Natick High School Renovation Committee
Modernization Study Executive Summary

Recommendation

The Natick High School Renovation Committee ("NHSRC") was formed by the 2000 Annual Town Meeting, and was charged with assisting the School Committee with an architectural evaluation of the existing Natick High School ("NHS") as a means of determining potential renovation and/or construction options for the school.

Based on comprehensive physical and programmatic evaluations of NHS, it is the recommendation of the NHSRC to the School Committee that a complete renovation of Natick High School be performed in conjunction with the construction of a new science wing on the current location of two of the existing gymnasiums (Gyms 4 and 5) and that a small addition to the library facilities be constructed. Based on two sets of cost estimates, this project is expected to cost approximately $42,000,000 using 2001 costs. At a 5% construction inflation rate, the cost for the project is estimated to increase over $2,000,000 per year.

This recommendation is referred to as "Option 1, Scheme B" in this executive summary and the complete report of the NHSRC. This Executive Summary as well as the complete NHSRC report provides additional financial, logistical, physical, and programmatic support for this recommendation, and we urge readers to carefully study the contents of these materials.

Background

Knight, Bagge & Anderson, Inc. ("KBA Architects") was retained in August, 2000, by the Natick High School Renovation Committee ("NHSRC") to evaluate options and requirements for renovating the Natick High School. The focus of the study assesses anticipated pupil growth as well as the existing building capacity to allow for a quality educational program to be provided to Natick's high school students. This document is intended only as a summary of the complete study. Copies of the complete report are available at the following locations and Web sites: Office of the Superintendent of Schools – Town Hall, Morse Institute Library and www.natick.k12.ma.us

The members of the Natick High School Renovation Committee are:

Name	Appointed By
Jonathan Freedman	Member of School Committee, Chairman
Kirk Buschenfeldt	Appointed by Town Moderator
John Ciccariello	Member of the Planning Board
Charles Hughes	Member of the Board of Selectmen
Mysore Ravindra	Appointed by School Committee
Gerald Rufo	Appointed by Board of Selectmen
Bruce Wright	Member of Finance Committee

Building Construction

The original NHS was constructed in 1954 providing an 189,000 S.F. facility to serve the secondary educational needs for the Town of Natick. Student populations increased and 94,000 S.F. of additions were constructed in 1965 including a two-story general classroom wing, a two-story science classroom wing, and expansions to the library, cafeteria, and physical education areas.

In 1985, the entire school building was partially renovated to improve the interior finish quality and the exterior appearance, and to increase energy efficiency. Over the past several years, the building has been wired for technology. An elevator and corridor link were added in 1999 to improve handicapped accessibility to the science wing and upper floor 'A' wing. A new fire alarm system is currently being installed, and a new wheelchair lift was installed in February 2001.

The original portion of the building is 47 years old, and the addition is 36 years old. No other major additions or renovations have taken place for over 15 years.

Summary of Physical Plant Analysis and Recommendations

The design and construction of the school was performed to high standards, and the structural integrity of the building remains strong. During the 1985 renovation, attention was given to the visual appearance of the building, and the building surfaces have continued to be well maintained. However, the plumbing, mechanical, and electrical systems – while well maintained – are generally from the 1954 era. Most of these systems are 47 years old and have either surpassed their expected useful lives, or are at the end of them. These items have become a constant strain on the maintenance staff, as well as an increasing drain on the fiscal maintenance budget, and are compromising the environmental quality of the building. Examples of these failing systems include the boilers, unit ventilators, waste piping, electric service panels, emergency generators, etc. Asbestos-containing materials are present throughout the building. It is important to note that there are no health risks posed to the building occupants, although all asbestos would have to be abated during a renovation of the building.

The exterior of the building, including the wood siding, windows, and roofs must be replaced to improve the integrity of the building envelope and to improve the inside environment as well. Although the quantity of the exterior glazing was substantially reduced in 1985, the original single pane wood and steel windows remain in place. The windows are aging and are in poor condition, and as such have become a very costly and time-consuming maintenance item. The rubber membrane roofs are approaching – and in some cases have surpassed – their warranty period, and their replacement, including insulation and supplemental drainage, is indicated.

Since the original construction, building codes have dramatically changed, and there are many areas in which NHS is deficient in terms of code compliance. These areas include plumbing, mechanical systems, ventilation, lighting, fire protection, electrical issues, and handicapped access.

Although many building code deficiencies do not need to be addressed until a major project is undertaken, handicapped access codes and the Americans with Disabilities Act (ADA) do require continuous and ongoing efforts to make the building accessible. Recent projects have included linking various floors for wheelchair and program accessibility. However, barriers exist throughout the entire building and must be addressed. For example, there is an extremely limited amount of accessible hardware throughout the building; clearances at classroom doors are not adequate for wheelchairs; very few restrooms are accessible; and locker rooms are not accessible. Although there are several existing ramps in the building, they are too steep to be negotiated by a wheelchair user, and therefore do not meet the access code. In addition, signage, site access, and drinking fountains all need to be reviewed and a remedy provided to make them accessible.

Summary of Pupil Population Evaluation

School department enrollment projections that anticipate a student population increase to approximately 1,400 students in 2010 were confirmed. This population was evaluated in the context of the curriculum requirements and existing physical space capacities. In addition, the existing core facilities, including the library, cafeteria, physical education, guidance, health, and administration, were analyzed with the focus on meeting the program needs for a student population of 1,400.

While the existing building size is adequate for 1,400 students, recognition must be given to the fact that current utilization of classroom spaces is markedly divergent from the initial design due to current teaching needs and practices. Space is currently devoted to uses such as computer labs, special education classrooms, dedicated program spaces, collaborative spaces, and preschool spaces, none of which existed when the building was first constructed. Although the square footage of NHS has remained the same, current space usages have changed with technological demands and changes in teaching methods. Therefore, the ultimate capacity of the facility is actually less than it was when the building was first designed. In addition, certain spaces, such as the science labs, are inadequate for current-day program needs.

Construction/Renovation Options

At the direction of the NHSRC, three options were developed to accommodate the current and future needs of the high school, as outlined below. Based on the physical assessment of the building that was performed by KBA Architects and their consultant team, renovation of the building has been deemed to be a viable option for the following reasons:

1. The strong structural integrity of the building
2. The “wing” layout lends itself to occupied renovation
3. The financial incentive the SBA gives to renovation versus new construction
4. The lack of viable alternative sites

Option 1, Scheme A: Perform a complete renovation of the building, construct a new science wing between the ‘A’ and ‘S’ wings (20,000 S.F.) (renovate existing science labs), and provide a small library addition (2,500 S.F.).

Option 1, Scheme B: Perform a complete renovation of the building, construct a new science wing in the location of Gyms 4 and 5 and locker rooms (26,000 S.F.) (convert existing science labs to general-purpose classrooms), and provide a small library addition (2,500 S.F.).

Option 2: Construct a new high school with the capacity for 1,400 students (est. 238,000 S.F.)

The following pages provide an overview of the advantages and disadvantages for each of the options developed by KBA Architects.

Option 1, Scheme A: Perform a complete renovation of the building, construct a new science wing between the 'A' and 'S' wings (20,000 S.F.) (renovate existing science labs), and provide a small library addition (2,500 S.F.).

Advantages of Renovation vs New Construction	Disadvantages of Renovation vs New Construction
SBA Funding	
• Higher reimbursement rate due to renovation/reuse (+5%) • Any emergency work done prior to the project will be utilized as part of the completed project	• New science wing increases building footprint and total square footage beyond state standards and may make the project ineligible for state reimbursement.
Spatial	
• Retains a 1,400 seat/16,500 S.F. auditorium • Retains five physical education stations • Retains the Planetarium • Potential flexibility for future growth	• Size of classrooms is not optimal throughout the building • Inefficient building layout • Larger building to maintain • New science wing increases building footprint and total square footage
Construction Phasing	
• Manageable while occupied • Emergency work needed immediately will be realized on a rate of return	• Students, faculty, and staff are exposed to two years of construction • Need for temporary classrooms • Noise and environmental controls are critical • Hazardous materials handling near occupied spaces • Construction of new science wing occurs in the middle of occupied spaces
Final Product	
• High quality finished spaces throughout the building • Code compliance throughout the building • Modern and current technology throughout the building • Recent building and technology upgrades are retained • All the conveniences of new construction will be provided throughout the building, including technology, power, lighting, ventilation, and air conditioning	• Some imperfections will need to be tolerated due to existing building conditions • Some limits may be set due to existing conditions

Option 1, Scheme B: Perform a complete renovation of the building, construct a new science wing in the location of Gyms 4 and 5 and locker rooms (26,000 S.F.) (convert existing science labs to general-purpose classrooms), and provide a small library addition (2,500 S.F.).

Advantages of Renovation vs New Construction	Disadvantages of Renovation vs New Construction
SBA Funding	
• Higher reimbursement rate due to renovation/reuse (+5%) • Any emergency work done prior to the project will be utilized as part of the completed project • Building footprint and total square footage does not increase improving the likelihood of SBA funding	
Spatial	
• Retains 1,400 seat/16,500 S.F. auditorium • Retains the Planetarium • Potential flexibility for future growth • Building footprint and total square footage remains the same	• Size of classrooms is not optimal throughout the building • Inefficient building layout • Larger building to maintain • Loss of two Physical Education stations
Construction Phasing	
• Manageable while occupied • Emergency work needed immediately will be realized on a rate of return • Isolates construction of new science wing away from occupied spaces	• Students, faculty, and staff are exposed to two years of construction • Need for temporary classrooms • Noise and environmental controls are critical • Hazardous materials handling near occupied spaces
Final Product	
• High quality finished spaces throughout the building • Code compliance throughout the building • Modern and current technology throughout the building • Recent building and technology upgrades are retained • All the conveniences of new construction will be provided throughout the building, including technology, power, lighting, ventilation, and air conditioning	• Some imperfections will need to be tolerated due to existing building conditions • Some limits may be set due to existing conditions

Option 2: Construct a new high school with the capacity for 1,400 students (est. 238,000 S.F.)

Advantages of New Construction vs Renovation	Disadvantages of New Construction vs Renovation
Physical	
	• Need for 34 acre lot, not available in Natick • Possible disruption and relocation of athletic fields
SBA Funding	
	• Purchase of land is not reimbursable • Lower reimbursement rate due to new construction (-5%) • Emergency work at high school will still be required, but is not reimbursable
Spatial	
• All new spaces designed and configured to meet specific program needs • More efficient layout possible • Probable that building will be more energy efficient	• No Planetarium • Auditorium capacity is limited to 1,000 (9,800 S.F.) • Fewer Physical Education stations
Planning and Permitting	
	• Site plan approval and extensive environmental concerns
Construction Phasing	
• No need for temporary spaces • No student/staff/faculty exposure to construction	• Depending on location, possible disruption of athletic fields
Final Product	
• High quality new finished spaces throughout the building • Code compliance including sensible handicapped access throughout the building	

Cost Estimate

As part of this study, KBA Architects performed a detailed cost estimate of the three options outlined above. At the direction of the NHSRC, a professional estimator was engaged to perform an independent cost estimate. Although there were minor differences between the two sets of estimates, the total estimate costs for each option were consistent. The estimated project costs are:

	2001 Cost
Option 1, Scheme A (renovation/addition, reimbursable):	$43,000,000
Option 1, Scheme B (renovation/addition, reimbursable):	$42,000,000
Option 2 (new construction, excluding unreimbursable land cost):	$51,000,000

Note: At a 5% construction inflation rate the cost for the project increases over $2,000,000/ year.

Project Timing Considerations

A renovation project is estimated to require three summers and two school years to complete. The earliest a project could begin construction is 2003 with completion in 2005 if the Town were to hire an architect this summer and obtain initial design funding at the October 2001 Town Meeting.

As stated above, each year of delay will increase the cost of the project in the range of $2,000,000. The funding of any of the project options will require an override.

The factor of construction inflation and the possibility of major expenditures to address systems failure makes it fiscally prudent for the Town to address a project sooner than later. In addition, addressing major system repairs on a piecemeal basis may result in the Town funding those projects without State reimbursement.

School Building Assistance Reimbursement

The following table provides an estimate of Natick's potential reimbursement rate under the new School Building Assistance (SBA) guidelines. It is important to note that key criteria have not yet been written to accompany the guidelines, and the reimbursement range is fairly wide.

Criteria	**Option 1 Schemes A & B Renovation/Addition**	**Option 2 New Construction**
Base rate	39%	39%
Community income factor	4.42%	4.42%
Community property wealth factor	5.89%	5.89%
Maintenance factor (See note below)	0 - 4%	0 - 4%
Construction type	5% (reuse)	0% (new construction)
Energy efficiency	2%	2%
Use of Project Manager	0 - 2%	0 - 2%
Totals	**56.31% - 62.31%**	**51.31% - 57.31%**
Natick's former reimbursement rate:	**59%**	

Note: According to the new SBA guidelines, the range for this factor is 0 - 8%. Although no criteria has been written by the SBA, discussions with SBA personnel have indicated that 0 - 4% is a reasonable estimate.

Option Impact

Based on the above estimated project costs and potential reimbursement rates, the following table shows the estimated costs to Natick residents (excluding interest costs): Note: interest costs will be eligible for State reimbursement.

2001 Cost estimate

Option	Estimate	Reimbursement Range	Estimated Natick Cost (principal)
Option 1, Scheme A	$43,000,000	56.31% - 62.31%	$16,206,700-$18,786,000
Option 1, Scheme B	$42,000,000	56.31% - 62.31%	$15,829,000-$18,349,800
Option 2	$51,000,000	51.31% - 57.31%	$21,772,000-$24,832,000

2003 Cost estimate

Option	Estimate	Reimbursement Range	Estimated Natick Cost (principal)
Option 1, Scheme A	$47,407,000	56.31% - 62.31%	$17,868,000-$20,712,000
Option 1, Scheme B	$46,305,000	56.31% - 62.31%	$17,452,000-$20,231,000
Option 2	$56,227,000	51.31% - 57.31%	$24,025,000-$27,377,000