MARTHA'S VINEYARD REGIONAL HIGH SCHOOL SPACE NEEDS STUDY

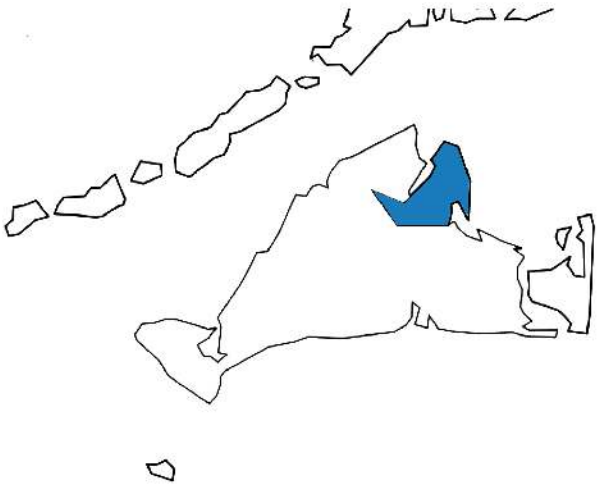
OCTOBER 2016

TAPPE ARCHITECTS

DUKES COUNTY, MA

CONTENTS

OAK BLUFFS, MA



ACKNOWLEDGMENTS

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TAPPE ARCHITECTS
6 EDGERLY PLACE
BOSTON MA

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EXECUTIVE SUMMARY

OVERVIEW

The Martha's Vineyard High School District issued a request for proposal in April of 2015 for a designer to complete an independent Space Needs and Feasibility Study. In June of 2015 Tappe Architects was engaged to complete the study. As outlined in the RFP, the intent of this study is to examine existing conditions and programs at the current Martha's Vineyard High School in Oak Bluffs. Based on discussions with educators and administrators, a review of educational programs and previous studies together with an understanding of the goals and expectations of the District, this study is intended to outline future improvements that could be made to the facility to enhance the delivery of educational programs at the school.

BUILDING EXISTING CONDITIONS

The existing MVRHS is a sprawling single story structure that has been developed over a number of years with a series of additions. The original building dates from 1959 with subsequent additions constructed in the 1980's and 1995. Areas of the building were reprogrammed over time with the library in the former gym and the cafeteria in the former theater. While the building is on a single floor, there are changes in floor level that are navigated by pedestrian ramps. The exterior is either wood siding or in a limited case, masonry. Roofs are either sloped asphalt shingle or flat EPDM roofing. The existing building interiors are in acceptable condition although some finishes are tired and in need of updating.

While the MVRHS has served its five communities well for many years, the facility continues to suffer from both wear and tear and significant deferred maintenance issues that should be addressed. With this in mind the District has engaged separate investigations to analyze the building envelope as well as the mechanical systems, and the operations of the kitchen. These studies are included within this study as an appendix. The district has also engaged a study to look at options for a library renovation. While captured in this document, Tappe has taken the liberty of providing our own interpretation of this space.

These separate studies represent significant construction cost and scope. Recommendations included within this study are in addition to or in concert with the scope and cost identified by these other separate reviews. The recommendation of this study is that the district consider integrating these separate scope items into a larger renovation project in order to ensure coordination and a comprehensive solution. This would also most likely be more cost effective then the premiums associated with multiple individual bids and mobilizations over time.

BUILDING CONSTRAINTS

While the building has issues related to aging infrastructure and required physical and systems upgrades, the design and layout also creates challenges in the delivery of a 21st century education to the students of Martha's Vineyard. The building is difficult to navigate, has a long and circuitous circulation pattern and does not readily support collaboration of students or staff. Preliminary findings related to challenges in the ability of the school to deliver excellent education included but were not limited to:

- Undersized cafeteria that requires five lunch periods
- Lack of space for teacher collaboration
- Lack of adequate classroom space for a number of CTE courses including maritime studies, auto mechanics and building trades, home health and culinary arts.
- Separate weight lifting building that is no longer fully functional
- Inadequate P.E. space within the school itself for movement, weights and cardio

EXECUTIVE SUMMARY CONT.

- No areas to support innovation, cross curriculum collaboration and fabrication
- Outdated science classrooms
- A horticulture program greenhouse facility that is no longer fully functional
- An isolated library media center that is limited in options for collaboration and individual study
- Lack of meeting areas and faculty bathroom facilities
- Lack of meeting spaces and break out space for students to work in groups

BUILDING CAPACITY

The study examined the existing building to understand current capacity. The enrollment for the 2014/15 academic year was 687. The largest grade was the 10th grade at 183 students. The district has NESDC enrollment projections that were updated in 2015 that suggest a trend towards future enrollment growth with the possibility of a future enrollment as large as 869 students by 2025.

Several methods were used to understand how the building supports the education program being delivered at MVRHS. A program template was developed that used the Massachusetts School Building Authority standard space template as a model using a population of 800 students. The purpose of this exercise was only to establish what the MSBA would support for square footage if the District were to pursue a funding grant from the MSBA. This comparison was not intended to short circuit the MSBA process, but rather to establish a baseline by which we could compare MVRHS to other schools in the state and evaluate accepted state standards of space size and need.

A second method for understanding the capacity of the school is to simply assign a population to each capacity generating classroom in the school. A classroom is assumed to be capacity generating if it is generally used throughout the school day for fully enrolled classes. A percentage multiplier is then applied to the capacity in order to accommodate for both inherent inefficiencies in scheduling and the fact that not every class is fully enrolled. A maximum capacity of 23 students is a typical target for many districts in the Commonwealth. This is too high a number for MVRHS however given that the average current enrollment is closer to 16 to 18 students. Taking an average of 18 students per classroom for those rooms available, the buildings capacity appears to be in the range of 780 students which is adequate for current conditions but would not accommodate the anticipated future growth indicated in the NESDEC projections. Increasing class enrollments slightly would help alleviate future enrollment increases.

ACADEMIC GOALS

Discussions with administration and faculty resulted in an understanding of the future goals for the school. A central goal for MVRHS is to develop a curriculum that better supports interdisciplinary learning and innovation. To support this goal one approach would be to create technology rich areas that can be used by multiple classes for special and interdisciplinary projects. Many requests and ideas were proposed and discussed. These included an english department suggestion of a digital lab for publishing, a science department suggestion of a space for demonstration of large scale physics projects, the need by robotics for a maker space, and the benefit for world language of a language lab. Other considerations included an interest in a digital production and radio lab and the better integration of arts and sciences. All of these goals could be assisted by technology rich, flexible and multi-purpose project areas that could be used by all departments for fabrication, demonstration and special projects.

Additionally, an emphasis in discussions was placed on both professional staff collaboration and inter-disciplinary collaboration by students. Thought was given to the idea

EXECUTIVE SUMMARY CONT.

of moving classroom assignments to promote more cross department integration of curriculum and creating teacher planning areas that enhance professional collaboration and planning.

OPTIONS STUDIED

The design team developed, with the study committee, nine preliminary options that could be considered to improve the physical infrastructure of the MVRHS to further assist in supporting an excellent education for all students. The modifications that were considered ranged from limited strategic interventions to more comprehensive transformations of the building. The purpose of this "menu" of options was to give a range of costs and results that different approaches would have. Some of the options could also be combined together in one project or alternatively pursued over an extended period of time.

These various options were discussed with the study committee which resulted in the selection of a preferred approach to be developed in greater detail. The preferred approach was a new option that was a large renovation and addition with complete demolition of the original building.

COST

Each preliminary option was assigned a general budget construction cost. A more detailed estimate should be prepared for the preferred option when a more complete feasibility study is undertaken.

Given that no specific time line has been established for any major construction program at the school, the following time line assumption was made. Study completion fall 2016, Vote to fund project fall 2017, Construction start fall 2018. This timeline of 24 months was used to calculate a factor for escalation in construction cost over time. It should be noted that it is assumed that construction costs will rise over time, making projects costs increase on an annual basis.

It is also important to note that at such a preliminary stage in cost analysis, it is simply impossible to develop accurate costs with absolute certainty. The figures contained within the study should be taken as a general budget guideline that could change with a greater level of analysis and the detail associated with a more comprehensive design phase.

For the purposes of this study, budget values already established in separate studies by other consultants were taken into account for envelope repairs and systems upgrades. However, given that these scope items would become part of a larger scope or work, they could not be applied as complete numbers and are generally used as partial values to supplement the estimate prepared for the preferred option.

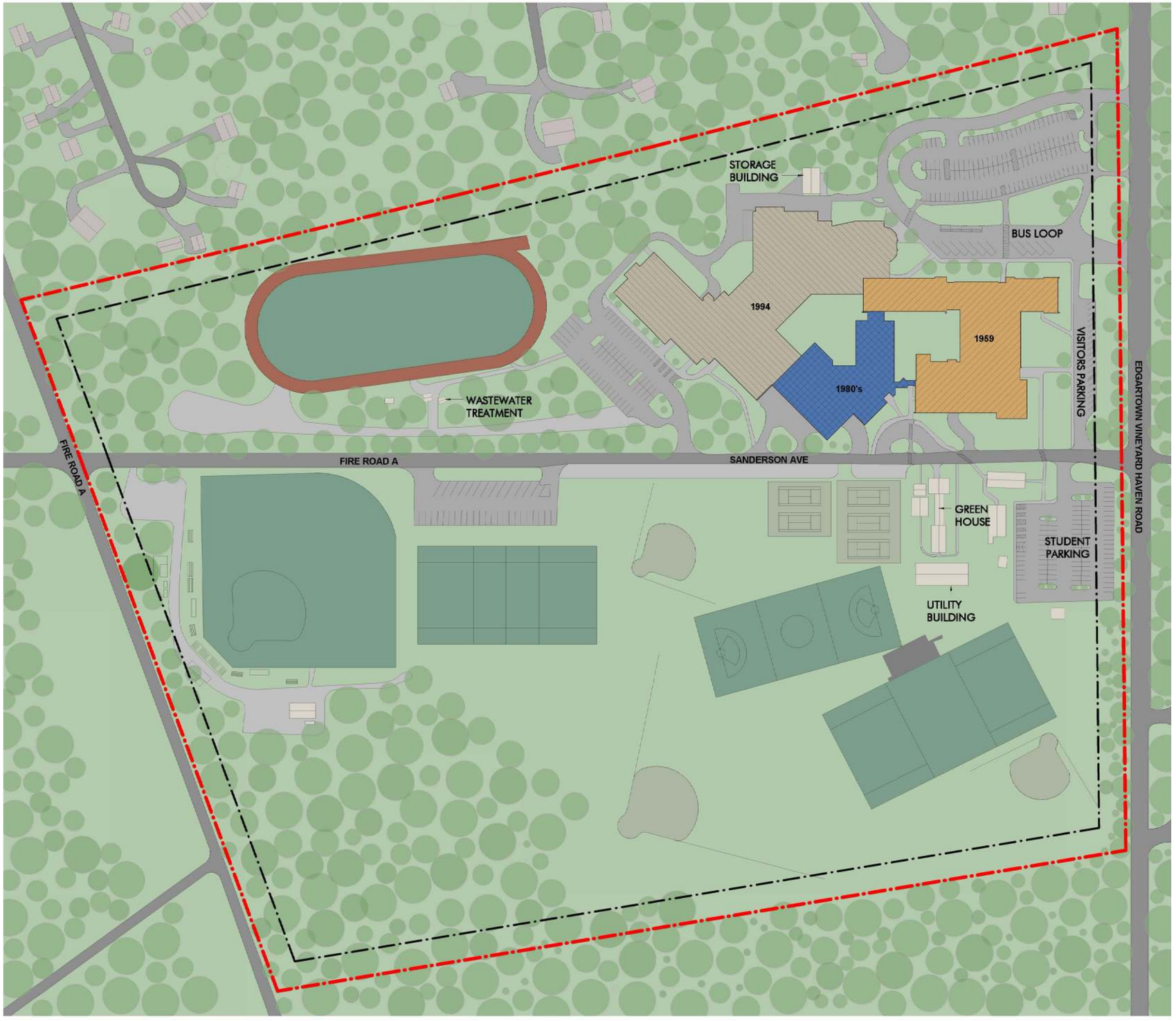
CONCLUSION

The preferred scheme represents a combination of options. It was developed to be as compact as possible and needs to be studied in greater detail with more information such as current enrollment and school/district educational delivery methodologies when the project continues. This study and space needs assesment simply identifies the preferred approach and the approximate space required with the information known to Tappe at the time of this study.

The preferred scheme could be 2 or 3 stories depending on the final classroom size and other miscellaneous educational goals like project space and active learning corridors that will affect the shown layout.

ARCHITECTURAL ASSESSMENT

EXISTING SITE



1959
1994 MAIN BUILDING
1980's

OTHER BUILDINGS

GREEN SPACE

FIELDS

FIELDS

TRACK

STREETS

PARKING

SIDEWALKS

PROPERTY LINES

SETBACKS
FRONT - 50'-0"
SIDE - 50'-0"
REAR - 50'-0"

DISTRICT: R-3 RESIDENTIAL

0' 40' 80' 160' 320'

SITE CONSTRAINTS & OPPORTUNITIES

1959
1994 MAIN BUILDING
1980's

OTHER BUILDINGS

GREEN SPACE

FIELDS

FIELDS

TRACK

STREETS

PARKING

SIDEWALKS

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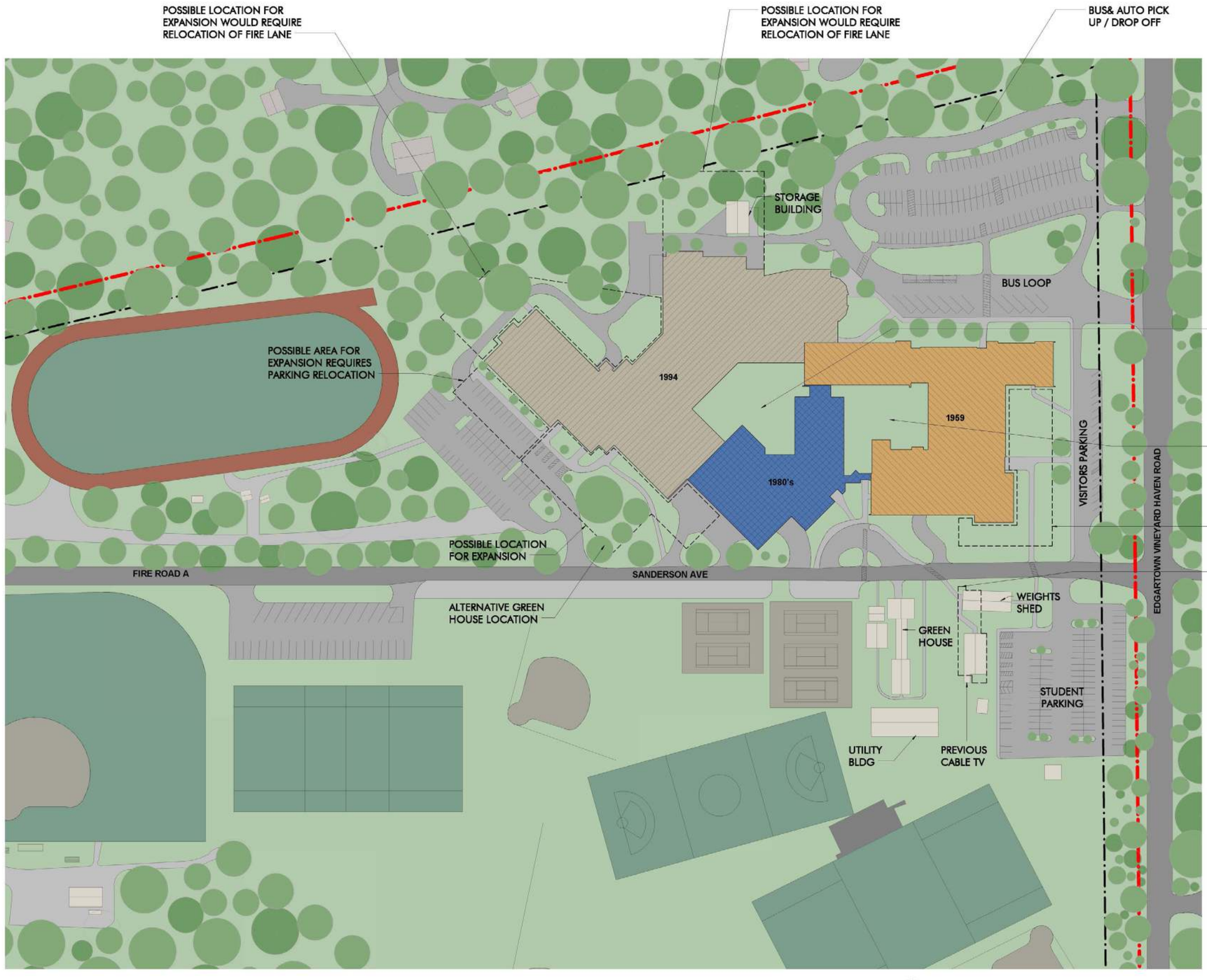


- NO LOADING DOCK
- COURTYARD UNDER UTILZED

COURTYARD INFILL POSSIBLE DIFFICULT CONSTRUCTION LOGISTICS

COURTYARD INFILL POSSIBLE DIFFICULT CONSTRUCTION LOGISTICS

POSSIBLE LOCATION FOR EXPANSION

LOCATION OF PREVIOUSLY PROPOSED DISTRICT OFFICES

EXISTING BUILDING PLAN

BUILDING ISSUES

- SYSTEMS REQUIRE SIGNIFICANT REPLACEMENT AS INDICATED IN SEPARATE STUDY
- EXTERIOR ENVELOPE AND FENESTRATION REQUIRE SIGNIFICANT REPLACEMENT / UPGRADES AS INDICATED IN SEPARATE STUDY
- INADEQUATE VENTILATION AT SCIENCE LABS, LACK OF DRAINS AND SAFETY CABINETS
- LIGHTING COULD BE CHANGED TO HIGH EFFICIENCY LED THROUGHOUT
- GENERAL FINISHES MAY START TO SHOW DETERIORATION IN THE COMING YEARS
- NO LOADING DOCK
- COURTYARDS ARE A LIBRARY & NOT USED WELL
- NO BUILDING MANAGEMENT SYSTEM
- LACK OF LOOKDOWN CONTROL & PUBLIC ADDRESS SYSTEM FUNCTIONALITY

BUILDING INFORMATION

BUILDING SUMMARY

The Martha's Vineyard Regional High School (MVRHS) was built in 1959. Originally comprised of approximately 60,000 square feet on a single level, the building included 22 classrooms & laboratories, cafeteria, & kitchen, gymnasium, auditorium, nurse's office, boiler room, guidance office, and administrative offices. Student enrollment was projected to be 417 students.

The MVRHS undertook its first major expansion in 1979 with the addition of approx. 35,000 square feet comprised of 12 new classrooms and facilities for new Chapter 74 Programs, Building Trades, Culinary Arts, and Automotive Technology. This addition was planned to accommodate between 550-600 students. The addition continued the building's original single level design and did not include a new boiler room.
The MVRHS undertook its second and last major expansion in 1995 with the addition of approximately 70,000 square feet comprised of 28 new classrooms, a new gymnasium, conversion of the old gymnasium into a library, new music rooms, and expansion of the original cafeteria, and a new performing arts center designed to accommodate 800 persons. The 1995 addition were focused on an expansion of science rooms and art/media classrooms, all on a single level. There was a major renovation of the cafeteria in 1993 as a result of a defect in the roof trusses. The room was closed and emergency repairs were made.

In addition, approximately 85% of the exterior roof was replaced in the summer of 2013 due to leaks throughout the building.

The Martha's Vineyard Regional High School (MVRHS) is built on a 90.1 acre campus located in the center of the island of Martha's Vineyard. The High School and its related athletic fields and facilities are located on approximately 62 acres on the south side of the Edgartown Vineyard-Haven Road and is adjacent to the Manuel F. Correllus State Forest. The High School is also the owner of land directly across the Edgartown-Vineyard Haven Road to the north of its facilities. This land is not currently being used by the MVRHS, nor are there any plans to locate additional High School facilities on that property. However, there are a number of facilities on that property – including a public ice skating rink (which the MVRHS boys and girls hockey teams utilize), a YMCA fitness center with swimming pool (utilized by the MVRHS swim team), and various offices and programs operated by the non-profit Martha's Vineyard Community Services.

The school site itself is mostly level, and the soil conditions are considered sandy. The elevation of the MVRHS is similar to that of the nearby Martha's Vineyard Airport, which is approximately 68' above sea level. Oak trees predominate on the periphery and the undeveloped portions of the campus. A large portion of the developed area of the south side of Edgartown Vineyard Haven Road are devoted to athletic fields – including a football field, softball field, baseball field, tennis courts, soccer/field hockey/lacrosse field, and a track. There are some out- buildings located on the property, and a wind turbine generating a small amount of electricity for the school.

A septic system with leaching fields were in service under the track (located on the south side of the building across the parking lot from the gymnasium} until 2013. In 2013 the MVRHS connected into the Town of Oak Bluffs' sewer system and discontinued use of its wastewater leaching fields.

The original MVRHS building suffers from long-term erosion. The building is slab on grade and was constructed in 1959 as a single story facility. The original exterior façade is red brick with wood-frame windows. The masonry is deteriorating and mortar joints have cracks. Two steel lintels above wall openings have rusted enough to disrupt the integrity of the masonry. 2000 linear feet of masonry sealant has failed. 17 uni-vents are covered with rotting plywood. Over 7000 sq.ft. of wood trim is in fair to poor condition. The additions in 1979 and 1995 are also slab on grade, and continue the single story layout with predominantly flat roofs. The

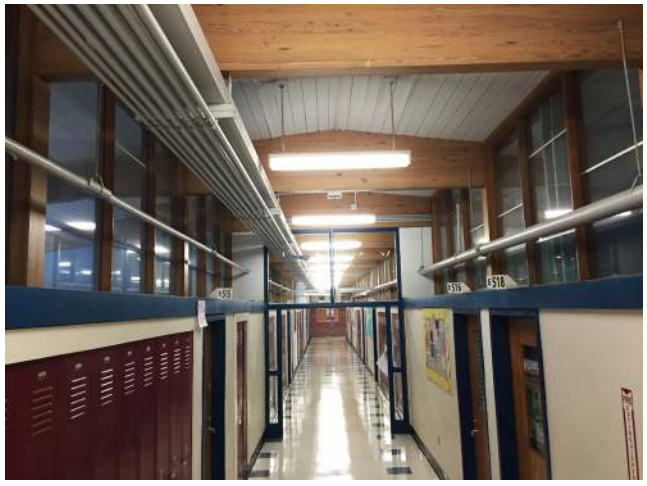
siding on the 1979 and 1995 additions is cedar shingles with wood trim and aluminum windows. The cedar shingles have weather-related damage, curling, breaking, and disintegrating. Many are missing.
Exterior windows are mostly aluminum framed, with some vinyl and wood frames windows. Exterior doors are metal with mostly metal frames. There are 36 exterior metal doors, 2 wood exterior doors, and 3 overhead garage doors in the main building. Most of the original and 1979 addition doors and windows in the Building Trades and Automotive Shops are corroded by age and salt air, permitting mold to grow on walls and floors. Overhead doors are so corroded as to emit rain and snow puddling in the work areas and result in significant heat loss. Exterior gym doors are rotten and not weather tight. Sixty-one windows are fogged from failed glazing, and hardware is broken or missing. Window screens and brackets are torn or non-existent.

The roof is mostly flat, with some slightly pitched areas. As a result of roof leaks in recent years, approximately 85% of the roof was replaced in 2013 with PVC that comes with a 20 year warranty. The remaining roof that was not replaced is either EPDM and has approx. 5-10 years remaining, or there is a small amount of copper roofing on certain features of the 1995 addition. Gutters with downspouts exist around most of the entire building, and are either copper or aluminum.

Consequential problems exist in all areas of the building envelope. Water damage to ceiling tiles and wallboard have resulted. Rotted wood window frames in the 1995 addition have also allowed water to infiltrate the interior allow mold to grow. There is evidence of termite damage and rodent intrusion in both the original building section and the 1995 addition.

EXISTING CONDITIONS - EXTERIOR

EXISTING CONDITIONS - INTERIOR



PROGRAMMATIC CONSTRAINTS

PROGRAMMATIC CONSTRAINTS OF EXISTING SCHOOL

Based on multiple meetings with educators and administrators at the school, the following issues were discussed as being current concerns posing constraints to the successful delivery of the best possible educational program at MVRHS. These considerations are not listed in any prioritized order.

LACK OF COMMON PLANNING AREAS FOR FACULTY

The high school is organized departmentally with subject matter classrooms in general proximity. The building generally does not benefit from faculty planning areas that can accommodate common planning and professional learning and collaboration. Increased intra-disciplinary collaboration was repeatedly discussed as a goal and a priority for the school and district. Certain departments expressed concern that they did not have “enough” classrooms. This is generally based on the fact that while they have enough classrooms for instruction, they don’t have enough for each teacher to have an “assigned room”. One way to help alleviate this concern would be to provide a location for a teacher to work individually on preparation when their classroom is in use by another teacher. This increases the efficiency and capacity of the building and encourages faculty to collaborate by providing a shared location. These faculty areas also model a culture of collaboration for students and support common planning regarding students and curriculum.

LIMITS TO COLLABORATION BETWEEN DISCIPLINES

The departmental organization of the high school is helpful in terms of departmental collaboration by staff. However, it limits the opportunity to craft a curriculum that is interdisciplinary in terms of subject matter and instruction. The school is looking for ways to promote this cross discipline approach to instruction and curriculum within the school. Options that were discussed include reconfiguring classrooms to allow more interdisciplinary teaching by locating different subjects in closer proximity or alternatively providing project rooms that can be used by multiple disciplines for collaborative projects and events.

LIBRARY / MEDIA CENTER

The current library is a large space that offers the opportunity to develop a dynamic and flexible learning environment that has zones for collaboration, presentation and group study as well as quiet study, research and distance learning. A focus in contemporary thinking about education is the move towards project based and collaborative education where learning can effectively occur outside of the traditional classroom. Educators nationwide are acknowledging that students learn in multiple ways and settings. Currently MVRHS is unable to offer spaces that accommodate these goals. It is also anticipated that more students will need a place to work independently or in a small group, or will engage in distance learning. An updated media center can offer the kind of spaces that this changing curriculum model requires. The design team in particular recommends that the perimeters of the library wherever it is eventually located be opened up to adjacent corridors and spaces as much as possible in order to draw students into the space and truly develop it as a technology rich school wide resource. The location of the media center does not currently serve the population well. It is at one end of the school which happens to be the farthest away from most of the teaching/learning activity. To be more effective it is ideal that the media center be relocated to a more central location so that it can become the "hub" it should be in the educational environment.

LACK OF MEDIUM SIZE CLASSROOMS - MEETING ROOMS

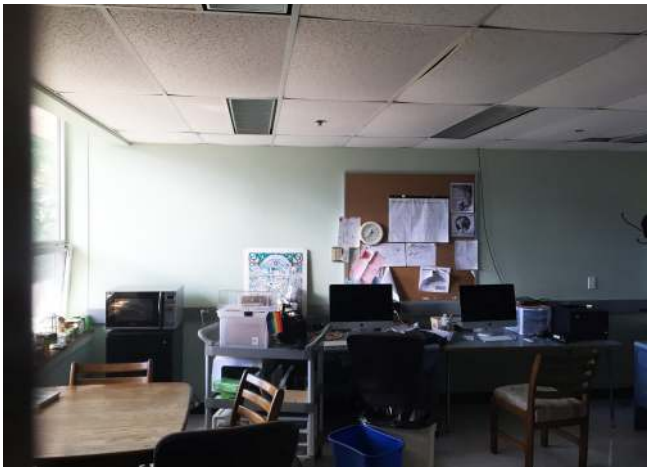
The school could benefit from an increase in classroom spaces that support non-standard groupings of students including smaller spaces for 8-10 students or larger project spaces for 3 classes to be combined. The only large meeting room in the school presently is the library conference room and the desire for additional larger meeting areas for staff was expressed. In addition, a space for community groups and parent organizations and volunteers would be helpful.

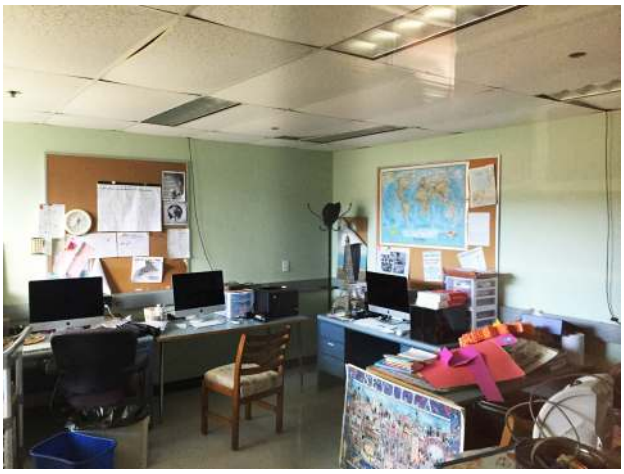
SCIENCE CLASSROOMS

The science department has specific concerns about the condition of the labs at MVRHS. These concerns include lab tables that are too small, prep rooms that are not vented, lack of safety cabinets, and eye wash stations without floor drains. The science department also states that they are one classroom short with either physics or engineering not having a classroom. The science department also noted that they need one additional lab to provide a full science curriculum. These specialized spaces are in need of significant upgrade to offer contemporary science instruction that can be integrated into other areas of the curriculum. With the preferred scheme, science rooms can be newly constructed and integrated throughout the building.

CTE MARITIME PROGRAM

The Maritime Studies program is a unique aspect of the curriculum. There is currently no dedicated classroom space to support this CTE course that is adequate in size. A dedicated teaching space that includes computers, tables for navigational exercises and a classroom environment for lectures and discussion are all needed.





PROGRAMMATIC CONSTRAINTS OF EXISTING SCHOOL

CTE CULINARY ARTS PROGRAM

The Culinary Arts Program has an excellent teaching kitchen and a pleasant café area that can be used to serve meals prepared by students. However, there is only one dedicated classroom location while the program would benefit from a second space for 15 students. The culinary program could use general updates, however, when compared to the state Ch. 74 guidelines, it appears the program space is about 500 sf too small.

CTE AUTO & BUILDING TRADES CLASSROOM SPACE

Auto and Building trades both have large shop areas for hands on instruction. However, the auto shop has no classroom space for instruction, demonstration and training. A dedicated room needs to be provided with adequate technology to allow training in diagnostics. Automotive is currently about 300 sf too small compared to the Ch. 74 guidelines.

The building Trades area also lacks a dedicated lecture area and as the program grows with plumbing and electrical trades each having increased interest, another teaching station to accommodate this population and to support a lecture environment is required. Building trades needs additional space as the shop is currently crowded. When compared to the Ch. 74 standards it appears the space is about 200 sf too small. The vertical space limitations also need to be updated with ventilation and lighting.

Both Automotive and Building Trades have upper level space that is inaccessible to the disabled persons and creates unusable space.

CTE HEALTH ASSISTANCE

This space has inadequate square footage based on Ch. 74 standards to completely accommodate the curriculum which focuses on training health aides. The space should have areas for a kitchenette, bathroom with shower and two separate lecture rooms for 15 students each.

AREA FOR WEIGHTS & MOVEMENT

The area dedicated for weight training is in an outbuilding across a roadway from the school. The building is in poor condition and in need of major repairs or replacement. Having the weight program separate from the school is also not a benefit to the physical education curriculum. If this space were connected directly to the school it could be used not only for teams but also for physical education classes during the school day. A space for dance and movement would also benefit the PE program and offer another location for instruction.

GREENHOUSES FOR HORTICULTURE

The current greenhouses that are being used by the horticulture program are in very poor condition and should be replaced. A small classroom area should be included as part of this improvement to allow for a teaching environment as part of this program. The location of the current greenhouses is not ideal in that it is not directly adjacent to the science program which could benefit from use of this facility. This program is vitally important to the island and the high school.

MAKER SPACE / INNOVATION CLASSROOM

The high school lacks a dedicated space for fabrication. Many cross curriculum initiatives could grow out of this kind of innovation zone. A STEAM lab would allow for fabrication of special projects and encourage interdisciplinary programming between Art, Science, Math and Technology. It appears that the school also does not have a dedicated location for robust computers that could be shared by multiple programs for graphics, drafting, engineering, digital and AV production, etc. School districts throughout the country are continuing to identify the importance of technological literacy and preparing students for the 21st century global work place with its focus on rapidly changing technology. Creating spaces within MVRHS to support this goal was identified as an important goal moving forward.

CAFETERIA CAPACITY

The cafeteria has limited square footage. There are five lunch's during the school day all during the 3rd period to accommodate the number of students. This results in a four period school day and an eight day block rotation. An expansion of this space would reduce the number of lunch periods and potentially allow for greater flexibility with scheduling the school day.

ALTERNATIVE EDUCATION

This program serves 40 students in grades 9 – 12. Currently Therapeutic support is a windowless classroom.

DISTRICT OFFICES

The Assistant Principal's offices are currently located in administration together with the Principal. Interest was expressed in creating offices for the AP's away from administration and more fully integrated into the

classroom environment. This is a typical arrangement that is implemented at many high schools in the Commonwealth. Guidance could also benefit from being located closer to the students for ease of access.

ADMINISTRATION

The Assistant Principal's offices are currently located in administration together with the Principal. Interest was expressed in creating offices for the AP's away from administration and more fully integrated into the classroom environment. This is a typical arrangement that is implemented at many high schools in the Commonwealth. Guidance could also benefit from being located closer to the students for ease of access.

INADEQUATE STAFF BATHROOM FACILITIES

It is noted within the NEASC Visiting Committee report of 2013 that faculty and staff do not have an adequate number of bathrooms distributed throughout the building. Given the long travel times from one end of the building to the other, it would be beneficial to consider this in future renovations.

PROJECTED INCREASING ENROLLMENT

If the anticipated future enrollment contained within the most recent NESDEC projections is relatively accurate, the school may see an increase of 180 students over the course of the next ten years. Options discussed elsewhere in the report to resolve this issue include using the building more efficiently, increasing class sizes or adding classroom space.

COURTYARDS

Existing courtyards are a challenge. It is difficult to find ways to fully utilize them. Consideration could be given to how to program them to be more fully integrated into school programs.

CAPACITY ANALYSIS

The design team undertook a capacity analysis of the existing MVRHS in order to understand better whether the building has the space needed to deliver the kind of programs and curriculum envisioned by the district. The team used multiple approaches to understand this issue. It should be noted that an "overall" capacity of the school does not necessarily acknowledge or account for specific shortcomings in the facility. For instance, the school can appear to be large enough to accommodate the student population yet be inadequate to provide specialized instruction to support specific aspects of the curriculum.

Understanding building capacity is helpful as it can clarify whether there are enough rooms in the building to support the student population given the specific schedule that is being employed by the school.

ENROLLMENT

Enrollment figures for the 2014/15 academic year was 687 students. The most recent enrollment projection available is the NESDEC (New England School Development Council) projection that was completed in February 2014. This projection indicates a grade 9 to 12 student population that will grow from 687 students in 2014/15 to 869 students in 2024/25. This projected increase of 180 students is gradual and consistent over the course of 10 years. This is an estimate only and the school notes that they use NESDEC projections to see trends more than they rely on a precise calculation of future population. For the 2015/16 school year for example the projections were generally higher than actual enrollment. However, it is clear that some upward pressure on enrollment must be anticipated in future years.

CLASSROOM ENROLLMENT

Class size varies by district and is impacted on a number of factors including district policy and curriculum. A general rule of thumb in school planning is 23 students per classroom. MVRHS currently has an average class size that is closer to 16 to 18 students based on the NEASC (New England Association of Schools and Colleges) visiting report dated May 1, 2013. This is not consistent for all courses and is an average. This reflects the desire to have diverse offerings within the curriculum and also the very specific consideration of small classrooms. Many rooms in the school are in the range of 750 SF while the state planning expectation is 850 SF. With rooms that are in excess of 10% smaller than recommended, it is not unreasonable to assume that capacity of these rooms is reduced.

CAPACITY OF ROOMS TO ACCOMMODATE STUDENTS

An analysis was completed in which a number of students were assigned to each capacity generating classroom. An instructional space is assumed to be capacity generating if it can accommodate a classroom of students and is customarily used for courses contained within the core curriculum.

There are currently approximately 51 capacity generating spaces within the school for any given period of which 40 to 45 are generally in use in any given period. If the assumption of 18 students per classroom is used to calculate capacity, the current school with 51 classrooms would result in a capacity of 780 students at 85% utilization. If class size increased by two students each to say 20 students per classroom, this would result in a capacity of 867 students which would help to accommodate the increase in enrollment projected by NEASC.

A utilization factor generally needs to be applied to the total number of students to accommodate for the inherent inefficiencies of any schedule and the fact that teachers do not teach every period. If a teacher generally stays in their assigned classrooms, even during periods when they are not actively teaching, the classroom is not 100% utilized throughout the day. To take these factors into account an 85% factor is often applied as an assumption. This is relatively consistent with actual usage at MVRHS where, during any given period there are about 40 to 45 classrooms in use out of a total of about 51.

The current MVRHS schedule is built around eight blocks during which a typical teacher is actively teaching during five of those periods while being engaged in other activities during the other three periods. If the assumption is made that a teacher has their own dedicated classroom assigned to them during the course of the day, then the use of that classroom is reduced to five out of eight blocks or 62% utilization. Therefore, it is important that teachers are not assigned to a room for all periods of the day, which results in a lower utilization due to the room being empty for multiple periods. The science, math, english, world language and history departments all report that they are at least one classroom short of having a one to one ratio of teacher to room. This is a necessary reality for the school to reach 85% utilization unless more classrooms are constructed specifically to accommodate a one to one relationship of instructor to room.

APPROACH TO CAPACITY ISSUE

In order to maintain and/or increase the capacity of the school there are a few options. One option is to create additional classrooms to accommodate future growth. A different approach is to have teachers more broadly share classrooms and not be assigned dedicated rooms. Finally, as noted, a modest increase in the average student per class size would increase the schools capacity.

The idea of sharing classrooms forces the discussion of where teachers can productively work when they are not actively teaching and their room is in use by another instructor. One answer to this question is to provide adequate teacher planning areas that can be used by teachers for individual planning and preparation time and also for common planning time with colleagues. The need for common planning and a team approach is emphasized in the NEASC report and was mentioned by faculty and staff as important to developing a more inter-disciplinary curriculum. Teacher planning areas help to make this approach possible and offer the possibility of modeling a collaborative and collegial school environment to the students. At MVRHS there is currently almost no area that can serve this function.

COMPLIANCE WITH THE MSBA STANDARD TEMPLATE

A final analysis was undertaken to understand whether, if the existing school were to be replaced with a new school funded under MSBA guidelines, the replacement school would be larger or smaller than the current building. The conclusion is that an MSBA approved and funded replacement building would be approximately 20,000 SF smaller than the existing school is today based on an assumed student population of 800 students. This is in part due to the less than efficient layout of the existing building that results in a high net to gross ratio as well as the fact that certain program areas are larger than MSBA guidelines would currently allow. This exercise suggests that the current school is not undersized by current standards. The analysis has little further benefit however as it does not take into account the specific inefficiencies in the design of the current building and would be more useful in planning a replacement school.

CAPACITY DIAGRAM

Department Legend

- ADMINISTRATION
- ALTERNATIVE PROGRAM
- ART
- BUSINESS
- CAFETERIA
- CAREER TECHNOLOGY EDUCATION
- ENGLISH
- FOREIGN LANGUAGE
- GUIDANCE
- HEALTH/PE
- HISTORY
- LIBRARY
- MATH
- PERFORMING ARTS
- SCIENCE
- SPED

(23) INDICATES A CAPACITY GENERATING ROOM WITH 23 STUDENTS

ACTUAL ENROLLMENT 682 - 14/15 ACADEMIC YEAR
WITH 51 CAPACITY CLASSROOMS, SCHOOL IS AT ABOUT 75% CAPACITY

BUILDING VS MSBA TEMPLATE
MVRHS 165,000 SF +/-
MSBA 145,600 +/-

CAPACITY ANALYSIS USING STANDARD MULTIPLIER
51 CAPACITY GENERATING CLASSROOMS x 23 STUDENTS = 1,173
1,173 x 85% = 997 STUDENTS
85% IS A "RULE OF THUMB" CALCULATION USED TO ESTABLISH CAPACITY

MVRHS CAPACITY NEASC
REPORT INDICATES TYPICAL CLASS SIZE IS IN THE 16 TO 18 STUDENT RANGE.

CAPACITY ---
51 CLASSROOMS x 18 STUDENTS = 918
918 X 85% = 780 STUDENTS

DIAGRAM INDICATES APPROX. 51 CAPACITY GENERATING SPACES.

TYPICAL BLOCK SCHEDULE AT MVRHS INDICATES THAT APPROXIMATELY 43 ROOMS ARE IN USE FOR ANY GIVEN PERIOD.

51 X 85% = 43 ROOMS
A TYPICAL BLOCK ARRANGEMENT IS THEREFORE 85% EFFICIENT.

CURRENT UTILIZATION BY BLOCK

BLOCK "C"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

BLOCK "D"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

CURRENT UTILIZATION BY BLOCK

BLOCK "F"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

BLOCK "G"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

BLOCK "E"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

BLOCK "H"

CURRENT CLASSROOM UTILIZATION

APPROXIMATELY 51 INSTRUCTIONAL SPACES AVAILABLE

APPROXIMATELY 43 IN USE TYPICAL PERIOD (VARIES BY BLOCK)

CONCEPTUAL PLANNING OPTIONS

OPTION 1 - FACILITY PLANNING AREAS

RENOVATION SPACE -4,000 SF +/-

THIS OPTION BRINGS UTILIZATION TO ABOUT 87%

49 AVAILABLE INSTRUCTIONAL SPACES
43 AVERAGE IN USE
87% UTILIZED

OPTION 1 - FACULTY PLANNING AREAS

RENOVATE THREE CLASSROOMS AREAS INTO TEACHER PLANNING CENTERS. THESE AREAS WILL INCREASE FACULTY COLLABORATION & PROVIDE LOCATIONS FOR FACULTY TO WORK & TO MEET WHEN NOT ACTIVELY TEACHING. THIS APPROACH IS ONLY POSSIBLE IF MORE CLASSROOMS BECOME SHARED FOR USE BY MULTIPLE TEACHERS & SUBJECT AREAS. SCHEDULE WOULD HAVE TO MAXIMIZE USE OF EMPTY CLASSROOMS EACH BLOCK.

OPTION 2 - P.E. ADDITION

NEW CONSTRUCTION - 9,361 SF +/-

NO CHANGE TO UTILIZATION

OPTION 2 - P.E. ADDITION

THIS ADDITION OFFERS OPPORTUNITY TO HAVE A WEIGHT ROOM INTEGRATED INTO THE SCHOOL AND ADDITIONAL SPACE FOR DANCE / MOVEMENT / CARDIO / ALT P.E.

OPTION 3 - ADDITION TO ACCOMMODATE DISTRICT ADMINISTRATION

NEW CONSTRUCTION - 9,334 SF +/-

NO CHANGE TO UTILIZATION

OPTION 4 - SCIENCE CLASSROOM ADDITION

- GUT RENOVATION - 7,707 SF +/-
- NEW CONSTRUCTION - 6,398 SF +/-
- REPROGRAMMING

THIS SCOPE UPDATES EXISTING SCIENCE LABS / EXPANDS CTE / CREATES A STEM SPACE - CTE SPACE CAN BE USED TO ACCOMMODATE MARITIME STUDIES & DIAGNOSTICS CLASSROOM FOR BUILDING & AUTO. SPED IS RELOCATED TO PHYSICS.

NO CHANGE IN UTILIZATION

OPTION 4 - SCIENCE CLASSROOM ADDITION

CONSTRUCT A 4 CLASSROOM ADDITION ADJACENT TO EXIST SCIENCE CLASSROOMS. ADDITION RESULTS IN INCREASE OF CLASSROOM SPACE. EXISTING CLASSROOMS RENOVATION INTO STEM SPACES & EXPANDED CTE INSTRUCTIONAL SPACES. SCOPE COULD INCLUDE NEW GREEN HOUSE

OPTION 5 - EXPAND CAFETERIA / RENOVATE LIBRARY / CULINARY ARTS ADDITION

GUT RENOVATION - 11,413 SF +/-

NEW CONSTRUCTION - 7,766 SF +/-

NO CHANGE TO UTILIZATION

OPTION 5 - EXPAND CAFETERIA / RENOVATE LIBRARY / CULINARY ARTS ADDITION

RENOVATE AND EXPAND EXISTING LIBRARY INCLUDING DEVELOPING GREATER TRANSPARENCY TO CIRCULATION. CONSTRUCT CAFETERIA ADDITION TO LOWER NUMBER OF REQUIRED LUNCHES. EXPAND CULINARY ARTS TO ACCOMMODATE ADDED TEACHING STATION

OPTION 6 - LARGE CLASSROOM ADDITION

RENOVATION - 16,080 SF +/-

NEW CONSTRUCTION - 24,024 SF +/-

OPTION 6 - LARGE CLASSROOM ADDITION

CONSTRUCT CLASSROOM ADDITION NEXT TO SCIENCE THAT IS LARGE ENOUGH TO ALLOW INSTALLATION OF TEACHER PLANNING CENTERS WITHOUT REDUCTION IN CURRENT CLASSROOM COUNT.

OPTION 7 - DEMOLITION AND CAFE, LIBRARY, CLASSROOM AND ADMINISTRATION ADDITION

NEW CONSTRUCTION - 48,614 SF +/-

DEMOLITION - 53,115 SF

*POTENTIAL SWING SPACE CAN BE MODULAR & CHANGED TO DISTRICT OFFICE AFTER PROJECT

OPTION 7 - DEMOLITION AND CAFE, LIBRARY, CLASSROOM, AND ADMIN ADDITION

MOVES LEARNING COMMONS & TECH HUB TO CENTER OF SCHOOL. MORE COMPACT PLAN / ADMINISTRATION MORE CENTRAL SIGNIFICANT DISRUPTION DURING CONSTRUCTION AND HIGH CONSTRUCTION COST

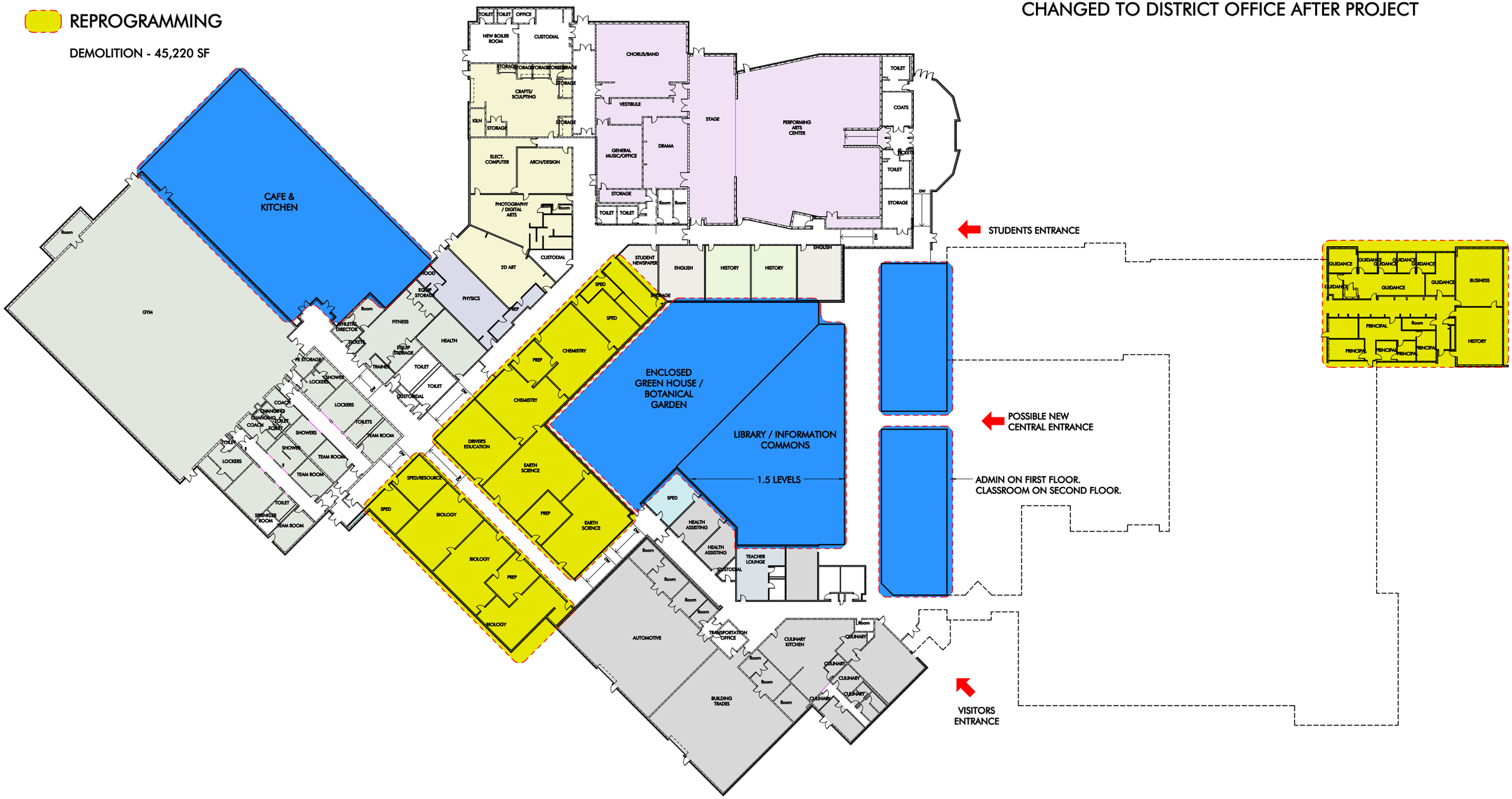
OPTION 8 - DEMOLITION AND CAFE, LIBRARY, CLASSROOM AND ADMINISTRATION ADDITION

NEW CONSTRUCTION - 50,000 SF +/-

REPROGRAMMING

DEMOLITION - 45,220 SF

*POTENTIAL SWING SPACE CAN BE MODULAR & CHANGED TO DISTRICT OFFICE AFTER PROJECT



OPTION 8 - DEMOLITION AND CAFE, LIBRARY, CLASSROOM AND ADMINISTRATION ADDITION

CREATES A MORE EFFICIENT AND COMPACT PLAN WITH SOME VERTICAL CLASSROOM EXPANSION. NEW INFO COMMONS, CAFETERIA, WEIGHTS AND MOVEMENT SPACES ALONG WITH A NEW GREEN HOUSE / BOTANICAL AREA INTEGRATED INTO THE SCHOOL. UTILIZES SECOND STORY LOFT IN AUTO & BUILDING TRADES FOR CLASSROOM SPACE AND PROVIDES POTENTIAL FOR CENTRAL DISTRICT OFFICES IN EXISTING SALVAGED BUILDING OR MODULARS

OPTION 9 - COMPREHENSIVE INTERIOR RENOVATION AND LIMITED ADDITION

- RENOVATION - 50,000 SF +/-
- NEW CONSTRUCTION - 4,000 +/-
- REPROGRAMMING

*POTENTIAL SWING SPACE CAN BE MODULAR & CHANGED TO DISTRICT OFFICE AFTER PROJECT

NO CHANGE TO UTILIZATION

OPTION 9 - COMPREHENSIVE INTERIOR RENOVATION AND LIMITED ADDITION

MOVES LIBRARY / INFO COMMONS TO CENTER OF SCHOOL. INCREASES CAFETERIA SIZE AND ADDS OUTDOOR EATING SPACE. INCREASES INTERDISCIPLINARY COLLABORATION WITH STUDENTS AND PROVIDES TEACHER PLANNING. INTEGRATES CTE BETTER AND CENTRALIZES ADMIN AND GUIDANCE. ADDS STUDENT BREAK OUT SPACE AND MULTIPLE STEM / TECH HUBS. AND DEDICATED ART / MAKER SPACE.

CONCEPTUAL MATRIX OF ALTERNATIVES

MARTHA'S VINEYARD HIGH SCHOOL	ELVALUATION MATRIX OF ALTERNATIVES								
CONCEPT OPTIONS	1	2	3	4	5	6	7	8	9
PROGRAMMATIC GOALS									
CREATE COMMON PLANNING AREAS FOR STAFF BY INCREASING UTILIZATION	●								
CREATE COMMON PLANNING AREAS W/O CHANGE TO UTILIZATION						●	●	●	●
PROMOTE INTERDICIPLINARY TEACHING & LEARNING						●	○	●	●
IMPROVE EXISTING LIBRARY	○	○	○	○	●	○	●	●	●
UPGRADE SCIENCE CLASSROOMS	○	○	○	●	○	○	●	●	●
ADEQUATELY ACCOMMODATE MARITIME STUDIES				●	●		○		●
ADEQUATELY ACCOMMODATE CULINARY ARTS					●		●		
EXPAND AVAILABLE TEACHING SPACE FOR AUTO AND BUILDING TRADE PROGRAMS				●					
EXPAND HEALTH ASSISTANCE CLASSROOM				●			●		
PROVIDE WEIGHT ROOM WITHIN SCHOOL, PROVIDE ALTERNATIVE P.E. SPACE FOR MOVEMENT		●				●		●	
PROVIDE STEM "MAKER SPACE" FOR FABRICATION				●		●		○	●
INCREASE CAFETERIA CAPACITY					●		●	●	●
IMPROVE THERAPUTIC SUPPORT SPACE				●					●
ACCOMMODATE DISTRICT ADMISTRATION OFFICES ON CAMPUS			●				○	○	○
RELOCATE ASST. PRINGCIPALS AND GUIDANCE MORE CENTRALLY WITHIN SCHOOL ENVIRONMENT						●	●	●	●
ENROLLMENT PROJECTION ACCOMODATION	UP TO 2021-22	UP TO 2021-22	UP TO 2021-22	UP TO 2021-22	UP TO 2021-22	UP TO 2023-24	UP TO 2024-25	UP TO 2024-25	UP TO 2021-22
ADDRESS HORTICULTURE & GREEN HOUSE NEEDS	○	○	○	○	○	○	○	●	○
INTEGRATE CTE							●	●	●
SUPPORT CO-TEACHING	○	○	○	○	○	○	○	○	●

MARTHA'S VINEYARD HIGH SCHOOL									
CONCEPT OPTIONS	**SF NEW +/-**	**SF RENO +/-**	**TOTAL SF**	**# OF STUDENTS**	**◦HVAC $5,500,000**	**◦ENVELOPE $3,000,000**	**TAI STUDY**	***ESTIMATED COST RANGE**	
OPTION 1 - (RENOVATON)	0	4,000	4,000	780	100%	100%	$1,360,000	$12,818,000	$12,922,000
OPTION 2 - (NEW)	9,361	0	9,361	780	100%	100%	$4,000,620	$16,267,706	$16,510,390
OPTIOIN 3 - (NEW)	9,334	0	9,334	780	100%	100%	$4,013,620	$16,267,706	$16,510,390
OPTION 4- (NEW/RENO/REPRO)	6,398	7,707	14,105	780	100%	100%	$5,372,380	$18,034,094	$18,400,876
OPTION 5 - (NEW/RENO)	7,766	11,413	19,179	780	100%	100%	$7,234,420	$20,454,746	$20,954,284
OPTION 6 - (NEW/RENO)	24,024	16,080	40,104	880	100%	100%	$15,760,000	$31,536,000	$32,578,000
OPTION 7 - (NEW)	48,614	0	48,614	880	50%	50%	$20,432,000	$32,866,600	$36,428,600
OPTION 8 - (NEW/REPRO)	50,000	0	50,000	880	50%	50%	$21,032,000	$32,866,600	$36,428,600
OPTION 9 - (NEW/RENO/REPRO)	3,246	49,984	53,230	780	100%	100%	$18,720,000	$35,386,000	$36,790,000

*INCLUDES ISLAND FACTOR, ONE YEAR ESCALATION & SOFT COST @ 30% THIS IS A PROJECT COST NUMBER INCLUDING ESTIMATES FOR HVAC + ENVELOPE BY OTHERS.
◦STUDIES BY OTHERS

NOTES:

MSBA ALLOWS FOR 850-950 SF/CR. AN AVERAGE OF 25 STUDENTS/CR, RESULTING IN ABOUT 38 SF/STUDENT. MVRHS IS AT ABOUT THE SAME WITH THEIR TYPICAL CLASS SIZE OF 18 STUDENTS

ADDITION COST IS ESTIMATED @ $430-$450 PER SQUARE FOOT
RENOVATION COST IS ESTIMATED @ $340-$360 PER SQUARE FOOT
ISLAND FACTOR IS 20-25% PREMIUM
ESCALATION IS 4% PER YEAR
*PHASING COST IS NOT INCLUDED
*POTENTIAL SWING SPACE NOT INCLUDED - COULD BE MODULARS USED FOR FUTURE DISTRICT ADMINISTRATION

PREFERRED PLANNING OPTION

PREFERRED OPTION - COMPREHENSIVE INTERIOR RENOVATION AND MAJOR ADDITION/DEMOLITION

1994 MAIN BUILDING

NEW ADDITION

GREEN SPACE

FIELDS

FIELDS

TRACK

STREETS

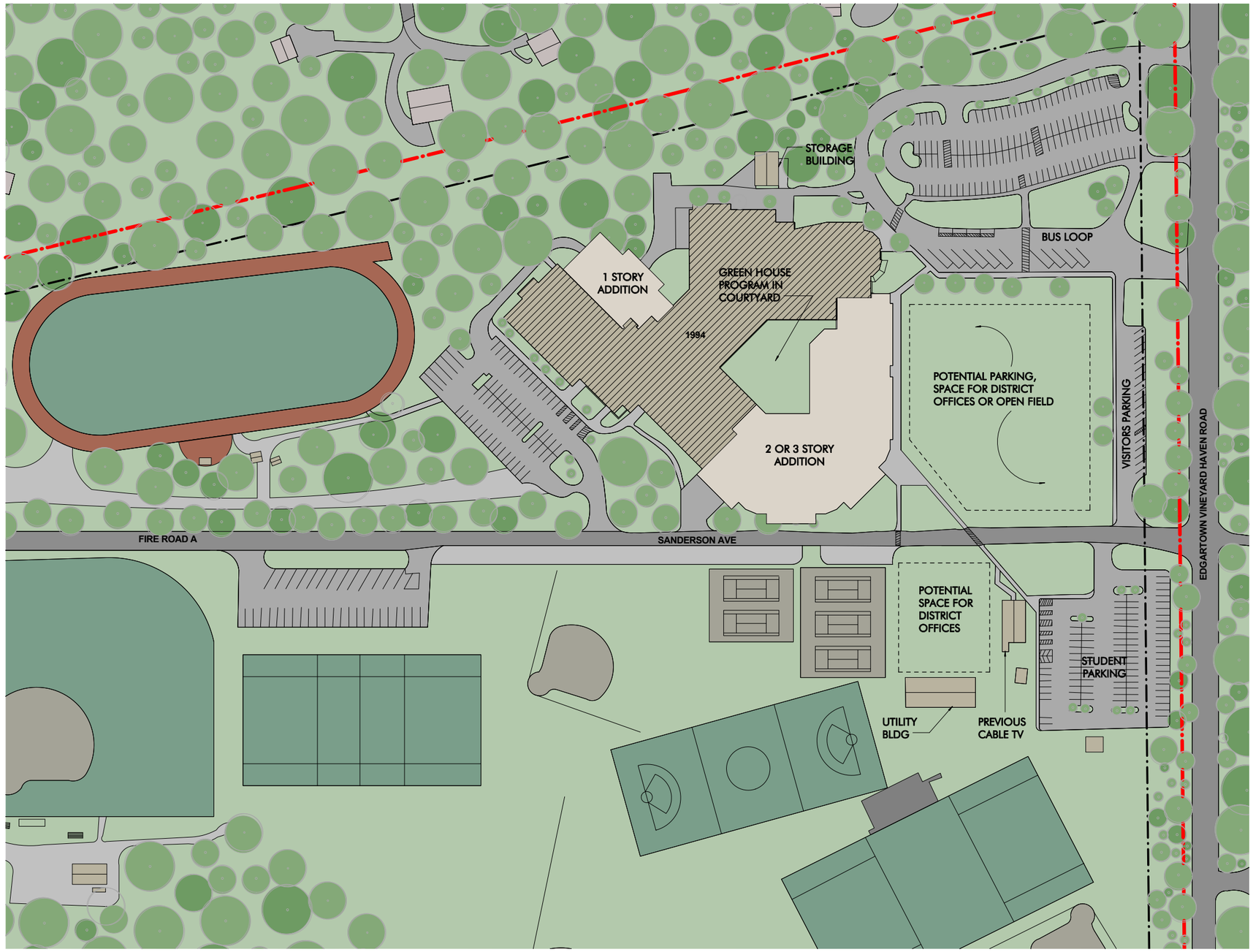
PARKING

SIDEWALKS

PROPERTY LINES

SETBACKS
FRONT - 50'-0"
SIDE - 50'-0"
REAR - 50'-0"

DISTRICT: R-3 RESIDENTIAL

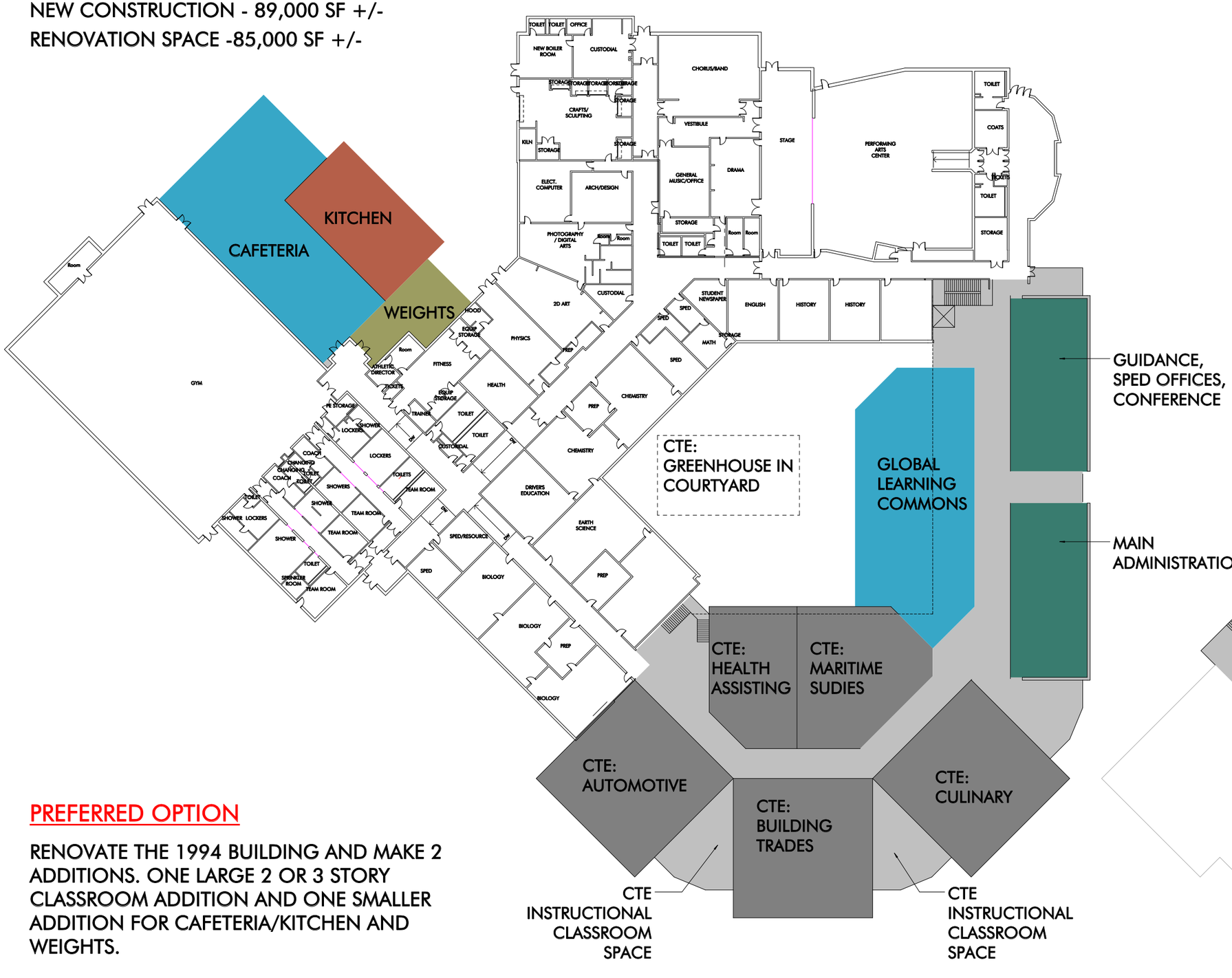


PREFERRED OPTION - COMPREHENSIVE INTERIOR RENOVATION AND MAJOR ADDITION/DEMOLITION

PRELIMINARY PLANNING CONCEPTS

NEW CONSTRUCTION - 89,000 SF +/-

RENOVATION SPACE -85,000 SF +/-

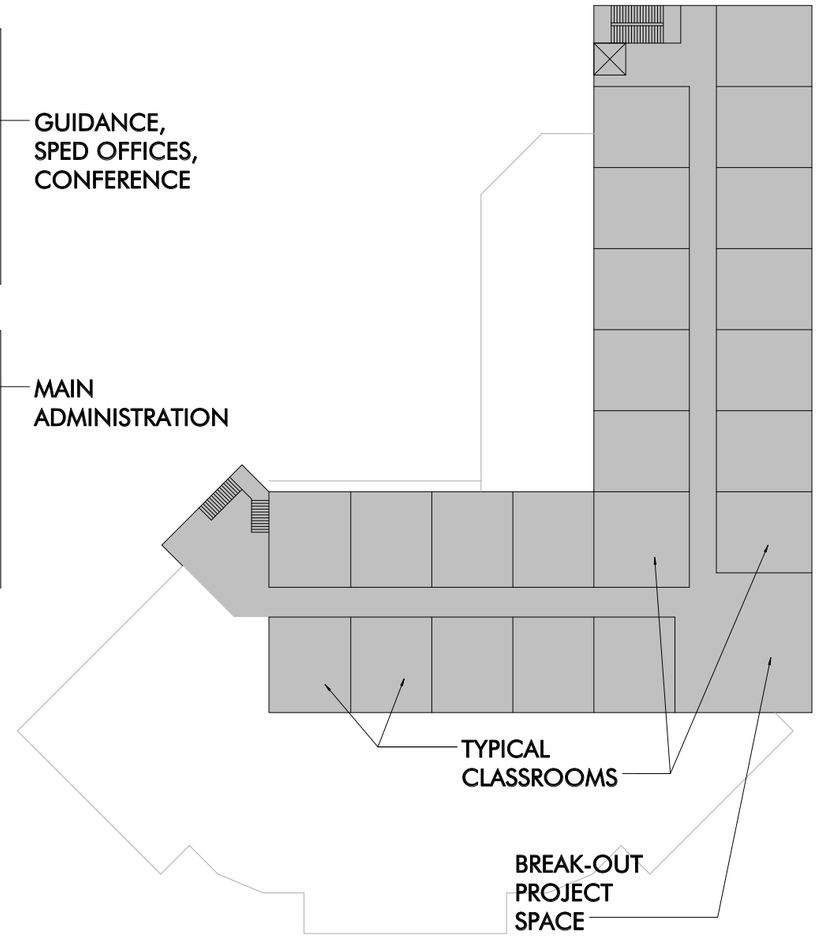


PREFERRED OPTION

RENOVATE THE 1994 BUILDING AND MAKE 2 ADDITIONS. ONE LARGE 2 OR 3 STORY CLASSROOM ADDITION AND ONE SMALLER ADDITION FOR CAFETERIA/KITCHEN AND WEIGHTS.

SECOND FLOOR

DEPENDING ON FINAL CAPACITY AND LAYOUT, A THIRD STORY WITH MORE CORRIDOR SPACE ON EACH LEVEL MAY BE DESIREABLE. THE SECOND FLOOR COULD BE SMALLER AND MORE ROOM BE ON BOTH THE TOP TWO CLASSROOM FLOORS.



PREFERRED OPTION BUDGET ANALYSIS

MARTHA'S VINEYARD HIGH SCHOOL									
PREFERRED OPTION	**SF NEW +/-**	**SF RENO +/-**	**TOTAL SF**	**# OF STUDENTS**	**◦HVAC $5,500,000**	**◦ENVELOPE $3,000,000**	**TAI STUDY**	***ESTIMATED CONSTRUCTION COST RANGE**	
OPTION 1 - (RENOVATON)	90,000	0 TO 85,000	90,000	828 - 920	50%	50%	$56,000,000	$60,000,000	$75,000,000

*INCLUDES ISLAND FACTOR, ONE YEAR ESCALATION & SOFT COST @ 30% THIS IS A PROJECT COST NUMBER INCLUDING ESTIMATES FOR HVAC + ENVELOPE BY OTHERS.
◦STUDIES BY OTHERS
Number of students is based on 46 classrooms with 18 - 20 students.
NOTES:

MSBA ALLOWS FOR 850-950 SF/CR. AN AVERAGE OF 25 STUDENTS/CR, RESULTING IN ABOUT 38 SF/STUDENT. MVRHS IS AT ABOUT THE SAME WITH THEIR TYPICAL CLASS SIZE OF 18 STUDENTS

ADDITION COST IS ESTIMATED @ $430-$450 PER SQUARE FOOT
RENOVATION COST IS ESTIMATED @ $340-$360 PER SQUARE FOOT
ISLAND FACTOR IS 20-25% PREMIUM
ESCALATION IS 4% PER YEAR
*PHASING COST IS NOT INCLUDED
*POTENTIAL SWING SPACE NOT INCLUDED - COULD BE MODULARS USED FOR FUTURE DISTRICT ADMINISTRATION

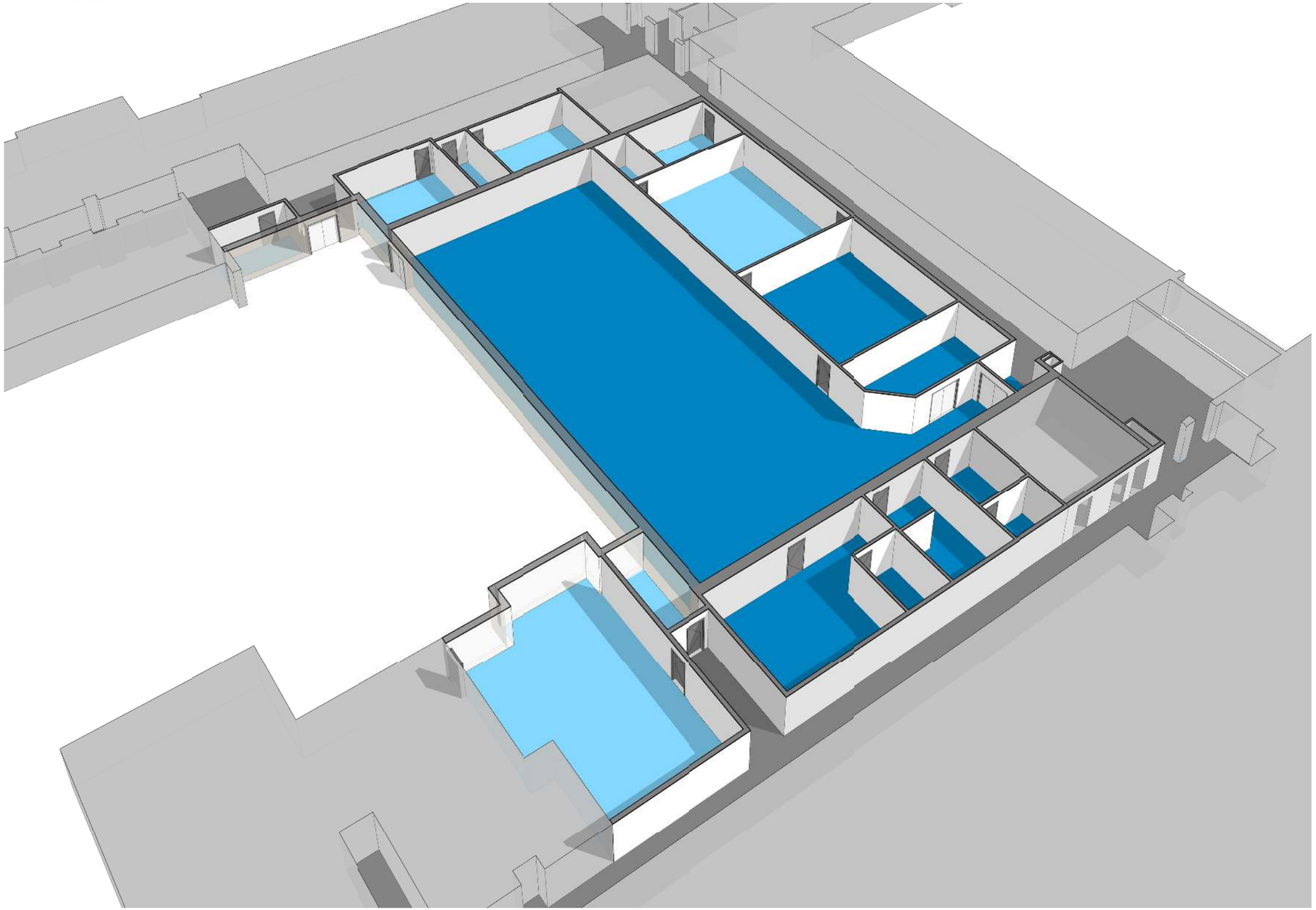
APPENDIX

MVRHS - HVAC SYSTEMS EVALUATION

BUILDING ENVELOPE CONDITIONS SURVEY

GLOBAL LEARNING CENTER STUDY

GLOBAL LEARNING COMMONS



LEGEND

- EXISTING MEDIA CENTER
- OTHER
- EXISTING CORRIDOR

EXISTING CONDITIONS

TAPPÉ ARCHITECTS, INC
Six Edgerly Place, Boston, MA 02116

GLOBAL LEARNING COMMONS

LEGEND

1 COMMUNITY ENTRANCE
2 WORLD NEWS CENTER
3 CAFE
4 SERVICE DESK
5 TECH SERVICES
6 LIBRARY ADMINISTRATION
7 GROUP WORK CENTER
8 PEER TO PEER CENTER
9 DESIGN CENTER (3D PRINTING)
10 MAIN COLLECTION (10,000 BOOKS)
11 SMALL GROUP ROOMS
12 WORK LOUNGE / SPECIAL COLLECTIONS
13 STUDENT ENTRY POINTS
14 MULTIPURPOSE MEETING ROOM
15 BREAKOUT SPACE
16 PRESENTATION PLATFORM
17 DOORS TO READING PATIO
18 READING PATIO
19 OUTDOOR CLASSROOM

NEW LEARNING COMMONS

EXISTING CORRIDOR

ALTERNATE LAYOUT

TAPPÉ ARCHITECTS, INC
Six Edgerly Place, Boston, MA 02116

GLOBAL LEARNING COMMONS

VIEW FROM STUDENT CORRIDOR ENTRY

TAPPÉ ARCHITECTS, INC
Six Edgerly Place, Boston, MA 02116

GLOBAL LEARNING COMMONS

VIEW FROM MAIN ENTRY

GLOBAL LEARNING COMMONS

VIEW TOWARDS MAIN ENTRY

GLOBAL LEARNING COMMONS

VIEW FROM PRESENTATION PLATFORM

KITCHEN EQUIPMENT AND LAYOUT STUDY

DISTRIC ADMINSTRATION OFFICES STUDY

MASSACHUSETTS DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION

CHAPTER 74 MANUAL

STUDENT AS THE END RESULT - EXERCISE

SCHOOL IMPROVEMENT PLAN

NEASC REPORT

LOCAL ZONING REGULATIONS