

WAYLAND HIGH SCHOOL PRELIMINARY DESIGN REPORT

EDUCATIONAL PROGRAMMING

MAJOR ACADEMIC SPACE REQUIREMENTS

The School Committee requested the HSBC to provide a programmatic solution that would support up to 1,100 students and the current educational program at WHS. HMFH began the programming process with a detailed review of the existing space utilization. We found that many of the school's classrooms are already utilized at 100% capacity and a majority of the rest of the school is utilized over the state planning maximum of 85% even at 881 students. This utilization will continue to increase as the student body grows further. Only the smallest classrooms in the Language Building had utilization of under 80%. A minimum of 2 – 3 teachers share each classroom and often teachers are floated to distant buildings in order to fit in some of their class periods that cannot be scheduled anywhere more convenient. This is of particular concern with science or other classes with specialty equipment that are scheduled in inappropriate general classroom space.

HMFH met with all high school departments to receive their programmatic requests and then after comparing these to standard educational practices and state recommendations, prepared the HMFH-1 Program listed in Appendix 12. This is based on 1,100 students with classrooms utilized 85% of the time with an average class size of 20 students. This HMFH-1 program provided a total of 204,043 square feet of net space for high school programs, school district-wide support space, and community space. The current facility provides 126,085 square feet of net space. Over the next several months the design team worked closely with the school administration to reduce this program to the final version shown in HMFH-5 in Appendix 12. The final program reduced the net space by 23,202 square feet to a final total of 180,841 square feet. This includes 173,691 of high school space, 3,650 of school district-wide support space, and 3,500 of community related space.

The logic for the entire programming process has been described in the "Education Program Narrative" dated June 29, 2004 which is attached in Appendix 12. The methodology used to determine the number of classrooms and laboratories for the five major academic disciplines (English, Social Studies, World Languages, Mathematics and Science) is described in a document entitled "Educational Specification Tables and Academic Area Matrices for Wayland High School" and dated April 15, 2004. See Table 4.1 "Basic Educational Program for Various Student Populations & Classroom Utilization" for a summary of programming models reviewed. This table shows the number of existing classrooms and labs and compares this to the number and size that would be needed to meet the programmatic needs of 881, 1000, or 1100 students at 80% or 85% utilization. Note this analysis was completed in the spring of 2004 when enrollment was 881; fall 2004 enrollment is 897. Column 6A shows the basic educational program the HSBC has accepted.

See Preliminary Education Program in the Appendix 12 for a more detailed list of program spaces.

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Wayland High School							18-Nov	
Basic Educational Program for Various Student Populations & Classroom Utilization								
HMFH Architects, Inc.								
Class Size =>120								
Table	1	2 A	3 A	4 A	5 A	Final 6 A	7 A	
Enrollment	881***	881	881	1000	1000	1100	1100	
CR Utilization Factor Existing		85%	80%	85%	80%	85%	80%	
English CR	5	7	7	7	8	8	8	
CR Size	764	780	780	780	780	780	780	
Net Area	3820	5460	5460	5460	6240	6240	6240	
Theater Arts CR	1	0**	0**	0**	0**	0**	0**	
CR Size	752	0	0	0	0	0	0	
Net Area	752	0	0	0	0	0	0	
Social Studies CR	8	7	7	8	8	8	8	
CR Size	564	780	780	780	780	780	780	
Net Area	4512	5460	5460	6240	6240	6240	6240	
Business CR	0	1	1	1	1	1	1	
CR Size	0	1050	1050	1050	1050	1050	1050	
Net Area	0	1050	1050	1050	1050	1050	1050	
Language CR	8	7	7	7	7	7	8	
CR Size	524	780	780	780	780	780	780	
Net Area	4192	5460	5460	5460	5460	5460	6240	
Mathematics CR	5	7	7	8	8	8	9	
CR Size	754	780	780	780	780	780	780	
Net Area	3770	5460	5460	6240	6240	6240	7020	
Science Lab/CR	6	7	7	8	8	10	10	
Lab/CR Size	988	1330	1330	1330	1330	1330	1330	
Net Area	5928	9310	9310	10640	10640	13300	13300	
Science CR	1	0*	0*	0*	0*	0*	0*	
CR Size	776	0	0	0	0	0	0	
Net Area	776	0	0	0	0	0	0	
Health CR	0	1	1	1	1	1	1	
CR Size	0	780	780	780	780	780	780	
Net Area	0	780	780	780	780	780	780	
Total Net Academic Area	750	32,980	32,980	35,870	36,650	39,310	40,870	
NOTES:	*	Due to future program change all Science CRs now labs						
	**	Theater Arts CR included as part of new Auditorium						
	***	In Spring 2004 enrollment was 881. Fall 2004 enrollment is:						

TABLE 4.1 BASIC EDUCATIONAL PROGRAM FOR VARIOUS STUDENT POPULATIONS & CLASSROOM UTILIZATION

Our recommendation would also provide the flexibility to provide appropriate space for an enrollment of 1,000 students with an average class size of 20 and an overall classroom utilization factor of 80%. It would also suffice, if student growth exceeds current predictions, to accommodate an enrollment of 1200 students with an average class size of 23 and an overall classroom utilization factor of 85%. The number of required science laboratory/classrooms was originally determined on the basis of an 83% utilization factor that included an allowance for a one-period set-up time before each scheduled double-laboratory period. The resulting 12 science lab/classrooms would have accommodated an enrollment of 1,100 students using an average class size of 20. Upon further review with the Administration we reduced the number of lab/classrooms to 10 which allows every lab to have a set-up period prior to double labs with a school population of 1,000 students but would significantly reduce available set-up periods with 1,100 students but otherwise still fit all regular science classes at approximately 83% utilization.

Average classroom size requested was 900 square feet. In order to reduce overall program square footage this has been reduced to 780 square feet for all eight English and eight Social Studies classrooms (compare to a School Building Assistance recommended 750 s.f. minimum to 900 s.f. maximum for high school classrooms). Various specialty classrooms with significant technology such as the Language Laboratory, a dedicated Language Technology Center (enhanced computer lab), two Math Computer Labs, combined English/Social Studies and Science/Mathematics Computer Labs, and the Business Classroom will each have at least 30 computer stations, plus printers and other accessories, requiring 1,050 square feet each.

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We originally programmed ten (10) Science lab/classrooms at 1440 square feet and 2 science classrooms at 1000 square feet for the non-laboratory Science courses. This recommendation was based upon the way science is currently taught at Wayland High School. Further discussion with the science faculty and with the school administration has convinced us that, for future flexibility: (1) all science classrooms should be combination lab/classrooms and, (2) that these lab/classrooms should be a minimum of 1350 square feet (further reduced to 1,330 s.f.) each to allow a maximum of 24 students to move comfortably and safely around the lab benches and equipment and to accommodate at least one computer at each 4-person lab station. This is consistent with current laboratory planning standards: i.e. 24 students @ 50 square feet per student plus 6 computers @ 25 square feet per computer station. The total number of lab/classrooms has been reduced to 10. As is the general practice in most high schools, each pair of science lab/classrooms will share a 200 square foot prep and storage room. Finally, we have programmed a single 600 square foot lab/classroom for student projects and independent study that has become an essential component of every high school Science department that encourages its students to enter the various local, regional and national Science competitions.

In addition to the scheduled academic classrooms and laboratories, we have included teacher workrooms and other faculty support facilities for each of 5 main departments. Each departmental centers will have a faculty workroom with individual work stations for each anticipated faculty member including a kitchenette area. Adjacent to each faculty workroom will be a 250 square foot conference room to sit up to 10 staff, a 200 square foot departmental storage room, an 80 square foot copy room and a 50 square foot "focus room" for one-on-one conversations and private telephone calls.

ART, MUSIC AND THEATER ARTS

The Art Dept. in combination with the general school-wide assembly needs originally requested an auditorium with a stage to seat 850 in approximately 10,500 s.f., a dedicated 900 s.f. Drama Classroom, a 2,500 s.f. black box theater for more flexible, small scale, experimental theater rehearsal and performance, and a 1,700 s.f. Media Forum which would provide comfortable lecture space for mid size groups up to approximately 100. In order to reduce program space but still provide as robust and flexible a facility as possible we have combined all the auditorium, drama classroom, black box theater, and large meeting requests into one multi-functioning large auditorium that can seat 850 in approximately 8,000 square feet and a 1,700 square foot stage. The space is currently envisioned with operable acoustic partitions to allow the front half of the Auditorium to act as a flat floor black box theater with loose chairs for maximum flexibility. The back half will serve as a Media Forum that will provide L-1-like meeting facilities but in a more comfortable setting for up to 300. The space will also have a small flat performance area at the front, immediately behind the black box area. The stage may also be closed off from the main auditorium with an operable acoustic partition for drama class use. The combined usage of these spaces in lieu of the original uncombined specialty spaces provides an overall reduction of approximately 5,900 net program square feet. There will obviously be less flexibility of use with this combined plan in that none of the smaller venues may be used at the same time the entire auditorium is in use. Details of how this multi-purpose flexibility will be provided has yet to be completed and as these issues are investigated further the outcome of our research may continue to dramatically effect the layout of these spaces in order to provide a flexible facility, but one that can also perform efficiently at a high level of performance.

The Auditorium has been sized to meet the requested seating capacity of 850. This will not be large enough for the entire school, although for speeches and other activities that take up a small amount of stage space, up to 168 loose chairs could be added to the stage for total capacity of up to approximately 1,018. It is estimated that there will be approximately 40 large scale events per year in the auditorium including music, drama, town meeting, school assemblies, and community events. In this count a multi-evening show such as the annual high school musical has only been counted as one event although it may be performed for 3 evenings. See the memo from Jane Ezbicki describing estimated use of the auditorium.

We have been asked why assemblies of this size cannot occur in the new gym that has bleacher seating for 840. The gym will not have the quality sound system, sound mixing, acoustic quality, lighting control, or comfortable seating for longer musical or drama performances. It also will not have a stage. It will also be heavily used for athletic practices and games, especially throughout the winter, at the same time that many drama or music rehearsals or performances would be occurring.

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The Fine Arts Dept. requested dedicated separate rooms for both band and orchestra to fit an ensemble of up to 120 students and their instruments. These spaces need to be at least 2,300 square feet in addition to instrument storage. Chorus would also use one of these rooms in a different period. This allows sharing of various players across the concert band and symphony orchestra. This also allows chairs, music stands, large instruments, and electronic amplification equipment to remain set up without having to take them down as is the current practice with orchestra rehearsal on the Little Theater stage.

PHYSICAL EDUCATION AND ATHLETICS

Demand for physical education space has been reduced with the new health and wellness programs as well as reductions in PE staff so most of the need for athletic facilities is driven by the after school athletics. Wayland has very high participation in athletics for its size with an average of over 350 athletes every season and 20 sports, many of which have girls and boys' freshman, JV, and Varsity teams. These numbers will only increase as the current student population increases from 897 to 1,100. Many teams currently make cuts and there is not any additional indoor practice space for other teams. Many of these cut students would like to play on a club or intramural team if there was available court or field space. School Building Assistance, under its latest regulations that are currently in limbo, does not fund field houses. This makes the existing 37,870 square foot field house with the 1/11th mile track very attractive to maintain in the new program. (Note that in Scheme 1 and 2 the existing field house square footage to be renovated was larger due to the inclusion of the existing field house boiler and outdoor storage areas as well as the relatively new weight room addition. In Scheme 3 these appendages to the field house dome have been demolished and replaced with new construction). The field house provides excellent practice space for the 84 members of the indoor winter track teams as well as the other 180 winter athletes that use only this facility for running as well as fall and spring athletes on rainy days. The current track in-field is only large enough to hold one 84' basketball court which is the minimum length for High School regulation basketball courts, as well as one smaller practice court on the non-wood portion of the infield.

The competition gym court will provide space for two 50'x84' practice courts or one competition court when the bleachers are open. It will also serve for wrestling competitions. This space would also be the largest meeting space at the High School and in Wayland and could seat the entire student body and staff or up to 1,640 at Town Meeting with 800 sitting in loose chairs on the court.

The bleachers and the existing wood court will be removed from the infield of the field house track and this can then be used for two 50 x 84 practice basketball courts. There are 6 basketball teams that will use these four courts for practice at the same time that winter track uses the infield for high jump, shot put, etc., as well as the track.

There are a number of other smaller athletic spaces for use by Athletics and PE as well as after school student and community use including spaces ranging from 1,200 to 1,600 square feet for Fitness with weights, Fitness with aerobic machines, multi-purpose / yoga / dance, and wrestling practice. All of these smaller athletic spaces are located in the current field house on the east and west sides of the track.

Girls and Boys locker rooms are provided that have a locker for every student in the school as well as space for up to 200 girl or boy athletes to change during any one season. They are provided with a small number of individual showers. Athletic storage similar to current requirements are provided with the addition of 500 square feet of community athletic storage. Offices are provided in the locker rooms for PE teachers and a separate 300 s.f. coaches office is provided for after school sports for both men and women. One 800 square foot Health Classroom has been provided with an adjoining 200 square foot storage room.

GUIDANCE AND SPECIAL EDUCATION

New guidance facilities will include 9 offices for counselors, and adjustment officer and the school psychologist typically at 120 square feet to allow a counselor to meet in their office with up to three other people (a student and two parents for example). The following Guidance spaces have been provided: one 250 square foot Conference Room, a combined Career Center / Guidance Classroom of 900 square feet, a Guidance Record Storage room of 250 square feet, a 200 s.f. Copy/Workroom/Supply Room, and a small kitchenette. An Academic Tutoring Center of 1,000 square feet has been provided as a space where any student can go to get help with academic work or time management. This will help reduce pressure to increase the number of children with education plans that will enlarge special education requirements.

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Special Education maintains the 8 LRTs and ALRT spaces they have now but they have been enlarged from an average of 337 square feet to 500 square feet. The slightly larger rooms will allow the 6 – 10 students that might meet in an LRT to be able to spread out more, work in small groups better, with more acoustic isolation. Six additional 120 square foot small group tutoring spaces have been added attached to one of the Learning Resource Team (LRT) main spaces (LRT West). This will allow the current 15 – 20 tutors more quiet space to work one on one or with small groups of students who would otherwise be disturbed by the noise of lots of other small group sessions occurring in the same space.

LIBRARY AND MEDIA/COMPUTER USE

The existing Media Center is a significant space of 8,256 square feet, larger than many surrounding schools of similar size. This much space is used at this school because the students are less programmed into study halls and more independence is provided, giving them more time for independent study during the school day. The new plan for the Media Center is to reduce square footage used for circulation and book storage by providing minimum spaces between stacks and having 7'-0" high stacks in lieu of existing 3' stacks. This will allow the facility to be reduced in size to approximately 6,060 (including collaboration rooms) while still providing for the same number of volumes, 50 computer work stations, and the same number of study spaces at tables as currently exist.

We have provided 3 Collaboration Rooms of 180 square feet each which can provide acoustically isolated work space for up to 6 students each while being visually observable by the Librarian through glass walls. A 4th larger Collaboration Room has been provided at 300 square feet and this doubles as the Media Center Conference Room. We propose to maintain the highly space-efficient mechanized book storage system.

There is a significant lack of computers at the High School for individual student use outside of class scheduled computer lab time. The current single Library Computer Lab which is the only space on campus open to all students for individual student computer use is often scheduled by classes. We have proposed to add 50 student computers to the Library in open work areas in addition to 20 computers spread between the 3 proposed Reference Centers. These computers that are open for student use also replace the 10 PCs in the current Honors Computer Lab needed for AP testing/studying software. In order to reduce program space we have cut some of the computer lab space out of various departments leaving only a total of 3 general Computer Labs with 30 computers each and the English Writing Lab with 10 computers, the same as current number of labs with only 881 students. This means that given current teaching styles the lab space will be inadequate unless teachers accept the inconvenience of 10 minutes of lost class time required for setting up and putting away lap tops from a cart.

FOOD PREPARATION AND FOOD SERVICES

The current Commons cafeteria seats 340 students in 7,470 square feet or 22 square feet per student. The annex adds seats for an additional 92 students in 1,245 s.f. for a total of 8,715 square feet. The current student population of 897 eats lunch over 3 periods in these spaces. The administration request was for a space large enough to seat the entire 1,200 student population at one seating. HMFH proposed to cut this to two seatings. It has now been reduced to seat the near-term expected 1,000 students at two seatings with 9,000 square feet.

In the proposed campus plan the Commons doubles as circulation space, student study and club space during and after school, intermission space during large athletic events and drama or music performances, art gallery space, and a space to hang out during free periods. The current size requires a reduction below the current 6' – 7' clear between tables (or 3'-4' between stools attached to tables) but should still allow for adequate space for a comfortable feeling campus-wide community living space. The Administration and Guidance Departments will be adjacent to this space to encourage student access and administration integration into daily student life. A "food court" type food delivery system has been proposed that will allow more efficient delivery of a large number of meals over a shorter period of time.

OVERALL SCHOOL ADMINISTRATION

The School Administration will be centrally located off the commons, the expected hub of student activity. The General office area provides space for reception, as well as three secretaries and an in-house suspension in 800 square feet. Four individual offices ring this space ranging from 175 to 250 square feet in order to provide each administrator room to meet in their office with a student, counselor and 2 parents. Larger conferences are held in the Administration Conference Room that holds up to 10. The larger school-wide conference room is also adjacent to the Administration main office and should hold up to 20, 14 around a table. The area also includes staff and student mail areas, copy and central academic supplies storage space.

SCHOOL MAINTENANCE OPERATIONS

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The School District-wide maintenance office is currently at the Town Offices in Wayland Center and the maintenance man's station wagon. There is a small 467 square foot shop located at the High School since this is the largest facility maintained. We are proposing to add a separate School District-wide Maintenance Building with a total of 2,250 square foot program space at the High School. This would include two truck bays for a maintenance truck and a truck with a snowplow as well as outdoor equipment storage space for snow blowers, leaf blowers, etc. It also includes a more adequate 600 s.f. maintenance shop, as well as a maintenance office/central Automatic Temperature Control (ATC) office of 150 s.f. This space could be used to control all of the schools ATC systems as they become direct digital control (DDC) systems similar to the Middle School and the renovated High School.

Custodial storage space has been increased to include four 50 square foot custodial storage/slop sink rooms, one on each floor of the classroom building and two in the Commons building. Centralized building custodial storage and receiving of 1,600 square feet has been provided adjacent to the new loading dock.