

## **GENERAL**

The original Natick High School was constructed in 1954 providing a 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 facilities. In 1985, the entire school building was partially renovated to improve the interior finish quality and the exterior appearance and increase energy efficiency. The building has been partially 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 being installed and a new wheelchair lift shall be installed in 2001. No other major additions or renovations have taken place for over 15 years.

Knight, Bagge & Anderson, Inc. (KBA Architects) was retained in August, 2000 by the Natick High School Renovation Committee to prepare a study. The focus of this study assesses not only the anticipated pupil growth, but also the existing building capacity to allow for a quality educational program to be provided to the High School students of Natick.

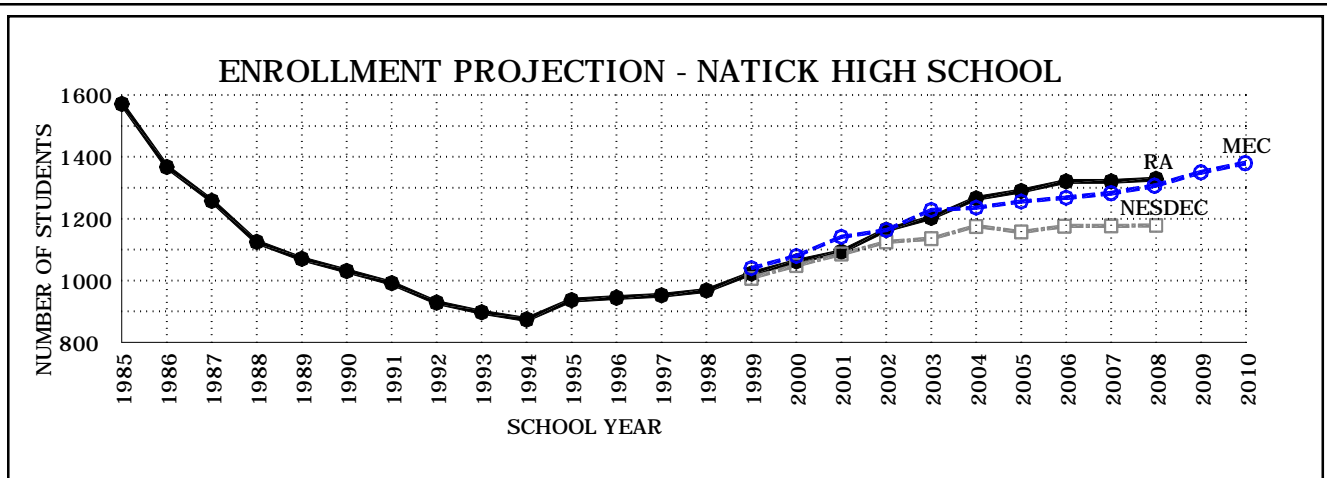
Physical assessment of the present conditions in the building were made by KBA Architects along with the consultant team members including, Richard D. Kimball, Inc., who reviewed the Fire Protection, Plumbing, Mechanical and Electrical component conditions; Universal Engineering, who reviewed the hazardous materials; and Souza, True and Partners who analyzed the structural integrity of the building.

Education program analysis and pupil growth forecasting were done by Dr. Arthur Wagman of Merrimack Educational Center. The research into the population trends were done with the assistance of Town departments including the Assessors, Board of Health, School Department, as well as the State Census Bureau.

## **FINDINGS**

### **Physical Plant Analysis**

During the 1985 renovation attention was given to the visual appearance of the building. One striking and important observation that was made is that the building surfaces have been well maintained.



However, the plumbing, mechanical and electrical systems, while well maintained, are generally from the 1954 era and most are at the end or have long surpassed their useful lives. Since the original construction, codes have changed and there are many areas where the building is not code compliant, including handicapped access, plumbing, mechanical (ventilation), fire protection, and electrical issues.

The exterior, including walls, windows and roofs must be updated to improve the integrity of the envelope and to improve the inside environment as well. Although the quantity of exterior glazing was reduced substantially in 1985, the original single pane wood and steel windows remain. 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 have surpassed the end of the warranty period and replacement, including insulation and supplemental drainage, should be considered.

Asbestos containing materials are throughout the building. All asbestos has been well documented and there are no health risks posed to the occupants. If renovation is proposed, the asbestos would have to be abated at that time.

It should be noted and highlighted that there are major building components such as the boilers, unit ventilators, waste piping, electric service panels, emergency generators, etc., that are at the end of their useful lives. Therefore, as part of this overall building and space needs study, major items have been identified and prioritized. (within the next year to 3 years.)

### **Pupil Population Study**

The school department data anticipates a student population rise to approximately 1,400 students in 2010. This was confirmed by the findings of Dr. Arthur Wagman. This population was evaluated in the context of the curriculum requirements and existing physical space capacities. Also, 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 1,400 student High School. 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 such as computer labs, special education classrooms, dedicated program space, collaborative spaces, and preschool spaces, none of which existed when the building was first constructed.

Therefore, although the square footage of the High School 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 not what it was when originally designed and this study analyzes the current capacity of the school with respect to the projected enrollments.

### **SPACE NEEDS ASSESSMENT CONCLUSIONS**

#### **Required/Recommended Alterations**

Analysis and comparison of the existing spaces versus the program requirements of the Natick High School in 2005 indicate that two major factors requiring action are the need to comply with current codes and the need to address major building components which have surpassed their useful life expectancies. Items that have become a constant strain on the maintenance staff, as well as a constant and growing drain from the fiscal maintenance budget and are compromising the environmental quality of the building, are identified in this study.

The major plumbing, mechanical and electrical components are 47 years old and are showing signs of failure. These should be a priority for repair/replacement within the next 1-3 years.

Although many deficiencies do not need to be addressed until a major project is proposed, handicapped access codes and the Americans with Disabilities Act (ADA) do require that efforts to make the building accessible be continuous and ongoing. Recent projects have included making various floors linked for wheelchair accessibility and program accessibility, however, the barriers throughout the entire building remain and should be addressed. There is an extremely limited amount of accessible hardware throughout the building, clearance at classroom doors is not adequate for wheelchairs, very few toilet rooms 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 do not meet the access code. Signage, site access, drinking fountains all need to be reviewed and a remedy provided to make them accessible.

#### **School Building Assistance Funding Criteria**

In order for a public school construction project to be considered for reimbursement from the State, the School Building Assistance (SBA) of the Department of Education has established guidelines which have to be met. Each proposed project must be triggered by one of the following reasons in order to be considered as a fundable project and in each case would be designated as a certain category by SBA; Category 1 projects are in response to a desegregation issue, Category 2 projects involve additional educational space because of space needs and total renovation of the existing building and Category 3 projects involve conversion of existing non-educational space into educational space and total renovation of the existing building.

Therefore, in order for this project to meet the criteria for reimbursement from the SBA any required additional spaces would have to be designed to comply with their guidelines for spaces within a High School and the existing building would have to be totally renovated as if it were new construction so that it meets all the standards of the present building code.

### **COMPARATIVE SOLUTIONS**

The data revealed during the course of this study that the student population is increasing and the building and all of its components are aging and as presently configured, will not be able to satisfy the program needs in the near future. To meet the future needs for the Natick High School program, 2 Options have been studied and the benefits of one versus the other have been compared. Option 1, Schemes A & B, maintains the existing facility and major renovation is proposed in order to bring all standards into compliance with SBA requirements and all governing codes. Option 1, Schemes A & B, also involve constructing a new science classroom wing and expanding the library. Option 2 proposes a totally new High School and the existing building would be demolished. Each option is analyzed to compare benefits and detriments such as cost, duration of construction, phasing issues and environmental concerns during construction.

### **FINAL RECOMMENDATION**

When the existing high school was designed and constructed, it was done to high standards. As such, the building has aged well and has been added to and modified to enable a high-quality educational program to be delivered to the students since it was opened. At this juncture, Natick is faced with options to address the future needs within the High School program. Based on the findings of this study, including extensive field work and building analysis, we recommend that the Town of Natick pursue maintaining, renovating and adding on to the existing building. Within this report, Option 1, Scheme B proposes that a new science classroom wing be constructed in the location of 2 existing lower gymnasium spaces, an addition be added to the library and the entire existing building be renovated.

Benefits and disadvantages for this option and the other options are outlined in this report. Based on the high quality of the existing facility, overall costs, the ability for a project of this magnitude to be phased and completed within 2 - 2-1/2 years and the potential for the end product to yield a school building that is set to meet the demands of the next decade with no compromises to the program needs, we recommend that Natick pursue Option 1 - Scheme B.