

# WAYLAND HIGH SCHOOL PRELIMINARY DESIGN REPORT

## EXECUTIVE SUMMARY

In February the HSBC began a 10 month process to review previous studies and complete additional in depth analysis to determine the needs and appropriate design solutions for the High School. The major needs at the facility are:

- Address safety, building and accessibility code requirements
- Enlarge facility to meet requirements of expanding student population
- Expand classroom size to meet state minimums
- Improve interior educational environment
- Expand athletics and art facilities to meet current demand
- Include common space to support academic program
- Replace failing building systems
- Provide new technology infrastructure

The HSBC charge was to meet these needs in the most cost effective manner.

## GOALS AND PROCESS

HMFH Architects, Inc. and Turner Construction Co. were hired to complete this study and manage the decision making process. The Committee began its internal review with a goal setting process. The design team helped inform these goals with an extensive programming process, meeting with all departments at the high school as well as with all appropriate town departments. HMFH reviewed the information received in relation to benchmarking data and standard educational practices and provided an analysis of current space utilization, a detailed educational specification and a comprehensive space program.

## EXISTING CONDITIONS

Simultaneously the design team performed an extensive review of existing conditions to determine required scope for possible renovations. There are eight existing buildings laid out in a campus manner and totaling 162,185 square feet. Most of the buildings were opened in 1960. This review determined that although the facility is well maintained, many portions of its systems are near or beyond their expected life and need replacement or significant upgrades including roofs, windows, carpeting, HVAC, plumbing, electrical and sewage disposal. Handicap accessibility in the buildings and around the site, as well as hazardous material abatement both require significant renovations throughout the facility to provide a long-term, code compliant solution.

## EDUCATIONAL PROGRAM

An educational program for the high school was developed to serve a maximum anticipated enrollment of 1,100 students with an average class size of 20 students and a classroom utilization factor of 85% (the maximum allowed by the state for planning purposes) The program includes an increase of 6 general classrooms and 3 Science labs. A majority of the additional classroom space is provided to increase unusually small typical WHS classroom sizes, as low as 477 square feet, up to 780 square feet (state regulations require 750 - 900 s.f.). A new gym is provided with a regulation basketball court and bleacher seating as well as a series of 3 lecture and theater spaces that when combined create an 850-seat auditorium for school and community use.

The design team then prepared three schemes that all met the programmatic and facility requirements but in different ways. See comparison in Figure 1.1. This chart is based on data prepared and reviewed in July.

Scheme	Scope	S.F.	Scope	S.F.	S.F.	(months)	Cost
1	All buildings	165,295	Gym, Aud., Math/Sci.	85,565	250,860	30	\$56,109,116
2	Fieldhouse, Arts, Media, Math/English	114,535	All Classrooms, Gym, Aud., Commons, Music, Admin.	119,738	234,273	29	\$53,981,609
3*	Field house	40,799	All except fieldhouse	191,660	232,459	28	\$55,493,557
Note *	See Section 8 for final selected scheme 3 costs						

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## FIGURE 1.1 THREE SCHEME COMPARISON

The Committee, after six weeks of debate and public comment selected Scheme 3 as the most overall cost efficient option with the best end result in long-term facility value, lowest operating cost, and optimal educational opportunities and a significantly reduced risk profile in comparison to Schemes 1 and 2 that both have large amounts of renovation. The Committee rejected Scheme 1 due to its highest cost, longest schedule, disruption to program, risk of cost overruns, and lack of optimal educational space. The Committee rejected Scheme 2 although it maintained much of the campus style and was the lowest cost option by \$1.5 million. Similar to Scheme 1 it had a longer schedule to complete much of its new academic space with more programmatic disruption, some sub-optimal educational spaces, more cost spent on temporary measures and multiple moves, higher long term maintenance costs and a higher risk for increased cost due to latent conditions.

## BENCHMARKING

In order to gauge the appropriateness of the program and the design options, HMFH provided benchmarking data from similar local high school renovation and new construction projects that have been completed recently. This analysis was completed for school size and cost as well as building size and functionality for performing arts and athletics. This data convinced the HSBC that the proposed size of the facility, in the midrange of square feet per student, was reasonable given the size of the existing field house and the relatively low cost to renovate it. Athletic space and music spaces appear appropriate given the high level of student participation at WHS. The Auditorium seating is appropriate for the size of the school, the types of productions, and the lack of other large assembly spaces in town.

## SUSTAINABLE DESIGN / LOWEST LIFECYCLE COST APPROACH

The HSBC's goals for the project include a sustainably-designed facility that will optimize the quality of the interior learning environment, reduce operations and maintenance costs through energy efficiency and durable/low maintenance materials, and provide an environmentally responsive solution to this sensitive site. The proposed scheme includes low-maintenance building materials and systems that are estimated to reduce energy costs by over 35% in comparison to a built-to-code building. Detailed lifecycle cost analysis will be reviewed in the next phase to demonstrate long term operational savings from various material and system selections.

## SELECTED SCHEME

For three months after Scheme 3 was selected the design team further developed this scheme and completed conceptual design of the new Classroom/Media Center building and Commons building as well as field house renovations. The final conceptual design project totals 234,213 s.f. plus a waste water treatment plant/maintenance building for a 2007 project cost of \$57,300,000. The project will be built in two major phases of new construction plus the smaller final phase for the field house renovations and completion of site work, all over a 37 month period. The plan and site design of the recommended high school design is presented in Figure 1.3. See Figure 1.2 for final metrics on this selected option.

	Renovat'n	Renovat'n	New Constr.	New Constr.	Total	Constr. Duration	Project
Scheme	Scope	S.F.	Scope	S.F.	S.F.	(months)	Cost
Final	Field house	37,870	All except field house	196,533	234,403	37	\$57,300,000

FIGURE 1.2 SELECTED SCHEME SUMMARY

