



NEEDHAM HIGH SCHOOL

TO THINK – TO RESPECT – TO COMMUNICATE

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Principal

TO: Needham Board of Selectmen
FROM: Jonathan D. Pizzi, Principal
DATE: April 10, 2015
RE: Needham High School Space Needs Assessment

Introduction & Rationale

This memorandum provides background and supporting information regarding the current space needs assessment of Needham High School being conducted in collaboration with Drummey Rosane Anderson Architects, Inc. (DRA). The overarching aim of the analysis is to identify the specific need for space at Needham High School and to develop proposals that will: increase the number of classrooms at NHS; expand the existing cafeteria area to accommodate the long-term growth in student population; reclaim meeting, conference, and storage space that has been repurposed for classroom use.

Statement of Need

From 2005-2009, Needham High School was the subject of a comprehensive building project including renovation of the central part of the existing structure, demolition of one part of the existing structure, and the construction of a new academic wing on the south side of the property, as well as the construction of an ancillary gymnasium on the north side of the property. The resulting 285,000 square foot facility was built to accommodate a student population of 1,450. According to a recent study, then projected student population for SY 2015-2016 is 1,686, or 236 students in excess of the school's design capacity. This same study projects an average annual student enrollment of 1,652 students through SY 2024-2025, and 1,664 students through SY 2029-2030.

The existing over-enrollment, as well as projections for additional enrollment growth, has and will continue to strain the school's ability to accommodate and serve its student body within the existing structure. The current and growing need for instructional and non-instructional space has resulted in a number of challenges that limit the ability of NHS to maximize student learning and teacher instruction, to deliver the approved *Program of Studies*, and to expand the instructional program to meet student needs.

Major limitations include:

- a historic number of general education classes with 25 or more students enrolled (23% in SY 2014-2015, or 126/550 sections);
- a sharp reduction in available conference and professional meeting/work space due to the reassignment of meeting spaces for instructional use;
- a utilization rate of over 90% for general education classrooms, inhibiting scheduling flexibility;
- the purchase of an exterior, non-climate controlled Conex storage container for storage of athletic equipment;
- the use of 25% of activity space in the “B” Gym for physical education and athletic equipment storage;
- in SY 2014-2015, more than two-thirds (15/21 periods) of the lunch periods scheduled have more student’s assigned than the cafeteria’s maximum capacity.
- the scheduling of 53% of classroom teachers into two or more classrooms resulting in lost instructional time for teacher travel and set up/break down, limited space for student-teacher conferencing, and greatly reduced work and collaboration space for teachers;
- the impact on the instructional program effecting the breadth of course offerings. For example, in SY 2015-2016, while enough students (64) have selected AP Biology to allow for three sections, only two can be scheduled due to space limitations. Further, the Physical Education Department will lose a significant component of the cardio-vascular health education program as the spin-bike room is dismantled and the equipment stored to create a much-needed general classroom.

DRA is collaborating with the officials from the Town of Needham and the Needham Public Schools in a project Work Group to address the aforementioned challenges and limitations to determine specific space needs within the high school and to develop proposals that will meet these needs. Expansion options provided by DRA do not address the need for increased indoor Physical Education activity space or the need for a fifth tennis court as required by the Massachusetts Interscholastic Athletic Association for interscholastic tennis contests and tournaments, among other needs.

Calculating the Need

The NHS Working Group and DRA, Inc. have determined the need for additional instructional, cafeteria, and storage space based upon three design factors. These include: overall student enrollment; average class size; and space utilization factor.

Enrollment: As mentioned above, data from the recent McKibben Demographic Demographic Research study projects an average annual student enrollment of 1,652 students through SY 2024-2025, and 1,664 students through SY 2029-2030. As a result

of its 2005-2009 renovation, Needham High School was designed to serve 1,450 students.

Average Class Size: The latest renovation and addition of instructional space at Needham High School was predicated upon the Commonwealth School Building Assistance (SBA) program standards. These standards included a total of 760 square feet per general education classroom to accommodate an average class size of 22 students per class. This is less than current Massachusetts School Building Authority (MSBA) standards that provide for 850 square foot classrooms to accommodate an average class size of 23 students per class.

Utilization Factor: The utilization factor is the amount of time classrooms and instructional spaces are utilized within a school's master schedule. For Needham High School, this factor would represent the total number of periods out of the seven period schedule that each room/space is scheduled. The industry and MSBA standard utilization rate for school buildings is 85%. This factor is used in order to provide flexibility of scheduling and to minimize the negative impact upon student learning that is associated with teacher traveling throughout the building. DRA has determined that Needham High School is currently operating at a utilization factor of 93%. The conversion of five non-instructional spaces to instructional use in the summer of 2015 will bring the utilization rate to 90%.

Current Space Configuration and Determination

Since the fall of 2011, the NHS administration has addressed the increases in student enrollment by re-purposing the following non-classroom spaces to classroom and student service-related use:

- Social Studies Storage Room 403 (2011)
- English and Social Studies Curriculum Development Room 701 (2012)
- Mathematics and Science Curriculum Development Room 205F (2013)
- Assistant Principal Suite 802 (2013)
- NPS Metco Suite Room 608 (2014)
- Computer Writing Lab Room 706 (2014)
- World Language Computer Lab Room 707 & adjacent storage (Summer 2015)
- Computer Science Lab Room 106 (Summer 2015)
- Exercise Room 815 (Summer 2015)
- Room 728B (Summer 2015)
- Room 211 Science Storage Room (Summer 2015)

For the purposes of this assessment, the NHS Working Group has determined that as a result of several interior modifications and renovations that will occur over the summer of 2015, NHS will have 84 spaces available for general instructional use beginning in SY 2015-2016. Included in this total are:

- 58 general classrooms
- 8 art studios
- 16 science laboratories
- 2 physical education activity spaces

Areas designed and used for more specialized instructional purposes have not been included in this total number of classrooms for the following reasons:

- The spaces are not large enough to hold an average class of 22 students.
- The space(s) serve(s) a distinct instructional purpose/population of students.
- The space is not conducive to general academic instruction.

These spaces include:

- Art Therapy Room (403)
- TV Studio (407)
- Multi-Media Lab (409)
- Control Room (409A)
- Library Resource Center (410)
- Transitions Program (602)
- Graphic Arts Printing and Production Center (603)
- Chorus Room (612)
- Music Midi Computer Lab (614)
- Band Room (616)
- Connections Program Suite (802, 802A, 802B)
- Insight Program Suite (803, 803A, 803B)
- STRIVE Program Suite (805, 805A, 805B, 805C)
- Auditorium (806)
- Yoga/Dance Studio (817)
- Skills Classrooms – Accommodate 8 students each (708, 710, 808, 810, 902, 910)

Room Proposal & Reclamation

At the inception of its recent renovation, Needham High School was purposely designed to support high quality student instruction and learning, a broad array of curricular and co-curricular programs, and professional growth and collaboration among teachers. As the student population has increased, space originally intended for professional conference, meeting, and collaboration has been converted to instructional space. The qualitative effect on the professional culture is readily apparent, as group conference, meeting, and collaboration space is very scarce during the school day, thus seriously curtailing these necessary interactions. For example, where at the opening of the new NHS in 200-2009 three conference rooms and two curriculum and planning rooms were available, currently only one conference room and no curriculum and planning rooms

are available to the 210 members of the NHS faculty, staff, and administration. These spaces are vital to the facilitation of special education team meetings, parent-teacher conferences, administrative and leadership meetings, and most important, inter/intradepartmental collaboration.

In addition, physical education activity space is limited by several factors. First, the Exercise Room (815), which is an integral part of cardio-vascular wellness instruction at NHS, is being repurposed as a classroom for SY 2015-2016. Second, due to limited storage space and increases in student enrollment, nearly 25% of the "B" Gymnasium activity space is presently being utilized for equipment storage. As enrollment increases and to maintain the integrity of the NHS Wellness Program, it is essential that these spaces be reclaimed to serve the purposes for which they were originally intended. In addition, a larger indoor activity space is also needed to accommodate growing student enrollment and staff members (though this need is not addressed in the present study).

Consequently, in its expansion proposals, NHS will seek to reclaim the function of Rooms 205F and 701 as Curriculum Development Centers by requesting two classrooms to replace those currently assigned to these rooms. Likewise, NHS will seek to reclaim Exercise Room 815 and a portion of the screened area of the "B" Gymnasium currently used for storage by requesting an additional classroom and an additional storage space.