoors, with science classes that conduct courses about the “flora, fauna and pond water…specimens on Mt. Greylock’s property,” art classes that “sketch and occasionally paint en plein air,” and fitness classes “and lifetime sports” that “take place outdoors in all seasons.” However, these accounts in the feasibility study do not adequately match the descriptions from school administrators. Principal Mary MacDonald described that the school is locked all day for security reasons, and students cannot even eat outside. The courtyard remains largely unused. Sports teams are left with inadequate shading and little outdoor equipment, and few students who are not athletes ever use the outdoor space at all. Classes that wish to learn outside must often sit in the sun, and there are no formal outdoor classroom areas that are truly inviting for classes.

With this information in mind, this project will focus on the outdoor spaces that were never fully enumerated upon in existing background reports of the MGRHS building. Despite the conflicting interpretations of outdoor space at MGRHS, we aim to understand how the school’s lands are currently used. Following this, we plan outdoor sites at the new school that best serve the widest population of students and faculty possible.

SITE DESCRIPTION

MGRHS is located on a 114-acre lot of land at 1781 Cold Spring Road off of Route 7. The site overlooks the valley and the Mount Greylock State Reservation. The new three-story building will be built toward the front of the property to allow students and faculty to take advantage of these beautiful views. Much of the site consists of open fields and wooded trails, a testament to the fact that MGRHS is a very athletic school that highly values their outdoor spaces. In the past, however, views from the school have been dominated by the oversized parking lot directly in front of the main entrance. The renovation will shift the school to the right of the parking lot, improving the aesthetic of the school from both the inside and outside. This movement also allows for improved circulation of school buses, which are now separated from the student/faculty parking area by a sidewalk and a middle green space (Figure 1).

The outdoor cafeteria and bus loop spaces appear along the front of the building, while our proposed outdoor classroom could be placed in the space currently labeled “Future Amphitheater” (Figure 3). The currently proposed outdoor lunch area is mostly paved and is partially screened from the parking lot by three trees. The proposed waiting area currently consists of a low stone wall for students to sit on (Figure 2). The outdoor
fitness and life skills equipment would ideally be placed close enough to the building to be easily accessible, but not so close that it provides a distraction for students in classrooms.

Figure 1: Aerial view of the plan for the new Mount Greylock Regional High School building, to be completed in the fall of 2018.
Enlarged Main Entry/Drop-Off

Figure 2: Plan of the renovated front entrance and bus loop waiting area.

Enlarged Courtyard/Amphitheater

Figure 3: Plan of example amphitheater (proposed but dropped from the renovation budget).


SCHOOL COMMUNITY PROFILE

Neighbors of MGRHS include Sweetwood/Sweet Brook nursing home, Paradise Farms, and some single-family residences. The school itself now serves grades 7-12 with a student body of about 600 total. Most students travel to MGRHS by school bus or car. A small number bike in good weather, but most cannot walk safely or conveniently to school. MGRHS is a highly reputable public school with >93% graduation rate and >90% of graduates seeking college education. Both the 2005 environmental planning building assessment and the MSBA feasibility study stress the need for structural updates to serve the school’s contemporary needs and goals.

MGRHS students are very tightly scheduled. Our focus is outdoor learning opportunities and exposure, so the relevant times of their nine-period day are lunch and Directed Study (just 30 min each), as well as pick-up/drop-off times and after-school activities like athletics. Currently, lunch is the one non-academic time during the school day when students are allowed to go outside since Directed Study periods are often packed with academic responsibilities. We determined, in part through our faculty and student focus groups, that there is an interest in and opportunity for outdoor classwork at MGRHS beyond just Physical Education classes.

Opportunities for increased student access to the outdoors may be related to other things such as senior privileges or upkeep of the garden. Seniors once had the ‘privilege’ of eating lunch in the Japanese courtyard, but it is still to be determined what type of senior privileges may come with the new building and outdoor spaces. The MSBA study claims that local produce, “including vegetables from the school garden,” is used in cafeteria meals. We were unable to confirm whether this is currently the case or whether it is a future goal.

A strong emphasis on student physical fitness runs through multiple descriptions of the school’s culture. However, the homemade paint can-and-cement barbells we saw used by athletes during our site visits seem incongruous with the “fitness room complete with exercise equipment and weight-training equipment…” described by the MSBA. A need for more multi-use and storage spaces for athletics was mentioned in the MSBA study as well, so we sought to keep this goal in mind throughout our project.

MGRHS also has extensive special education programs. Meetings with the special education faculty and staff as well as with the students themselves helped us determine how the new outdoor spaces can support these programs. The main special education categories at MGRHS are: academic/homework support (full-spectrum), community-based program (includes ‘life skills’ and pre-vocational training), adaptive art and music, adaptive physical education, target programs (i.e. MCAS remediation), occupational/speech therapy, and a post-disciplinary student support center. The Life Skills program at MGRHS combines extended math, reading, and writing lessons with additional time for learning social skills and integrating students into the community with individualized education plans. In addition to making all spaces ADA accessible, we have attempted to incorporate features in each design that can truly be used and enjoyed by students of all abilities.

\[^1\] Unfortunately, transportation is not something we are likely to be able to affect in the scope of our project.
APPLICABLE LAWS AND REGULATIONS

It is critical that any outdoor space created at the new MGRHS be compliant with the Americans with Disabilities Act (ADA) Standards for Accessible Design published by the Department of Justice in 2010. These ADA guidelines are accounted for by the state guidelines put forth by the Massachusetts Architectural Access Board.

The standards outlined by MAAB’s 521 CMR (Code of Massachusetts Regulations) include a variety of guidelines for spacing and creating pathways that are handicap-accessible. Basic takeaways from 521 CMR that will guide our suggestions for MGRHS’s new outdoor spaces are summarized in Table 1 below. Additionally, Figure 4 depicts the standard dimensions for turns (if included in pathways or access aisles) expected by the 521 CMR guidelines.

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<thead>
<tr>
<th>Feature</th>
<th>521 CMR Standards</th>
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<tbody>
<tr>
<td>Walking aisles/paths</td>
<td>Access aisles must be 36” in width to accommodate wheelchairs</td>
</tr>
<tr>
<td>Open space/clear floor space</td>
<td>30” x 38” at minimum to accommodate wheelchair movement through open floor space</td>
</tr>
<tr>
<td>Seating at tables/counters</td>
<td>If seating for disabled persons is provided at tables or counters, knee spaces must be at least 27” deep</td>
</tr>
<tr>
<td>Table/counter height</td>
<td>Tops of accessible tables must be from 28” to 34” off of the finished floor or ground</td>
</tr>
<tr>
<td>Movement between levels</td>
<td>Handicap accessible ramps or elevators must be provided when stairs are present to accommodate wheelchairs</td>
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Table 1: Summary of accessibility guidelines relevant to planning outdoor spaces

Figure 4: Illustration of dimensions expected by the ADA/521 CMR guidelines to ensure handicap accessibility on all turning paths/aisles.
Aside from ensuring our proposed plans comply with ADA/521 CMR accessibility codes, our project is not particularly limited by a specific law or zoning code. The new MGRHS building itself has already been approved by the Williamstown Planning Board and Zoning Board. If our proposed outdoor space designs come to fruition and are included in later renovations of the school, each space design would need to be presented for zoning board approval at that point. For example, if the school administration would like to pursue our suggestion for a new basketball hoop by the outdoor cafeteria, the Zoning Board would likely need to approve that feature as it is a potential matter of safety. Basic landscaping, on the other hand, does not need Zoning Board approval.

The school itself is also LEED Silver certified by the U.S. Green Building Council. Due to this status and our own interest in creating sustainable spaces, our designs will be conscious of the environment and create as little impact as possible on the natural space surrounding the school. In fact, we hope to increase the connection between the students and their outdoor world through our placemaking suggestions for their new school’s outdoor spaces.

Ultimately, the largest limitation we must work with in this project is the lack of time students and faculty at MGRHS have to be outside. They do not have an open campus, and nearly every door into or out of the school is locked during the school day except for the front entrance doors. Teachers complain that going outside simply distracts their students and that class periods are too short anyway to deal with the complicated logistics of getting a class situated outside. Students who miss the first bus after school must wait for the next bus at 5:15, but they must remain inside the library until that bus departs. According to the school’s 2016-2017 handbook, students caught “leaving school property, loitering inside or outside (unsupervised on grounds or gym area), or otherwise not entering the school building may receive consequences.” All students staying after school must be supervised at all times by a coach or faculty member. These regulations of school use are meant to comply with the attendance policies by the state, but they also prevent students from enjoying the outdoors or grounds during more unstructured time (like Directed Study). The near complete lockdown of the school during the day is not a particular guideline set forth by the town or the state, but rather, it is a choice made for the sake of safety on behalf of the school’s administration. However, Principal Mary MacDonald hopes to create longer class periods after the renovations have occurred and hopes to increase privileges for upperclassmen seeking to spend more time outdoors. With these regulations in mind, we designed spaces in this project that are safe, productive areas for intellectual and social stimulation close to the school building itself.
CASE STUDIES

Why go outside at school?

Scientific research has shown that simply being in nature and experiencing the outdoors benefits mental health. One recent study found that spending time in a natural setting reduces rumination (brooding, self-referential thought associated with depression and similar mental illness), emphasizing the importance of exposure to natural environments amidst stressful daily life (Bratman et al. 2015). In the context of education specifically, a survey of special education programs in the UK showed that the more recent philosophy of integrating, rather than segregating, students with special physical/mental/academic needs can be furthered through outdoor education. Researchers observed improved group cohesion and reduced tension and anxiety among students who had classes and time to play/socialize outdoors during the academic day (Farnham et al. 1997). Additionally, there is substantial literature supporting the potential for increasing ecological literacy through shifting education outdoors. David Orr’s Earth in Mind reflects on this at length, advocating that we leverage human biophilic tendencies to instill a sense of stewardship in youth, who will then associate their education not only with vocational value, but with a reverence and responsibility for natural environments (Orr 1994). Finally, the University of Chicago conducted a study on the efficacy of the outdoor classrooms constructed through the Boston Schoolyard Initiative. They noted improved student behavior, attitude, and interest in the subjects being taught as a result of outdoor learning.

Examples:

While designing these spaces, we looked to examples of successful integration of outdoor learning and outdoor fun at similar schools (comparable size, northeast region/climate, public, etc.) that also created their spaces on a budget. Founded in 1995, the Boston Schoolyard Initiative emphasizes “transforming schoolyards into centers of play, learning, and community,” and has done so at 88 schools to date. Since 2007, an outdoor classroom has been part of every design. Even though their focus has been on elementary schools, many of the practices outlined in their outdoor classroom user’s guide are helpful for the particulars of moving forward with such a project. The before and after photos of some of the spaces were also good inspiration for our fitness area and classroom designs (Figure 5).
<table>
<thead>
<tr>
<th>School</th>
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<tr>
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<td><img src="image1" alt="Before" /></td>
<td><img src="image2" alt="After" /></td>
</tr>
<tr>
<td>Mason Pilot Elementary</td>
<td><img src="image3" alt="Before" /></td>
<td><img src="image4" alt="After" /></td>
</tr>
<tr>
<td>Dever Elementary</td>
<td><img src="image5" alt="Before" /></td>
<td><img src="image6" alt="After" /></td>
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**Figure 5:** A comparison of before/after shots from 3 Boston-area schools: Patrick Lyndon Elementary School, Samuel W. Mason Pilot Elementary School, and Paul A. Dever Elementary.
Outdoor education additions are much more common at elementary schools due to the emphasis on playtime, and at colleges and universities due to ease of implementation (more funding, fewer scheduling constraints, a larger student body of mainly adults, etc.). The designs that result also reflect this reality, with those targeted to younger audiences focusing on play and hands-on learning, and those targeted to adults being almost exclusively seminar style amphitheaters. Two examples are the outdoor classrooms at Green Mountain College (VT) and Swarthmore College (PA):

![Figure 6: Outdoor classroom setups at Green Mountain College in Vermont (left) and Swarthmore College in Pennsylvania (right).](image)

Taking these factors into account, we therefore relied more on student and faculty input and our own knowledge of environmental planning than on case studies when making suggestions for MGRHS outdoor spaces, which should serve adolescents and their teachers. However, we did find one high school in Illinois where students in an environmental science class proposed, fundraised for, and built their own permanent outdoor classroom. They utilized benches from elsewhere in the school to reduce costs and sourced materials locally for those they constructed. Because they did not have access to a shed, they even built their own low-cost board storage area during the construction phase.

![Figure 7: Outdoor classroom at Olympia High School in Stanford, Illinois (from ohs.Olympia.org).](image)
Additionally, we used case studies to inform how we might make flexible seating structures in MGRHS’s outdoor cafeteria and bus loop area. People like to move their chairs and tables, whether to sit in larger groups or to adjust one’s own position. However, to avoid the issue of theft and disappearance of items put out for common use, we looked into eating areas at various high schools to see how other institutions have avoided this issue (Figure 8). One school in Ripon, Wisconsin features a modern style of picnic table and another school in Eau Claire, Wisconsin provides multiple sizes and arrangements of fixed seating to suit all needs. We also looked into non-athletic entertainment and alternative seating that could feature in the lunch space.

Figure 8: Case studies in outdoor cafeterias. A: outdoor cafeteria from Ripon High School in Ripon, Wisconsin. B: natural chess table that could be incorporated into an outdoor game space at MGRHS. C: easy to “grow” grass Terra brand chairs seen at parks in the United Kingdom and the Netherlands have cardboard internal structures covered in compact dirt and grass seed. D: outdoor cafeteria in Eau Claire, Wisconsin that features a variety of seating options.
RESEARCH FINDINGS

Survey/Interview Instruments:
We created a student survey which was distributed during student focus group sessions and a faculty survey which was given to faculty members at a faculty meeting in November. Based on the initial focus groups, we refined our student survey to distribute electronically in an attempt to reach more of the student body. See Appendix A for all survey questions.

Student Findings:
A. Student Focus Groups
In the student focus groups, we gathered feedback from 73 students (35% seniors, 8% juniors, 13% sophomores, 25% freshmen, and 19% seventh graders). Focus groups were chosen based on teachers volunteering their class times, so we had four focus groups in total. Classes we visited included one Life Skills class, one Advanced Placement Environmental Science class, and two Directed Study periods. We also met with the Envirothon group, an extracurricular organization of students at MGRHS interested in environmental science. The gender distribution was fairly even across surveyed groups (55% female, 45% male). Data were collected on October 28th, October 30th, November 1st, and November 9th.

Our first round of student questionnaires and focus group brainstorming largely supported our hypotheses about the current reality of outdoor spaces at MGRHS and what students want and need going forward. Most students are involved in at least one athletic extracurricular that involves outdoor time, but typically not during the school day. Over 90% of students reported going outside during or after school, and this was mainly during their brief 30 minute lunch period. Seniors are allowed to spend the whole period outside, while younger classes may finish their lunch first and then play outside for the remaining time. The outdoor features currently available to them during this lunch break are three picnic tables and a quarter of a basketball court with one rusty basketball hoop. These are popular commodities, and the students who choose to go outside during lunch expressed interest in improving them. Even students who do not currently go outside cited lack of seating and shelter as a primary reason for their current disinterest in going outside during their lunch period. Overall, students liked the idea of an outdoor seating area for lunchtime and made thoughtful, practical suggestions for its improvement. Students seemed to be fans of grass chairs in any of the spaces, but they thought that outside the cafeteria and/or larger open space behind the school would be best suited for them since the chairs would get the most use there during the school day.

Another issue expressed by students and faculty is a lack of time to spend outside. Faculty input was important in this regard because we learned that a classroom space has to be convenient and practical for teachers to hold class there, while students identified many basic features that are currently barriers to having more than just PE class outside. These include benches/chairs and desk/table space, which would have to be either sheltered, weather proof, or easily movable. Attention to ease of access, in terms of internal circulation (sidewalks, hallways, doors, and traffic), was framed by the MGRHS students and faculty as a key aspect for any successful outdoor classroom.
While no one would mind having a nicer bus loop area to wait in after school, it seemed to be the lowest priority for students in their written responses. A fair number of students wait for the late bus or other rides and would appreciate more shelter from the elements as well as seating. An idea brought up in discussions of both the bus loop and cafeteria areas was the addition of charging stations. Students need places to charge their phones during down time, since they move around the rest of the day and may need to communicate with parents, etc. However, Principal MacDonald will obviously need to make the final decision about whether that is an appropriate feature to provide for students.

Finally, students showed an impressive awareness of the importance of integrating built spaces into their natural surroundings. Many focus groups made a point of including shade trees and garden areas or “shrubbery” in their designs of each specific space. They also thought creatively about what features would bring different groups or classes to a particular space, and they identified the benefit of an outdoor (or proximally accessible) drinking water fountain if those spaces are going to be more developed. A few students came up with ideas for communal art installations such as murals, stained glass, and a painting wall for anyone at all to “express themselves.” While execution will depend heavily on school rules and logistics, the student body’s attention to aesthetics and community building is valuable.

The other space we sought feedback for was the large open space and exposed courtyard that will remain in the footprint of the new building. This space will require more feedback from faculty, the principal, and our client, though we did rely on the Life Skills Directed Study focus group to help us address what skill-improving features that could go in the open space. Some sort of playground and/or outdoor fitness equipment was a popular request across middle and high school students. The Life Skills students must feel welcomed into the outdoor fitness area to facilitate a vital point of social interaction between groups.

Appendix A shows the results from the student survey distributed during the focus groups. These results showed that the majority of students value outside time and would appreciate improvements and access to each of the four spaces we mentioned. After this preliminary information from the focus groups, we modified our questions into a more complete online survey that was distributed to the whole student body. The online survey received 25 responses. From these answers, we were able to draw some important conclusions about ideas we had begun to form during our focus group sessions.

B. Student Online Survey

Of the students who took the online survey, 96% said they went outside, most regularly for lunch and Physical Education. Other classes rarely went outside. If they did, it was infrequent. The largest number of students chose activities and new facilities in the open space as the most important outdoor feature, with the outdoor classroom and outdoor eating area as close second choices. In the open space where the old building will be torn down, students were most interested in fitness equipment, a playground, and more trails/access to pond. There was medium interest for a meditation/yoga area. The least popular features for this area were a vegetable garden, more trees, and a gazebo. Based on some interest that we heard during focus groups, we decided to include a couple questions about a garden in the online survey. Although the students on the online survey didn’t rank
a garden as high priority, 54% said they would be willing to take care of one, but that due to busy schedules they would only be able to volunteer time about once a month. Although there is definitely interest in a garden, having one would require a dedicated program to maintain it, which is not within the scope of this project.

Figure 9: Student survey results indicating the outdoor eating area and outdoor classroom areas to be priority spaces closely followed by the open space. The least important space for the surveyed students was the bus loop area.

When asked what arrangement they preferred for an outdoor classroom, the majority picked a large round table with chairs (as opposed to an amphitheater or pergola). When given space to add in their own suggestions for an outdoor classroom, students listed comfortable chairs, trees/nature views, and a water fountain.

For an outdoor eating area, students generally wanted movable chairs more than movable tables and shade. Trees and charging station for devices were less important to them in this space. The feature that received the most interest was a new basketball hoop, which many students rated as the most important addition to their lunch area. Ideas that students wrote in themselves included well-labeled trash and recycling containers, speakers for music, and a clock (with which to keep track of their short lunch break).
In the bus loop area, students mostly wanted shelter from the elements and benches to sit on after school.

Faculty Findings:
We were given 30 minutes of the Faculty Meeting on November 9th to present our project to the faculty and ask for their input. There were 41 out of 52 faculty members present, including Physical Education teachers. After splitting into 3 smaller groups, we facilitated discussions to hear faculty thoughts on being able to take their students outside more often. At the end, they were asked to fill out a survey, which provided more exact metrics. Overall, 64% of teachers said they currently take their classes outside, ranging from ‘very often’ for classes such as science and P.E. to ‘only on special occasions’ for classes like English. The teachers who do not take their classes outside cited as reasons lack of time, discouragement from the administration, and distractions to students. 82% of the teachers surveyed said they would like to take their classes outside more often, and 90% said they would use an outdoor classroom if one existed. 42% said they would use an outdoor classroom once a semester, and 37% said they would use it at least once a month. 18% said they would use it every week.

With regards to their students, teachers thought that students would most benefit from a new outdoor eating area, and rated an outdoor classroom as the second most important new feature. Many faculty members also acknowledged that students need more play equipment to use during their short recess after lunch. Faculty members also wanted the outdoor classroom space to be multi-use and thus effective for different types of classes and performances. Many teachers liked the idea of a round-table layout for the outdoor classroom to facilitate discussions and wanted a whiteboard. Faculty members wanted an outdoor classroom to have few distractions for students but still be pleasant to be in with comfortable seating arrangements.

We were also interested in knowing about how we could improve outdoor use for the teachers themselves. The only time that teachers have to go outside is during lunch (similar to their students!). 61% of teachers said they did not currently eat lunch outside, citing reasons such as a lack of time, seating, shade, and student-free space (although some of the teachers expressed interest in eating with students, not separate from them). 95% of teachers said they would like to eat outside.
Figure 10: Faculty survey results indicating that faculty perceive the outdoor eating area for students to be the most important space at the new MGRHS, followed by an outdoor classroom, bus loop area, and then the open space additions.

FISCAL/ECONOMIC FACTORS

Three funding sources that Mount Greylock is utilizing for the construction of the new school and other school amenities include the Massachusetts School Building Authority (MSBA), the towns of Williamstown and Lanesborough, and Williams College. For various reasons (to be discussed), these sources are not well equipped to fund improvement of outdoor spaces, such as the designs we propose, in the near future. The application process to receive funding from the MSBA is a long, drawn-out process that was already completed once to obtain funding for the construction of the new school. The likelihood of being granted additional funds after a second application is low. Additionally, if money is received from another source to pay for construction that the MSBA has already committed to pay for, the MSBA will withdraw the equivalent portion of the funds. Therefore, transferring MSBA funds to develop outdoor spaces is not an option. Regarding the towns of Williamstown and Lanesborough, the process of receiving funds is also a long process that involves going to several town meetings. The recent award of funds for the new school’s construction lowers the likelihood the school will receive additional funds for non-emergency construction. Williams College is already donating a capital gift to fund the development of the school’s parking lot, lights and sounds for its theater, and other projects, so receiving another capital gift in the near future is unlikely.

While the three sources mentioned above do not hold much promise for funding, the following sources may be considered:
**Lowe’s Toolbox for Education Program**  
Award size: $2,000 to $5,000  
Description:  
The home improvement and appliance retail chain Lowe’s offers grants ranging from $2,000 to $5,000 per school for up to 1,000 public schools per year for school improvement projects. Eligible candidates include “any individual public/charter K-12 school or non-profit group associated with that public/charter K-12 school.” Funding is given preference to projects that have a permanent effect, such as facility improvement or landscaping, and/or facilitate parent involvement and build community spirit. A relevant restriction is that only 10% of an award may be used for “outside resources such as labor, installation, consultation and delivery.”  
  
Following registration of the school in the grant program’s database, schools may submit an application for the current application cycle. Typically, there are two grant cycles per school year, one in the fall and one in the spring. This school year, the fall 2016 deadline was September 26, 2016. The spring 2017 deadline has not been announced yet. Applications are capped off at 1500 per cycle. If an application for funding is denied, applicants must wait 12 months before submitting a revised application. Winners of funds may apply again for future projects, but only after 12 months have passed since their award.

**Project Learning Tree GreenWorks!**  
Award Size: Up to $1,000  
Description:  
The GreenWorks! Grants offered by Project Learning Tree offers up to $1,000 to schools and youth organizations that wish to implement an environmental service learning project “that links classroom learning to the real world.” Particular emphasis is placed on student leadership of and involvement in the proposed project. Eligible project proposals must: “incorporate service learning, exemplify student voice, involve at least one community partner, secure at least 50% matched funds (in-kind acceptable), and be completed in one year.” Examples of possible projects include establishing outdoor classrooms and school gardens or implementing recycling programs.  
  
The annual application deadline is September 30th, and funding is allocated in December. Before submitting an application, applicants must attend a Project Learning Tree training session either online or in person.

**AAD Shade Structure Grant Program**  
Award Size: Up to $8,000  
Description:  
The American Academy of Dermatology (AAD) Shade Structure Grant Program awards up to $8,000 to public schools and non-profit organizations to construct permanent shade structures for areas unprotected from the sun. Example areas include playgrounds, pools, or recreation spaces. Eligible applicants must be non-profit organizations, including schools, that provide programs and education to children and teenagers 18 years and younger.
Applicants must have the recommendation of an AAD member dermatologist, provide evidence that their organization is committed to sun safety, and propose shade structure that meets the requirements put out by the AAD.

The Lorrie Otto Seeds for Education Grant Program
Award Size: $100 to $500
Description:
The national non-profit Wild Ones awards $100 to $500 each year to schools, nature centers, and other non-profit learning institutions through its Lorrie Otto Seeds for Education Grant Program. Applicants must submit a project proposal that enhances students’ appreciation for nature using native plants, emphasizes student and volunteer involvement in all phases of project development, results in the use of native plants, and facilitates education concerning native plants. Examples of projects include wildflower gardens, rainwater gardens, and groves of trees or shrubs that serve as bird habitat.

Electronic applications are due by October 15th of the year prior to the grant year. Award recipients are notified by February 15th of the grant year. Recipients are restricted in spending their awards solely to the purchase of native plants and seed for the grant-award year. Recipients are also eligible for discounts on seeds and plants sold by SFE Nursery Partners.

SEE Fund - Sustaining Educational Excellence
Award Size: $100 to $2,500
Description:
The Berkshire Taconic Community Foundation awards $100 to $2,500 to students, school personnel and community members for projects that “provide students with challenging, engaging curriculum, enhance the love of learning, promote responsible citizenship, [and] stimulate intellectual and creative endeavors.”

The annual deadline to apply is April 15th. Grant money cannot be used to replace public fund for the school district. Additionally, the fund is intended to cover direct costs of the project instead of salaries. Thus, priority is given to proposals that rely on volunteers and draws on other means of support. Multi-year funding is a possibility. Grants may be contingent on obtaining matching funds if this will help the project succeed.

Williamstown Community Chest
Award Size: $1,000 to $25,000
Description:
The Williamstown Community Chest has recently received a land bequest from the estate of Mary and Henry Flynt. A portion of the bequest has been set aside to be distributed annually as grants ranging from $1,000 to $25,000. Proposals must “relate to the maintenance or improvement of the quality of life of the residents of Williamstown, defined broadly.” The first application deadline was on September 15th, 2016. Future deadlines have not been announced yet. Awards are determined on a rolling basis. The application can be found here:
http://williamstowncommunitychest.org/files/2016/07/FlyntGrantApplication_WCC.pdf
Community Preservation Act and Community Preservation Trust Fund
Award Size: Unspecified
Description:
The Community Preservation Act (CPA) is a Massachusetts program adopted to help “communities preserve open space and historic sites, create affordable housing, and develop outdoor recreational facilities.” The program is based on an opt-in model in which communities may vote via ballot referendum to create a local Community Preservation Fund that draws its funds from taxes on local real estate. A statewide Community Preservation Trust Fund distributes additional funds to communities that have adopted the CPA proportional to their locally raised funds.
Williamstown adopted the CPA on May 14, 2002. In 2016, $217,280 was raised locally and $63,219 was distributed from the Trust Fund. To apply for funds, an application must be submitted to the local Community Preservation Committee. Applications are considered on the basis of qualification according to CPA regulations, merit, and affordability. If a majority of the Community Preservation Committee supports the proposal, it will be passed onto the town Selectboard for review and then onto the Annual Town Meeting in May for a vote. If the project proposal obtains a majority vote at the Annual Town Meeting, the project will be funded. Other relevant criteria can be found on the application.

Williams College Office of Corporate and Foundation Relations, Mary Ellen Czerniak
Description:
Another possible source of funding from Williams College is through the Office of Corporate and Foundation Relations. This office seeks out funding from foundations, corporations, and governmental agencies whose interests match programs at Williams. If this project was planned as a collaboration between Williams College students—such as for an experiential learning project during the school year, winter study, or summer—and MGRHS students, the Office of Corporate and Foundation Relations may be able to assist in finding a donor to fund the project. Mary Ellen Czerniak is the current director. If MGRHS would like to pursue a partnership or receive more detailed information, representatives must contact the Office of Corporate and Foundation Relations directly.
RECOMMENDATIONS AND DESIGNS

**Bus Loop Area:**

This area is located at the front of the new school outside of the main entrance. It will serve as a transitional space for students before and after school. The bus loop runs directly past this waiting area and cars can drive up with ease to drop off students in the morning and pick them up after school. Because the average student spends little time here each day, the bus loop area is not the most important outdoor space to the student body. In fact, 56.3% of students ranked this as the least important site to them in our student focus group surveys, and no student ranked it as the most important site. Thus, this site is our lowest priority renovation spot and would require the least amount of fiscal and manual effort to implement our relatively simple suggestions.

Some surveyed students expressed a desire to see a “bigger” pick up/drop off space that was “closer to the school entrance” and made it “easier to pick up” students after school. The most common suggestions were:

1. Shelter
2. Benches/improved seating
3. More trees
4. Vending machines

These factors are largely being accounted for in the new building plan already. The waiting area is much larger and stretches nearly the entire length of the school’s new academic wing. There are 5 - 7 new trees being planted alongside the school’s facade. The new plan already features an accessibility ramp and a stone wall that serves as seating (Figure 9). However, we suggest two additional recycled plastic benches to be placed in this site to provide a more comfortable seating setting than the stone wall that allows for students to

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Figure 11: Stone wall seating planned for school entrance area.

Figure 12: Planned outdoor shelter above school entrance.
enjoy the natural shade of the trees. A formal sheltered overhang is planned for the school’s front doors, seen in Figure 10. Thus, providing benches beneath the planned trees will allow for natural shelters in warm weather. We recommend benches from SchoolOutfitters.com made from recycled plastic. In cold or rainy weather, students may wait inside the entrance area of the school.

Figure 13: Example of a recycled plastic bench from SchoolOutfitters.com for the bus loop area.

While an outdoor vending machine is a fun idea, it is not economical given the fact that there will be a vending machine for students in the new MGRHS school building. After all, students likely will not be waiting for extended periods of time in this space. From our interactions with Mount Greylock students, we have learned that most students spend time after school in the library if they wait for the 5:15 bus. In fact, it is currently school policy for students to wait in the library under adult supervision. Most likely, a similar policy will continue to limit the amount of time students spend lingering in the new transitional bus loop space. A vending machine directly in this transitional area would also mar the aesthetic appearance of the school’s front entrance. Because students spend so little time in this transitional space, maintaining an aesthetically welcoming space for students, faculty, and visitors should be prioritized to maximize the benefits of this space for a wider group of users.

*Bus loop area total cost: $751*

- 2 6’ recycled plastic benches: $652
  - 1 bench from SchoolOutfitters.com: $326.88
- Shipping for benches: $99
Outdoor Cafeteria:

The area outside of the cafeteria in the new building is going to be built as a patio/terrace area on the southwest-facing front of the school. The current plan does not include any shade structures, which are a necessity. Even though the weather is not always nice in New England, students want to go outside and still be comfortable on the days when it is hot and sunny. A retractable awning that extends from the cafeteria wall/roof is the best option because it will provide enough shelter to allow students to eat outside even if it is raining, and it will cover more surface area than shade sails (triangular or rectangular pieces of weather-proof synthetic fabric that are anchored at four points). For the other corner of the patio area, the space could have one or two triangular shade sails. Anchor points for shade sails can be on buildings, but generally need to be augmented by a few free-standing posts. The feasibility of this depends on whether posts can be put into the ground beyond the patio area. Retractable awnings can be attached to the building or can
be free-standing structures, which would give more flexibility for where tables can be placed in the space.

Apart from shade, the addition that students were most excited about in a lunch area was a basketball hoop. The current rusty basketball hoop is on the far side of the existing building, and the hoop will either be taken down or end up too far from the new building to be of any use. Since the basketball hoop was such a valuable feature for the majority of students, we suggest that two new hoops be installed as close to the lunch area as possible. One potential location is to the left of the fire access road, and another is a bit to the west, above the fork of the access road. Since many students wanted to use the basketball hoop, we would also recommend other outdoor games that require minimal equipment and setup. These could include tetherball, four-square, a box ball court, and a chess table that can be used for assorted board games. There should also be a small storage shed or bin on this patio area for balls and games to be stored. Based on the desire for post-lunch play reported in our surveys, we think these features would be very popular.

For seating in the approximately 90x50 foot patio area, we recommend tables of different sizes with benches attached. Surveyed students requested movable tables and chairs so they could rearrange chairs to sit with friends. However, the location of the patio area at the front of the school requires that furniture be difficult to remove to prevent theft. It should be an acceptable compromise to have attached tables and benches as long as the tables are of different sizes to accommodate various social arrangements. It is also important that seats be comfortable, so they shouldn’t be made of metal (too cold) or stone. The long rectangular picnic tables that are currently outside of the school can be moved to the patio area. New picnic tables can be bought to augment this supply and maximize the seating capacity of the patio. One possibility are recycled plastic picnic tables from PicnicFurniture.com that seat six and also come in a wheelchair accessible option (Figure 15). Teachers are of course also welcome to use the outdoor lunch area, but they could also use the North-facing outdoor classroom space (currently being built) as lunch seating.

![Figure 15: Examples of recycled plastic outdoor picnic tables, including an ADA wheelchair accessible table, from PicnicFurniture.com.](image-url)
Students and teachers liked the idea of grass chairs in the green spaces adjacent to the patio. Grass chairs are simply cardboard frames filled with dirt and covered in grass seeds to form a small hill shaped like a chair. Terra!shop by Studio Nucleo sells the frame kits online, but they are incredibly expensive (from $330 for simplest design). However, they also sell the pattern for the cardboard frame, which is only $36. If a woodshop or environmental science class wanted to take on the project, they could easily design their own custom frames for grass chairs or benches and build the earthen seating themselves. Grass seating could be built under the trees in the green areas where students could read and socialize. Lastly, well-marked trash and recycling bins are a necessity in the outdoor cafeteria space. Although the cost estimate for the outdoor cafeteria design is on the high end (almost $9,000), we think that some of the site design elements could use repurposed items in order to lower the price. The most expensive items on the budget for the lunch area were the tables and the two basketball hoops. Lightly used basketball hoops might be donated by or purchased cheaply from community members whose children have grown up. The tables that we chose included six new recycled plastic tables and 3 of the long wooden tables currently at the school. If the school has more tables in storage, or bought other used ones, no new tables would be needed and the price of the outdoor cafeteria would drop by $5,190.

**Outdoor cafeteria total cost: $8,986**

- 9 picnic tables: $7,150
  - 3 existing rectangular picnic tables
  - 3 hexagonal picnic tables from Picnicfurniture.com: $885 each
    - Model: BIFP1020
  - 4 square four-person tables from BYOplayground.com: $845 each
    - 1 of the 4 tables will be a designated chess table
    - Model: 4’ Beveled Square Recycled Table
- 2 basketball hoops: $1300
  - One basketball hoop: $200 in ground + $450 installation fee
    - Model: Pro Dunk Hoops Connecticut In-Ground Installed Hoop
- 1 ball/game supply storage chest: $60
  - Walmart.com
    - Model: Ziploc 4-Piece Large Deep Weathertight Storage Box Set
- 2 retractable 12’x10’ awnings : $380
  - 1 retractable awning from Sears.com: $190
    - Model: MCombo 12x10 Ft Manual Retractable Patio Deck Awning Sunshade Shelter Outdoor Canopy Brown
- 6 grass chairs for reading/socializing: $36 for a single design that can be replicated
  - Terra! Shop on Nucleo.to
- 1 in-ground tetherball game: $60
  - Hearthsong.com
    - Model: Deluxe Heavy-Duty Backyard Tetherball Game
Figure 16: Our design for the outdoor cafeteria space, which includes multiple options for seating as well as two basketball hoops and game tables.

Open Space:

The site where the school currently stands will be demolished, except for the gymnasium, the auditorium, and the Japanese courtyard. The remaining cleared ground has enormous potential to benefit the community of MGRHS. As such, we are making recommendations for seating and recreation in the space. Relevant constraints on the space include the possible construction of an overflow parking lot, a Nordic ski storage shed, and a storage shed for facilities.
Through our focus groups and surveys, we received considerable feedback that students would like more seating. Therefore, we are recommending moving two of the already existing picnic tables to the open space to both satisfy the student demand and to save money. Additionally, our surveys and focus groups revealed that there is a high demand for outdoor exercise/recreational facilities. Therefore, we are proposing a fitness area with a variety of outdoor fitness apparatuses, including an elliptical machine, a multi-station, a fitness bench, and a fitness power tower. We also recommend installing a four-person swing set as well as an ADA-accessible swing set (“2-seater”). In order to allow wheelchair access to the ADA accessible swing-set, a stone-dust path connecting the main road to the fitness area as well as rubber flooring beneath the swing-set will need to be installed.

Another low-cost feature that students requested were outdoor hammocks. We thought this would be a very natural addition to the space since there will be already existing trees in the open space.

Figure 17: Outdoor fitness equipment in use. A: Outdoor ellipticals. B: Outdoor exercise equipment (similar to our suggested Power Tower) in China, demonstrating its applicability to users of all ages. C: ADA Accessible swing set, which is included in our design.
Open space total cost: **$10,910**

**Note:** These cost estimates do not include installation costs.

- 1 outdoor elliptical machine: $339.41
  - Walmart.com
    - Model: Stamina Outdoor Fitness Rider
- 1 outdoor fitness multi-station: $159.98
  - Walmart.com
    - Model: Stamina Outdoor Fitness Multi-Use Station
- 1 outdoor fitness bench: $198.50
  - Walmart.com
    - Model: Stamina Outdoor Fitness Bench
- 1 outdoor fitness power tower: $263.75
  - Walmart.com
    - Model: Stamina Outdoor Fitness Power Tower
- 1 heavy duty swing-set with 4 seats: $2,305
  - Terraboundsolutions.com
    - Model: 12’ high four seater
- 1 ADA accessible swing-set with 2 seats: $2,846
  - SpecialNeedsPlaygroundEquipment.com
    - Model: ADA Swing Set - 1 Seat and 1 Platform
- 2 picnic tables: $0
  - Use existing picnic tables
- 2 rope hammocks: $108.22
  - 1 rope hammock from Hayneedle.com: $54.11
    - Model: Island Bay Northshore Large Rope Single Hammock
- 1,440 square feet of recycled tire flooring: $3,787.20
  - $2.63 per square foot from Rubber Flooring Inc.
    - Model: Flagstone Rubber Pavers
- 70 feet of stone dust path: $700
  - $10 per square foot from AmericanTrails.org
Figure 18: Our design for the outdoor open space behind the new school, including hammocks and an outdoor fitness zone that takes into consideration the likelihood of a overflow parking lot being built behind the school.
OUTDOOR CLASSROOM ANALYSIS

Because the outdoor classroom was overall the most widely desired space and had the widest variety of suggestions for its design, we have formulated four options for the outdoor classroom space at the new high school. There is already one permanent outdoor classroom being built on the new campus, but its design and placement are already set in stone (red circle on Figure 20). The planned outdoor classroom is on the north side of the building, meaning that it will be cast in shadow. This will pose difficulties for warmth and lighting. The planned outdoor classroom is also directly below the three-storied academic wing being built, which will cause distractions for students working inside—a major problem with outdoor classroom spaces according to faculty feedback. Thus, it would be beneficial for students and faculty eager to take their classes outside to use the west-facing space circled in yellow in Figure 20 as an outdoor classroom. A classroom facing west is more optimal for natural lighting, and its distance from the academic wing would ensure that classes inside are not distracted by the students having class outside.

Ultimately, a second outdoor classroom would allow for multiple classes to go outside at the same time, which is likely considering the overwhelming desire to go outside expressed by both students and faculty in our surveys. The classroom already in the plans, as seen in Figure 21, is quite simple and perhaps only suitable for classes grounded in
discussion. Providing a second outdoor classroom space would add flexibility to the kinds of courses that MGRHS faculty can teach outside. We present four options for this second outdoor classroom space that each provide different benefits to factors like multi-use potential, aesthetic worth, and ability to connect Mounties to their outdoor environment more purposefully.

We suggest an outdoor water fountain in this space regardless of what classroom option the MGRHS administration decides to pursue. There is currently no outdoor water fountain at the school, and we perceive a source of fresh drinking water to be critical for the health and focus of students at work or at play. However, because we do not know the layout of the property’s water line system, we cannot suggest where specifically this fountain should go or provide a cost estimate.

Figure 20: Aerial schematic of the renovated MGRHS campus, with a red circle around the north-facing outdoor classroom space currently being built into the plan. Our suggestions pertain to the options for an additional classroom space facing west (shown in yellow).
Figure 21: Design of the north-facing outdoor classroom space currently being built into the MGRHS renovation. The design is limited and features a simple semi-circle stone bench that could double as an outdoor eating space for faculty.

Figure 22: Picture of the West-facing space currently designated as “Future Amphitheater” on the site plan schematic. This image shows the grading of the terrain with an adult human for scale. This site will be the space we use for our suggestions involving a second outdoor classroom in addition to the north-facing classroom being built.
Option 1: No additional outdoor classroom beyond the one originally planned

The first design option we propose is maintaining the status quo. This means that the site designated for the second outdoor classroom will remain unused. This leaves the school with one remaining outdoor classroom on its north side. If minimal improvements are desired, then additions to the space may include native trees or shrubbery to enhance the space's beauty, as well as pollinator beds adjacent to the emergency paths in the space. Casual seating in the form of grass chairs may be an option, too. A winding path through the area has the potential to turn the space into a pleasant area for students and faculty alike to de-stress and appreciate the view of the mountains. Due to the minimal amount of new construction, Option 1 is the most fiscally conservative option.

Option 1 total cost: $3,055
- 270 feet of stone dust path: $2,700
  - $10 per foot from AmericanTrails.org
- 1 lb. of flower seeds: $49.70
  - Gloriosa Seeds from CheapSeeds.com
- 3 dogwood trees: $180 - $240
  - One dogwood tree ranges from $60 to $80 from Fast-Growing-Trees.com
- 9 bushes: $63
  - 1 bush from Lowe's: $6.98
- 1 water fountain: unknown location or price at the time of report's publication

Figure 23: Outdoor classroom option 1 design schematic
Option 2: Flexible second outdoor classroom

The second option for our outdoor classroom space would be to keep the current outdoor classroom on its north side as is and then convert the second outdoor classroom space into a flexible classroom with movable features.

More efficient for moving around a space than separate seats and tables are weather-hardy chairs with attached personal desks. The desks can be folded up to ensure easy stacking and storage of these chairs when not in use. Using these chairs provides more flexibility in the kinds of classes that can be taught in the second outdoor classroom and the types of activities it can be used for. The storage unit will also hold the moving chalkboard/whiteboard that can be stored away for safekeeping when not in use (or kept out of the way if a lesson does not require a chalkboard).

We also propose using shade sails to keep the area well-shaded when necessary. Shade sails are inexpensive to install and maintain compared to a traditional wall-mounted awning, and they can be free-standing without interrupting the flow of the space. Shade sails also allow for more flexibility in the kinds of arrangements students can make—they may choose to sit both inside and outside of the shade and are not obligated to sit near the wall (where an awning might be mounted).

Option 2 proposes an outdoor classroom more flexible in the kinds of classes and activities that can use the space than the previous two alternatives. However, it comes with the challenge of coordinating adequate storage spaces.

**Option 2 total cost: $4,345**

- 50 foot stone dust path: $500
- $10 per square foot from AmericanTrails.org
- 30 outdoor folding chairs with collapsible arm desk: $1,349.70
  - WebstaurantStore.com
    - Model: National Public Seating TA82L Left Tablet Desk Arm for Melody Stack Chair: $44.99 each
- Shipping for chairs: $100.37
- 2 triangular shade sails: $59.98
  - One 16’x16’x16’ sun sail in beige: $29.99 from Windscreen4less
  - One 16’x16’x16’ sun sail in rust red: $29.99 from Windscreen4less
- 6 pole systems for free-standing shade sail installment: $333.78
  - One pole system: $55.63 from The Home Depot
    - Model: S&K 1.9 in. D x 1.9 in. W Round Pole
- Storage shed for chairs and classroom supplies: $478.44
- Hayneedle.com
  - Model: 7’x10’
- Rolling aluminum framed blackboard/whiteboard: $385.38
- Luxor
  - Model: Luxor Mobile White Double Sided 72W” x 40H” Reversible Board
- 80 feet of buffer hedge: $637
  - Standard 3 gallon privet-planted hedge (cost estimated by Countryside Landscaping in Williamstown): $24.50 for one plant with a 3 foot diameter
- 50 foot stone dust path to classroom space: $500
  - $10 per square foot from AmericanTrails.org
- 1 water fountain: unknown location or price at the time of report’s publication

Figure 25: Outdoor classroom option 2 design schematic, including a classroom with flexible features to ensure multi-use access and easy storage.
Option 3: Permanent second classroom

This option adds another permanent outdoor classroom space in addition to the permanent classroom that will be built on the north side of the school. This second classroom will be on the back side of the school in an open west-facing courtyard. For Option 3, we propose two concentric circles of tables with benches on the outer edge. The inner table will be a solid wooden circular table with benches around half, and the outer table will form a “U” or near ring around the inner table. Students will face toward the opening of the outer table where the teacher will stand at a movable blackboard or podium area. A table of this shape would likely need to be custom built, probably out of wood. A potentially cheaper alternative design could feature the outer table as a “U” with squared edges, so that three long (6’) tables can be placed together with a smaller 3’x3’ square table in the center. We were unable to estimate the cost for this type of table because we are unfamiliar with local contractors. However, a very rough estimate from Bruce Decoteau (Senior Project Manager at Facilities at Williams College) priced custom-made tables of this design at a total of $8,000-$10,000. Decoteau’s preliminary search also found tables similar to our design online at Worthington Direct.

The permanent seating (tables and benches won’t be moved/stored) in Option 3 should be paired with a permanent shade structure. We recommend a freestanding retractable pergola awning. This type of permanent frame still allows the shading material to be drawn back in winter or when it is otherwise unnecessary. In order to minimize distractions, we suggest a hedge between the classroom area and the path on the right side of the courtyard to block the view of people circulating from the gymnasium. Two small flowering trees (such as Little Poncho Dwarf Dogwood or Pink Dogwood) should be placed behind the sitting area for visual interest and to incorporate more natural elements into the brick courtyard. A stone dust path (ADA accessible) from the two doors that open into the courtyard should lead to the opening of the circular table, cutting a path through the hedge. The left side of the courtyard will house a storage shed that will hold the movable chalkboard, podium, markers, and other supplies requested by teachers.

Option 3 total cost: $13,200-$15,200
- 50 foot stone dust path: $500
  - $10 per square foot from AmericanTrails.org
- Rolling aluminum framed blackboard/whiteboard: $385.38
  - Luxor
    - Model: Luxor Mobile White Double Sided 72W" x 40H" Reversible Board
- 80 feet long buffer hedge: $637
  - Standard 3 gallon privet-planted hedge (cost estimated by Countryside Landscaping in Williamstown): $24.50 for one plant with a 3 foot diameter
- Storage shed for blackboard and clipboards: $456.25
  - Hayneedle.com
    - Model: Arrow Shed Yardsaver 4 x 7 ft. Shed
- 2 dogwood trees: $120 - $160
  - One dogwood tree ranges from $60 to $80 from Fast-Growing-Trees.com
- Freestanding retractable pergola awning: $3,000
  - Average Joe’s Pergola Depot
- Model: 17’ x 19’ Retractable Canopy for Freestanding Pergola
- Custom-built table: About $8,000-$10,000 (based on very rough estimate from Bruce Decoteau)
- 1 water fountain: unknown location or price at the time of report’s publication

**Figure 26:** Outdoor classroom Option 3 design schematic, including permanent tables and benches.

**Option 4: Build an amphitheater as the second outdoor classroom**

The final option we propose is an amphitheater-style space that can be used as an outdoor classroom as well as for performances, talks, and other gatherings. This is the most complex option, but would cater to the requests of many students and faculty who wanted
to see a multi-use space in addition to the ‘classroom’ already featured in the plan (Figure 20, 21). As with the other options that involve creating a second classroom, a hedge buffer would divide the space to leave room for gym classes to run circuits in and out of the building without disrupting a class using the outdoor classroom. For Option 4, we suggest a crescent-shaped hill with three tiers of grass step-seating leading down to a stone dust ‘stage’ with a gentle slope off the back. This design is more expensive than the first three alternatives, but this compact dirt-and-grass hill would be cheaper than a traditional stone-lined amphitheater (perhaps like the one originally cut from the building plan). Our proposed design features a ramp that splits from the path and swoops around the stage to allow wheelchair access to the bottom tier of the amphitheater. An affordable option for writing surfaces is personal clipboards stored in the shed with other classroom materials accessible only by teachers. A fancier option would be adding custom-built tabletops—either individual side desks or whole benches—that fold down and out of the way when not in use. This could optimize the multi-use function of the space, but is the least financially feasible option, at least for now. Therefore the custom-built tabletop option is not included in the cost estimate. Shade and shelter are the final two elements needed. For this design, we recommend shade sails if anything, as the space will most likely not be used as a classroom in rain or snow.

Option 4 is notable for its extreme versatility and potential community benefits. Therefore it should at least be kept as an option for the future, perhaps once feedback from use of the north-facing classroom is available. With seating for nearly thirty people, this venue could host plays and other performances by Mount Greylock students, as well as local and visiting theaters and artists (e.g. Minerva and the Williamstown Theatre Festival). The grass amphitheater could be used heavily during the summer, especially if the space were eventually furnished with access to bathroom facilities. The many potential benefits, including community integration, that such a design could facilitate at less than the cost of a traditional amphitheater justify further investigation into funding and construction feasibility.

Bruce Decoteau, senior project manager at Williams College Facilities, and Kris Bradner of Birchwood Design firm were tremendously helpful in assessing the rough cost estimates for materials and construction of Option 4. Far more specific research for a proper design should be done, keeping in mind all users of the space beyond students. One such adjustment might be to shape the hill steps with the most seating on ground level rather than at the top. Finally, maintenance of this space must be discussed with current grounds and facilities staff at the school and factored into the feasibility budget.
Option 4 total cost: ≤ $15,000

- Rolling aluminum framed blackboard/whiteboard: $385.38
  - Luxor
    - Model: Luxor Mobile White Double Sided 72W" x 40H" Reversible Board
- Storage shed for blackboard and clipboards: $456.25
  - Hayneedle.com
    - Model: Arrow Shed Yardsaver 4 x 7 ft. Shed
- 30 recycled hardwood clipboards: $47.05
  - 1 pack of 6 clipboards from Shoplet.com: $9.41
    - Model: Universal Clipboard 1/2" Capacity
- Hill/steps materials, transport, seeding, potential grading: roughly $12,000
  - Quoted by Bruce Decoteau, Senior Project Manager at Williams College Facilities
- 50 feet of stone dust path: $500
  - $10 per square foot from AmericanTrails.org
- 1 triangular shade sails: $29.99
  - One 16’x16’x16’ sun sail in beige from Windscreen4less
- 3 pole systems for free-standing shade sail installment: $166.89
  - One pole system: $55.63 from The Home Depot
    - Model: S&K 1.9 in. D x 1.9 in. W Round Pole
- 1 water fountain: unknown location or price at the time of report’s publication
Figure 28: Outdoor classroom option 4 design schematic, including a permanent grass-step amphitheater.
FEASIBILITY OF RECOMMENDATIONS

Price Comparisons:

<table>
<thead>
<tr>
<th>Space</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Loop Area</td>
<td>$751</td>
</tr>
<tr>
<td>Outdoor Cafeteria</td>
<td>$8,986</td>
</tr>
<tr>
<td>Open Space/Fitness Zone</td>
<td>$10,910</td>
</tr>
<tr>
<td>Outdoor Classroom</td>
<td></td>
</tr>
<tr>
<td>Option 1</td>
<td>$3,055</td>
</tr>
<tr>
<td>Option 2</td>
<td>$4,345</td>
</tr>
<tr>
<td>Option 3</td>
<td>$13,200-$15,200</td>
</tr>
<tr>
<td>Option 4</td>
<td>≤ $15,000</td>
</tr>
</tbody>
</table>

Table 2: Comparison of estimated costs for each planned site, including all four options we created for the second outdoor classroom space.

<table>
<thead>
<tr>
<th>Option</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Minimal impact and lowest cost</td>
<td>No additional outdoor classroom</td>
</tr>
<tr>
<td>2</td>
<td>Flexible space; little installation</td>
<td>No local materials</td>
</tr>
<tr>
<td>3</td>
<td>Best classroom features</td>
<td>Not movable; expensive</td>
</tr>
<tr>
<td>4</td>
<td>Multi-use space, natural materials, community integration</td>
<td>Costly; most physical alteration</td>
</tr>
</tbody>
</table>

Table 3: Cost-benefit summary of each outdoor classroom option (see Appendix E for full version).

In summary, we recommend additions to the bus loop area, the outdoor cafeteria area, and the open space. We also suggest making the west-facing empty space behind the renovated school into a second outdoor classroom to complement the north-facing space already being built. For this second classroom, we have provided four design options for the administration to choose from if they wish to pursue this setup.
Until new funds can be gathered, the first outdoor classroom can be tested by teachers and students. The administration can then seek feedback about the need for a second classroom and optimal features of such an additional space. This process would help the school board pick which elements of our four site designs would best suit needs.

If resources must be prioritized for one space only, the outdoor cafeteria area would be the most important starting point considering there is one outdoor classroom already being built. Lunchtime is the one time during the school day that MGRHS students are allowed to go outside (either during their lunch or after they have finished eating). Therefore, more students would benefit more frequently from additions to this space than any other space on campus. The outdoor cafeteria was ranked as high priority by both students and teachers, and our site design incorporates the best ideas that both groups provided. The most important feature the school can add to this space is additional tables, because demand for outdoor lunch seating exceeds the current number of tables. The second most important element of this space is the basketball court. Since this was by far the student favorite, we suggest two hoops to replace the current one, and a few additional games such as a tetherball pole and a box-ball square. Other additions to the lunch area as well as the fitness equipment and the swing sets in the open space are all features that could be implemented over time once more funding is acquired.

Following the prioritization of the outdoor cafeteria and the second outdoor classroom (if a need for it is demonstrated by students and faculty), we recommend the open space additions be prioritized. By including a fitness zone that is accessible to students of all abilities, this space allows students to take full advantage of their surroundings and burn off some energy at the same time. This space could also serve as a community space on weekends, helping MGRHS become a vital community hub for growing Williamstown families.

Lastly, if the aforementioned designs are implemented, we then recommend the addition of two benches to the bus loop area so that students may wait for their rides under the natural shade of trees. Because this space was ranked by students and faculty as the least important space to be renovated, we recommend that any funds for outdoor spaces go to larger projects with a higher priority, like the outdoor cafeteria area.

Thus, our suggested prioritization of each space is as follows:

1. Outdoor cafeteria
2. Second outdoor classroom (once feedback is gathered about the success of the first outdoor classroom)
3. Open space and fitness zone behind the new MGRHS
4. Bus loop area at the front of the school

**FUTURE WORK**

Going forward, if the school agrees with our assessment of the need for greater student involvement with the outdoors, the first step would be to conduct further research on funding sources available for the projects we have suggested. Ultimately, we understand that cost is the determining factor over whether our ideas our implemented, and while we have done some preliminary research on funding solutions, there is more to be done.
Furthermore, cost might be minimized if the administration collaborates with specific classes in the construction of some of these projects. Environmental science classes, woodshop class, and independent study projects might be useful to help build some of the elements we proposed, such as the grass chairs. Coaches might also want to collaborate more closely to develop a fitness equipment area. Lastly, it is crucial that the burden on custodial and grounds staff must be investigated and accounted for in any plans that go forward. Maintenance is a long-term cost of any addition to the outdoor spaces that may not always be monetary, but will be vital to their efficacy and lifespan, and we unfortunately were not able to include that element in this preliminary proposal. We hope that this report will provide motivation for the administration and other relevant parties to begin this next important phase of the MGRHS renovation project that stretches beyond the new building’s walls.

ACKNOWLEDGEMENTS

There are many people we would like to thank for their guidance and assistance throughout this project. The first is Professor Sarah Gardner of the Williams College Center for Environmental Studies. Professor Gardner sought out this project for our group and consistently helped us improve our project over the past two months.

Stephanie Boyd was our client throughout this project and served as a vital source of information. Stephanie helped us forge connections with helpful resources, and we are so grateful for that.

Mary MacDonald is the principal of MGRHS, and her enthusiasm for our involvement in the school as well as her assistance in setting up focus groups was a vital part of our process.

As the Williams College liaison to the Williams-MGRHS programs, Kaatje White was incredibly helpful to us in setting up our focus groups and ensuring each group ran smoothly the day of.

Paula Consolini is the chair of the Building Committee for the school’s renovation, and she provided fantastic feedback to our group during our near-final presentation and was a key contact during our process.

Thank you to Dan Louis, Ellen Kaiser, Rachel Slocik, Brian Gill, and Jeffrey Rubel for giving up time with their MGRHS students and allowing us to run focus groups for this project.

Kris Bradner was a fantastically helpful contact as the renovation’s landscape architect, and our meetings with her and contact throughout the project greatly informed how we were able to design these outdoor spaces.

Thank you to Trevor Murphy from the Williams Office for Information Technology for helping us print large-scale site plans for our focus groups.

Thank you to Mary Ellen Czerniak and Patti Exster of the Office of Corporate and Foundation Relations for assisting us in doing preliminary research into funding sources.

Bruce Decoteau, Senior Project Manager at Williams College Facilities, was immensely welcoming to our questions and kindly provided cost estimates for certain aspects of our designs.

Lastly, we would like to warmly thank our peers in Williams’ Environmental Planning Workshop for the Fall of 2016, including our fabulously helpful Teaching
Assistant, Sophia Schmidt, for their constant support and feedback at every stage of our project’s process.

REFERENCES


Stafford, Scott. “Lanesborough voters approve $64.8 million Mount Greylock High School...


APPENDICES

Appendix A: Three surveys

The student survey was given at 5 focus groups with 7-12th grade students; the faculty survey was given at a faculty meeting; the student online survey was refined based on the first survey results and posted online for two weeks to collect additional input from a broader range of students.

Paper Student Survey

1. Do you go outside during or after school? Circle one: Y N
   a. If Y, how often? What do you do outside?
   b. If N, why not?
2. In your opinion, what would be the most useful addition to the school’s outdoor spaces?
3. What features would you like to have outside your new school?
4. What would you like to do outside that you currently can’t?
5. Rate the following (1 is least important, 4 is most important):

   Being able to go outside at or after school
   Having an outdoor classroom space
   Being able to eat lunch outside
   Having a nicer waiting area after school
   Opportunity to have outside fun at school

Faculty Survey

1. Do you or your class ever go outside during the school day? Circle one: Y N
   a. If Y, how often and in what context?
   b. If N, why not?
2. Do you want more opportunities to take your classes outside? Circle one: Y N
   a. If Y, what do you want to do with your class outside? (lecture, discussion, reading, writing, hands-on learning, other?) Please explain:
3. Would you use an outdoor classroom? Circle one: Y  N  
   a. If Y, what features would you want it to have and why?
4. Does your class go outside during the winter? Circle one: Y  N  
   a. If yes, what for?
5. Do you eat lunch outside? Circle one: Y  N  
   a. If Y, WHERE? WHY?  
   b. IF N, WHY NOT?
6. What features of the new outdoor spaces do you think would benefit students?
7. Any other comments/concerns/suggestions about outdoor spaces?

8. Rate the following (1 is least important, 4 is most important):

<table>
<thead>
<tr>
<th>Faculty area to eat lunch outside</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student area to eat lunch outside</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities for students to learn outside at school</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Opportunities for students to relax/play/reflect outside at school</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Circle one:
   1. If there were an outdoor classroom, how often would you use it? (Assuming good weather)  
      Never   Once a semester   Once a month   Weekly

   2.) If there were an outdoor eating area for faculty, how often would you use it?  
      Never   Once a semester   Once a month   Weekly

Student Online Survey

1. Do you go outside at school? Y  N
2. If yes, what do you do outside? Please indicate how often you do each activity. (If no, please select "never" for each activity.)
   a. Options: Classes, lunch, theatre, PE, directed study, waiting for a ride, socializing, art
3. If an activity wasn’t listed above, please indicate it here, along with how often you do the activity
4. If you don’t go outside at school, why not?
5. Do you wish you could get outside at school more often? Y  N
6. Do you ride the bus to or from school? Y  N
7. If yes, how often? Daily, weekly, monthly
8. If no, what transportation do you use to get to school? Car, bike, walk
9. What would you like in a new outdoor classroom? Please rank the following (1 is most desired, 7 is least desired):
   Amphitheatre, large round table and chairs, pergola, whiteboard/chalkboard, shade sails/shelter, rocks to sit on, tree log benches
10. What other features would you like to see in an outdoor classroom that we didn’t list above?
11. What would you like in a new outdoor eating area? Please rank the following (1 is most desired, 6 is least desired):
Basketball hoop, movable chairs/seating, movable tables, retractable awning, charging station for devices, more trees

12. What other features would you like to see in an outdoor eating area that we didn’t list above?

13. What would you like in an improved pick-up/drop-off area? Please rank the following (1 is most desired, 6 is least desired):
   benches /seating, movable tables, sheltered area, flowers/garden boxes, charging station for devices, more trees

14. What other features would you like to see in the pick-up/drop-off area that we didn’t list above?

15. What would you like in the new open space? Please rank the following (1 is most desired, 8 is least desired):
   Vegetable garden, meditation/yoga garden, more shady trees, seating spaces, fitness equipment, gazebo, more access to trails/pond, playground

16. What other features would you like to see in the open space that we didn’t list above?

17. If you are interested in a garden, would you be willing to help take care of it? Y N

18. If yes, how often could you help? Daily, weekly, monthly

19. If you are interested in a playground, what features would be most important to you? (1 is most important, 3 is least important)
   Swing set, monkey bars, climbing apparatus

20. Any other feature you would want in a playground?

21. Other comments/concerns/ideas?

Appendix B. Graphs from Focus Group Surveys
Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). 65% of students surveyed claim to find being able to go outside at or after school very important.

Having outdoor classroom space (71 responses)
Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). Here, a comparable 40-45% of students surveyed find an outdoor classroom to be fairly to very important.

**Being able to eat lunch outside** (71 responses)

![Bar chart showing importance ratings for eating lunch outside]

Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). A 66% majority of students surveyed find being able to eat lunch outside very important. Some of them (seniors) are allowed to currently, and the 7th graders especially would very much like to as many currently swallow their lunches quickly in order to get a little outdoor play time. Seating and time are the two greatest limiting factors we heard.
Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). While a 56% majority of students surveyed found a nicer waiting area very important, the definition of 'nicer' could be different for everyone. A relatively high proportion of students found this unimportant compared to the other spaces.

**Having nicer waiting area after school (71 responses)**

Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). While a 56% majority of students surveyed found a nicer waiting area very important, the definition of 'nicer' could be different for everyone. A relatively high proportion of students found this unimportant compared to the other spaces.

**Opportunity to have outside fun at school (71 responses)**
Students rated importance to them on a scale of 1 (unimportant) to 4 (very important). A 79% majority of students surveyed think it's very important to have fun outside at school, but again 'fun' could be different for everyone.

Appendix C. Graphs from Student Online Survey

1.
If yes, what do you do outside? Please indicate how often you do each activity. (If no, please select "never" for each activity.)
3.
Do you wish you could get outside at school more often? (25 responses)

- Yes: 92%
- No: 8%
Please rank the following in terms of how important they are to you to have in our new school (1 is most important, 4 is least important):
What would you like in a new outdoor classroom? Please rank the following (1 is most desired, 7 is least desired):

- **Amphitheater**
- **Large round table/chairs**
- **Pergola**
- **Weatherproof whiteboard or chalkboard**
- **Sunsails/shelter**
- **Rocks to sit on**
- **Tree log benches**
What would you like in a new outdoor eating area? Please rank the following (1 is most desired, 6 is least desired):
7. What would you like in an improved pick-up/drop-off area? Please rank the following (1 is most desired, 6 is least desired):
8. What would you like in the new open space? Please rank the following (1 is most desired, 8 is least desired):

- Vegetable garden
- Meditation area/yoga garden
- More shady trees
- Seating spaces
- Fitness equipment
- Gazebo

More trails/access to pond
3: 8

More trails/access to pond
Playground
9. If you are interested in a garden, would you be willing to help take care of it? (24 responses)

10. If yes, how often could you help? (16 responses)
Appendix D: Faculty Survey Results

1.

Do you or your class ever go outside during the school day? (39 res)
2. Would you like to take your classes outside more often? (39 responses)

3. If there were an outdoor classroom, would you use it? (39 responses)
4. Does your class go outside during the winter? (38 responses)

5. Do you eat lunch outside? (41 responses)
6. If there were an outdoor eating area for faculty, would you use it? (39 responses)

[Pie chart showing 94.9% Yes, 5.1% No]

7. Rank the following in order of importance (1 is highest, 4 is lowest)

[Bar chart showing preferences for different improvements]
8. If there were an outdoor classroom, how often would you use it (assuming good weather)?
(38 responses)

9. If there were an outdoor eating area for faculty, how often would you use it?
(38 responses)
### Appendix E: Cost-Benefit Analysis

<table>
<thead>
<tr>
<th>Outdoor Engagement</th>
<th>Environmental Impact</th>
<th>Fiscal Cost</th>
<th>Teaching</th>
<th>Learning</th>
<th>Aesthetics</th>
<th>Accessibility</th>
<th>Multi-use Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nice place to walk through</td>
<td>Potential for pollinator beds and native species</td>
<td>Not very expensive</td>
<td>Not distracting</td>
<td>Not distracting</td>
<td>Aesthetically non-academic space</td>
<td>Easy maneuvering</td>
<td>Space is open</td>
</tr>
<tr>
<td>No seating or writing space, little shade</td>
<td>Minimal - stone dust path and plantings can be locally sourced</td>
<td>Still costs money</td>
<td>Not conducive to classes</td>
<td>Not much changes</td>
<td></td>
<td></td>
<td>No amenities/picnic tables</td>
</tr>
<tr>
<td>Movable seating arrangements allows different views</td>
<td>No permanent structures other than the shed</td>
<td>Could get funding from multiple sources</td>
<td>Easy to adjust for different class sizes/subjects</td>
<td>Personal desk space</td>
<td>Can be green space when necessary</td>
<td>Easy maneuvering</td>
<td>Space can be used for any type of gathering or activity since nothing is fixed</td>
</tr>
<tr>
<td>Places a regular classroom outside</td>
<td>Chairs and other materials are not sourced remotely locally</td>
<td>Somewhat expensive</td>
<td>Set up is more time consuming</td>
<td>Folding chairs not as comfortable</td>
<td>Folding chairs don’t look as nice</td>
<td>Wheelchair bound person would probably have to stay on path next to the seating</td>
<td>No amenities/picnic tables</td>
</tr>
<tr>
<td>Nice place to sit/hang out in natural setting</td>
<td>Table could be sourced locally</td>
<td>Could cut cost down with cheaper elements/student help</td>
<td>Writing and seating space for teacher as well</td>
<td>Ample writing space</td>
<td>The whole space is not taken up by permanent structures</td>
<td>Easy maneuvering</td>
<td>Table space could be used outside or for classes, sports teams can congregate</td>
</tr>
<tr>
<td>Places a regular classroom outside</td>
<td>Impact of permanent construction could be great</td>
<td>Expensive</td>
<td>Can’t change seating orientation</td>
<td>Fixed arrangement not great for small group discussion</td>
<td>Large permanent table and pergola can’t be removed</td>
<td>Wheelchair bound person can only sit at ends of tables</td>
<td>No - at least limited</td>
</tr>
<tr>
<td>Nice place to sit/hang out that is more than an indoor classroom moved outdoors</td>
<td>Materials are all natural - soil and grass and stone dust</td>
<td>Could get funding from multiple sources or cut cost down with cheaper elements/student help</td>
<td>Easy to lecture</td>
<td>Comfortable</td>
<td>Remains green and contoured to match the landscape</td>
<td>Easy maneuvering</td>
<td>Performance space, lecture public, talk/gathering space, sports teams can congregate</td>
</tr>
<tr>
<td>Not a movable arrangement</td>
<td>Permanent construction and altering the physical landscape would be great</td>
<td>Very expensive</td>
<td>Lack of table space</td>
<td>Clipboards may be less ideal than writing desks or tables</td>
<td>Potential partial obstruction of the view from the art/music classrooms</td>
<td>Wheelchair bound person can only sit on/near to lowest tier</td>
<td>Not great in the rain; needs bathrooms, when school is closed</td>
</tr>
</tbody>
</table>
