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Lowell School Committee

155 Merrimack Street
Lowell, MA, 01852

RE: **Lowell High School Educational Program**

Members of the School Committee,

Attached please find a draft update of the Educational Program and companion Space Summary intended for submission to the Massachusetts School Building Authority (MSBA) in the **revised** Preferred Schematic Report (PSR) on May 9th 2018. Changes to the Program warrant approval by the School Committee and a record of the vote must be included in the submission to the MSBA.

The changes since the School Committee's last approval of the Educational Program and Space Summary, include the site (changed from Cawley to the existing location) and removal of the swimming pool.

Since the last submission, the MSBA conducted a review and provided comments along with several determinations on spaces. The MSBA has thus far accepted all spaces with exceptions as noted below:

- **Special Education** – all spaces are subject to the DESE's review and approval
- Vocations/Tech – 200sf **School Store**, 400sf **Bank** and 4,000sf **TV Studio** are under continued review
- Health & Physical Education - 450sf of **Athletic Secretary**, **Bursar** & **Conference** spaces are subject to further review, along with co-location of other spaces with the gymnasium
- Auditorium & Drama – proposed **Auditorium** (in prior new construction) exceeds MSBA upper limits and must be reduced by 2,216sf; now as renovation, TBD
- Administrative & Guidance – spaces are under continued review
- Custodial & Maintenance – spaces are under continued review
- Other – all spaces have been accepted, except the 1,500sf **Lowell Community Health Center** & 700sf **Catie's Closet**

Of the spaces listed, review of Special Education is typical, a good case is being made for the Administrative and Custodial spaces that do not scaled in the MSBA guidelines and the Auditorium is now an existing space to be renovated. The remaining spaces aside from the TV studio are relatively small relative to overall program, but proposed to remain regardless of the MSBA's determination as eligible.

Resubmission of the PSR affords another opportunity for City to make its case for the needs listed above.

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# Educational Program (v12 for the revised PSR)

Lowell High School, established in 1831 with a principal and 47 students, was the first public co-educational high school in the United States and one of the first integrated high schools in the nation. In 1896 Coburn Hall was erected and an adjacent building was added in 1922. The school was expanded across the canal in 1980 with the construction of a new building and field house. Expansion and renovation of both buildings occurred in 1997. In 2005, the district repurposed a nearby middle school to serve as additional space for the Lowell High School Freshman Academy.

Throughout its long life, the high school buildings have been repurposed to the extent possible to meet educational needs, but the structure only allows for minimum flexibility and usage. As the school expands in numbers and evolves into a modern educational approach, a new facility is needed to implement technology seamlessly across the building and to offer flexible spaces that support collaboration and 21st century teaching and learning.

LHS successfully completed the Fall 2015 NEASC Accreditation process and received full reaccreditation. However, the school was placed on warning for standard 7: Community Resources for Learning, which deals with budget, facilities, and the physical plant. The accreditation committee listed the following concerns (noted in the 4/22/16 Accreditation letter):

> *The school site and plant do not minimally support the delivery of high quality school programs and services, including but not limited to the following:*
>
> - *Leaks in the roof, the tunnel, and from sinks*
> - *Temperature fluctuations where one room is considerably warm while another is considerably colder*
> - *The presence of pests in the building*
> - *Windows in need of repair*
> - *The nurse's office which is small and not easily navigated by wheelchair-bound students*
> - *The lack of full accessibility to individuals with physical handicaps*
> - *The main cafeteria that is at or near capacity*
> - *The lack of capacity of the electrical system resulting in the inability to support upgrades in technology*
> - *The lack of natural light or adequate ventilation in art rooms*
> - *The inability of the science labs in both the 1922 and the 1980 buildings to support modern science curriculum and pedagogy*
> - *The lack of equitable facilities to support students in life skills programs*
> - *The lack of equitable access to up-to-date technology for all students*

According to the Fall 2015 NEASC Accreditation report,

> *In the 2013-2014 school year, a comprehensive facilities assessment by OMR Architects determined that the building's needs, based on enrollment trends for the next ten years and the fluctuations in enrollment, provide justification for a renovation or for the construction of a new high school. A request has been submitted to the Massachusetts School Building Authority (MSBA) and has been accepted and is being looked upon favorably. The city of Lowell and the Lowell School Department are unified in their support for this petition to the MSBA. The adoption and funding of a comprehensive, long-range plan for programs and services, facility needs, technology, and capital improvement will ensure the ability of Lowell High School students to achieve the school's expectations for learning.*

The Lowell Public Schools are incredibly diverse. The ethnic/racial/cultural composition of the student body in the schools makes it one of the most diverse districts in the Commonwealth: African American students 7.1%, Asian students 29.4%, Hispanic students 30.1%, White students 30.1%, and all other students 3.2%. In the district, 75.1% of the student body qualifies as low-income, 15.1% are classified as Special Education, and the English Language Learner population is 26.6%. The high school reflects the great diversity of the City of Lowell with students representing over 50 countries from all over the world and speaking almost 60 different languages. Given this cultural, racial and socioeconomic diversity, Lowell High School has been successful at consistently maintaining a high graduation rate for an urban district (over 80%) and a high college attendance rate (over 85% of students seek post-secondary education at four-year and 2-year colleges and universities).

*The proposed planning concepts, whether renovation or new construction, will include the scope/costs of creating a weather-tight, code compliant facility (including full accessibility) along with new mechanical (indoor air quality, heating and cooling), electrical, plumbing, fire protection, technology, communications and safety/security systems. All options have been planned to address program deficiencies, including sub-standard Nurse's Office, Cafeteria, Science Labs, Special Education (including Life Skills) and numerous other program deficiencies that do not meet MSBA guidelines or capacity needs.*

*The great diversity represented by the student body is expected to be celebrated in new and different ways, possibly through new means of display and broadcasting within the school, but also by having Special Education and English Language Learner (ELL) to be integrated as 2-room clusters, adjacent to regular academic classrooms (as opposed to a separate zone within the school).*

# A. GRADE AND SCHOOL CONFIGURATION POLICIES

Lowell High School currently educates over 3,125 students in grades 9-12. The school has twelve academic departments each led by an Academic Department Chair, nine Pathway Programs (eight currently and one in development), an academically-accelerated Latin Lyceum program, and four administrative houses that consist of a House Dean, two Guidance Counselors, a Social Worker, and two clerks. The houses in the main building are located in four different areas of the building, two in the 1980s building and two in the 1922 building. Classes are randomly scattered within the buildings, a product of repurposing space as needed, and teachers are assigned to houses based on proximity to the house office for organizational purposes only. Courses and teachers are not scheduled in a single house but rather across the building. There is a Freshman Academy program housed in a building separated from the rest of the high school by a public roadway. The Freshman Academy is its own separate house, with its own two clerks, three Guidance Counselors, and a Social Worker. Students are placed into one of three clusters in the Freshman Academy; two clusters contains two English, History, Math and Science teachers and a third super-cluster contains three English, History, Math, and Science teachers. Ninth grade students need to travel to the main buildings for physical education and other elective courses.

House offices are a means to break down the large student body into smaller cohorts for the purpose of student support and guidance. Having physically separate office areas ensures a more manageable and personable experience.

The house office is the epicenter of student support. It is here that students are serviced for behavioral, social-emotional, or guidance needs. The house dean oversees their caseload of students with the support of two guidance counselors, one social worker and one office clerk and one clerk scheduler. The house staff works as a team to help address any issues a student might have whether it is attendance, discipline, social-emotional scheduling or college preparation. This house approach is very effective in helping to ensure students are receiving the services they require. The issue currently is that the house offices have had to conform to previously established space. This has left two house offices without the ability to have the social worker in the same space as the rest of the team. It has also led to various space configurations that are not optimum. The fact that the houses are spread out between two buildings also hinders collaboration between houses and the distance some houses are from the main entrance requires parents/guardians to walk quite a distance to meet with the house staff.

Established in 2005 the Freshman Academy was designed to forge greater articulation between grades 8 and 9. The Freshman Academy employs a team-based model similar to that seen in middle schools and offers programming and structure which promotes an effective and positive transition for students entering their first year at Lowell High School.

Upon entering, students from the 8 public middle schools and various private schools are placed into cluster teams. A cluster is a small team of content teachers that works extensively with a group of approximately 200 students. Cluster teams are placed on one floor to allow teachers close proximity to one another in order to minimize transitions and create a small school feel within the larger high school community. Through the offered academic and social supports, our vision is to insure that all students who enter as freshman successfully leave with the skills and knowledge necessary to be successful Lowell High School students

Proposed Change: We would like to keep our current grade and school configuration in regards to departments, pathways and administrative houses. We would like to incorporate the Freshman Academy within the new/renovated high school in its own wing, which would allow the Freshman Academy to keep its distinct program identity but make it more connected to the rest of the school and safer for students who would no longer have to cross a street to get to classes during the school day. We want to ensure that all members of each house team are part of the house suite. We would like to strengthen collaboration between house teams and make it easier for parents to access house offices by placing house offices near the main entrance(s) and in proximity to each other.
This also supports the safety and security of the building, eliminating traffic streaming in through open doors and the need to share security officers in multiple buildings. One physical plant would ensure that there is a more cooperative effort to support safety and security throughout the building.

*The proposed planning concepts intend to create a distinct Freshman Academy as a small learning community within the school, but not completely isolated, as students will utilize shared programs, such as World Language Classrooms, Library/Media Center, Gymnasium and Arts/Tech programs. Class scheduling may be used to keep shared programs distinctly separate, but also intentionally mixed to expose new students to the larger high school community in a deliberate manner. The Freshman Academy will be arranged in teams of 4 classrooms (English/social studies/math and science). Freshmen currently utilize 2 teams of 8 classrooms +1 team of 12 for 3100 students. The proposed enrollment increase of 13% suggests approximately 4 teams of 8 will be needed for an enrollment of 3,520 students.*

*The proposed administrative program includes space for main administration, main student support as well as the suites for freshman and 4 houses (8 administration suites total). Additional space is earmarked for archived records, teacher workrooms and the career center*

## B. CLASS SIZE POLICIES

Lowell High School takes pride in its extensive course offerings, offering more variety than most public high schools in Massachusetts. This offers students the opportunity to not only meet core graduation requirements, but also explore their interests in a

variety of areas including Business/Marketing, Culinary, Engineering, the Fine and Performing Arts, and ROTC, just to name a few. This variety does have an impact on the schedule and class sizes. There is no official class size policy in the district, though we do try to keep our college level courses below 28 at the high school. The average class size in the core academic areas of English, mathematics, science, and social studies is 24. ELL courses average 22 and Foreign Language courses average 22. Physical education average 33 and our special education courses average 7. In the elective area of art, business, culinary, and ROTC, average class sizes range from 2 to 22 with outliers ranging due to unique needs of certain programs, from 2 in the bank program, 10 in the Retail Marketing (School Store) to 60 in the band and chorus classes.

Proposed Change: There is a need for flexible classroom space for a variety of reasons to include the ability to appropriately schedule classes that are not within the average class size.

*Future space needs are calculated based on the current Master Schedule, prorated for the new student enrollment (3,520 students) and an average class size of 24 students/room (same average as exists now, which results in a range between 20 and 28, sometimes a few more). Given the existing range, rooms are planned larger (at 900sf vs existing 825-850 sf average) and will include furniture layouts for 28. Some classes are deliberately smaller at 8-16 students and were tracked and calculated separately to ensure courses were not averaged-up and course offerings were not eliminated.*

*Note:*
*Planning for the future, ELL classes were calculated for a 20 student average and specialty programs, including SPED, Fine Arts, Business and Technology were based on existing sizes. Physical Education needs are based on 26 student class average.*

## C. SCHOOL SCHEDULING METHOD

Lowell High School is on a seven period day. The school day begins at 7:55 am and ends at 2:30 pm. There are four 25 minute lunch periods per day between two cafeteria locations, one in the main campus and one at the Freshman Academy.

| | | | |
|---|---|---|---|
| Warning Bell | 7:50 | | |
| Period 1 | 7:55 | - 8:45 | (50) |
| Period 2 | 8:45 | - 9:35 | (50) |
| *Advisory* | 9:35 | - 9:55 | (20) |
| Period 3 | 9:55 | - 10:45 | (50) |
| **Lunch 1** | 10:45 | - 11:10 | (25) |
| Period 4A | 10:45 | - 11:35 | (50) |

| | | |
|---|---|---|
| Period 4B | 11:10 - 12:00 | (50) |
| **Lunch 2** | 11:35 - 12:00 | (25) |
| Period 5A | 11:35 - 12:25 | (50) |
| Period 5B | 12:00 - 12:50 | (50) |
| **Lunch 3** | 12:25 - 12:50 | (25) |
| Period 6A | 12:25 - 1:15 | (50) |
| Period 6B | 12:50 - 1:40 | (50) |
| **Lunch 4** | 1:15 - 1:40 | (25) |
| Period 7 | 1:40 - 2:30 | (50) |
| Dismissal | 2:30 | |

The academic year is divided into two semesters with half year courses worth 2.5 credits, but most core courses run for a full year (with consecutive A/B semester sequencing). The master schedule is completed by the school's scheduler with input from the department chairs.

Graduation Requirements:
Students must earn a total of 90 credits, including the following minimum course requirements:

- Ten (10) credits in U.S. History and Government.
- Twenty (20) credits in English.
- Ten (10) credits in Mathematics. Students must pass Algebra IA, Algebra IB, Geometry A, and Geometry B.
- Ten (10) credits in Science.
- Ten (10) credits of Physical Education
- Five (5) credits of Health

Courses are offered in four levels: College, Honors, High Honors, Advanced Placement/Dual Enrollment.

Proposed Changes: The high school is planning to create an exploratory committee to look at schedules to see if there would be a schedule for the high school that would meet the goals of retaining a robust selection of course offerings (7 courses per semester) but with longer blocked class periods. This would not have a significant impact on room usage, but would allow for sustained blocks of teaching time.

*Programming calculations are also tied to the available periods per cycle each room can be used. No immediate change to the school schedule is anticipated, but a hypothetical model was discussed that might allow longer blocks that also maintains a 35-period cycle. As such, space needs were based on a 35-period cycle.*

## D. TEACHING METHODOLOGY AND STRUCTURE

Lowell High School is a community of educators whose core commitment is to provide students with exceptional instruction. Teachers and administrators regularly review and refine instructional practices through scheduled sessions within academic disciplines, formal and informal observations, a new and comprehensive teacher evaluation process, and a building-based support team that serves to ensure that at-risk students are supported in ways that allow them to access the curriculum. Teachers at Lowell High School utilize instructional strategies that are consistent with the school's core values, beliefs, and learning expectations. Strategies that are implemented personalize instruction, engage students in cross-disciplinary learning, engage students to be active learners and emphasize inquiry and problem-solving skills. Opportunities exist to allow students to engage in authentic application of knowledge and skills and to self-assess their performance in those tasks. Technology is utilized in a variety of ways to assist and further the educational process. Teachers maintain expertise in their respective content areas and utilize effective content-specific practices such as formative assessments, strategic differentiation, group activities, and specific support strategies which aid struggling students. Teachers believe it is essential to have more time to collaborate and plan to share and implement additional instructional strategies that will strengthen student achievement and learning and encourage more student-centered classrooms.

Proposed Change: An area of need for the high school, as identified by the most recent NEASC Accreditation process, is to create more opportunities for collaborative planning opportunities and interdisciplinary connections. While the current facility groups together teachers in a variety of ways - some by departments (Fine & Performing Arts on one floor) and some by grade level or program needs - the administration is interested in looking at different organizational structures that would more fully support the concept of expanding areas organized for STEM classrooms, Humanities classrooms, and CVTE classrooms. Also a focus on more interdisciplinary teaching and learning would require some larger, flexible spaces where departments can bring classes together for interdisciplinary work such as guest speakers, teach-out opportunities, learning demonstrations, and other types of interactive group learning.

- Administrative and Academic Organization/Structure:
  Currently the administrative and clerical staff are located throughout the buildings, organized into house offices consisting of house deans, guidance counselors, social workers and clerks; office space for the majority department chairs and the director of curriculum, instruction and assessment in the teachers center, student support services includes the coordinator of student support, discipline & operations specialist, parent liaisons, enrollment and student support services clerks, the main office consisting of the head of school and three clerks. The special education suite includes the department chair for special education, clerk, and educational team chairs. The athletic office has the athletic director,

clerk and school bursar. Data processing office includes a scheduler, clerk and instructional specialist overseeing testing.

The high school has 12 academic departments and nine Pathway Programs (eight currently and one in development for next year) that fall within departments. Each department requires flexible learning spaces for students and teachers to engage in both teacher-directed and student-directed learning.

Proposed change: LHS Administration is considering clustering academic Department Head offices together by subject matter connections (Humanities, STEM, CVT) and integrating the houses into this configuration. One way to do this would be to place two house offices in a combined house and guidance suite in proximity to a department center. This would allow for administrative presence in multiple areas of a large building. Another option would be to place all the house offices into one central space near the main office, such as a house and guidance suite. The Freshman Academy, while housed within the same large building, would have a separate office suite for the Director of the Freshman Academy, Student Support Specialist, clerks, guidance counselors and the FA social worker. The Head of School, the Director of Curriculum, Instruction, and Assessment, and the Discipline and Operations Specialist would all have offices clustered near the main office. It is crucial to have adequate conference room space available for all offices.

*The proposed program/plans anticipate the equivalent of 5 House Offices Suites (including Freshman Academy), each with (2) Clerks/Waiting, the House Dean, (1) Social Worker (2) Guidance Counselors and a small Conference area. The Freshman Academy will need space for (1) Student Support Specialist and an additional Guidance Counselor (a total of 3).*

*A separate Main Office with Secretary/Waiting, Head of School, Bursar, Director of Curriculum/Instruction, Discipline/Operations, large Conference & kitchenette is planned along with a Main Student Support Center including Student Support Coordinator, Conference, (1) Clerk, (1) Registrar/Clerk, Waiting for 10-12, (3) Testing and (4) Parent Liaison stations/desks. A separate College/Career Center with (3) Guidance Counselors, Conference and main room with 24 computers and soft seating area.*

- Curriculum Delivery Methods and Practices:
  Lowell High School's course offerings are more comprehensive in range and scope than most public high schools in Massachusetts. As such, curriculum at LHS is comprehensive in design and aims to challenge students at all academic levels. Curriculum maps are currently being revisited to have parallel structure across all departments and to use *Understanding by Design* as the philosophy

behind the curriculum and instructional mapping. In terms of instruction, teachers are encouraged and guided to use a wide variety of instructional techniques, keeping student engagement and active participation at the forefront of the work. In the past few years, a major focus area has been integrating technology into instruction across all content areas. We have also developed the idea of formative and summative assessments being varied, meaningful, and authentic as we move away from using only traditional assessments and integrate more projects, presentations, demonstrations, and other non-traditional assessments across departments.

The one area that has been identified as an important need (as indicated by the faculty in our last NEASC process) is more time for teacher collaboration, especially around sharing instructional practices and tools that will grow student learning across all levels and encourage more student-centered classroom practices.

*Priority 21st - Century Learning Goals for LHS*
(Created in Fall 2016 Building Visioning Workshops):

Empathy, Global Perspective, and Civic Engagement
- Cultural Awareness
- Personal, Social, and Civic Responsibility
- Awareness of Community and Global Society
- Multicultural Literacy

Critical and Inventive Thinking
- Critical Reasoning and Problem Solving
- Agility, Adaptability, and Risk-Taking
- Joy, Curiosity, and Imagination
- Motivation and Creativity

Communication and Collaboration
- Oral and Written Communication
- Teamwork and Interpersonal Skills
- Media Literacy and Digital Competence
- Accuracy of Information

Real World Interconnectivity
- Executive and Organizational Skills
- Competency in Core Skills and Content
- Career Preparation and Life Skills
- Vocational Opportunities and Certifications

Holistic Awareness
- Self-advocacy
- Wellness
- The Natural World

These 21st-century learning goals expand our existing mission statement and goals for student learning, which we are in the process of revising:

*Lowell High School Mission Statement*
Commitment to excellence in everything we do: academics, activities and citizenship.
Lowell High School provides a secure and cooperative environment where the emphasis is on mutual respect, curiosity, the free exchange of ideas, and the appreciation of education both as a process and a means to betterment.

We are a community…

- That values a curriculum incorporating the best practices of both traditional and contemporary instruction.
- That creates and supports an atmosphere promoting high expectations for student achievement.
- That strives to meet the needs of a variety of ethnic and language backgrounds, career interests, and learning capabilities and styles by providing a broad range of programmatic offerings.
- That believes student accomplishment is a shared responsibility of students, parents, staff, administration, school committee, and community.
- That provides all students the curriculum to meet school and state graduation requirements, and assesses learning continuously in a variety of ways including mandatory state testing.

*Expectations for Student Learning*
*Lowell High School expects all students:*

- To attain an understanding of the educational standards, core knowledge, skills, and concepts defined by the Massachusetts Curriculum Frameworks.
- To take increasing responsibility for educational decisions on a daily and long-term basis.
- To complete academic work both independently and cooperatively in a productive manner.
- To think critically and solve problems using inductive and deductive reasoning.
- To read effectively and communicate ideas and information using a variety of formats.
- To develop an ability to use a variety of mediums—including the creative and the technological—in the process of learning, and demonstrate their acquired learning through use of those mediums.

- To demonstrate respect for individual differences and appreciation for the diversity of a multicultural world.
- To understand and demonstrate a sense of community.

*Core Values*

- Responsibility
- Integrity
- Determination
- Engagement
- Respect

○ English Language Arts/Literacy:
The Lowell High School English Department is committed to supporting and encouraging students to become independent, life-long learners. All English courses are designed to build skills in effective reading, writing, speaking and listening. Through a sequential program of core courses, students are supported to read critically from a wide range of literary and informational texts, write effectively for a variety of audiences and purposes, and speak effectively in informal and formal situations. We recognize that mastering these complex communication skills is essential for successfully meeting the challenges of the 21st Century.

The English Language Arts curriculum is comprehensive in design and aims to challenge students at all academic levels. Curriculum maps have been redesigned to parallel structure in other departments and to use Understanding by Design as the philosophy behind the curriculum and instructional mapping. In terms of instruction, teachers are encouraged and guided to use a wide variety of instructional techniques, keeping student engagement and active participation at the forefront of the work. In the past few years, a big focus area has also been on integrating technology into instruction as a core part of classrooms. We have also developed the idea of formative and summative assessment being varied, meaningful, and authentic as we move away from using only traditional assessments and integrate more projects, presentations, demonstrations, and other non-traditional assessments across departments.

Proposed Change: The changes proposed deal with upgraded technology, adjacencies, flexible space and storage as detailed at the end of this section on page 14.

○ Mathematics:
A primary goal of the Mathematics Department is for all students to achieve mathematical literacy. However, mathematical literacy includes more than students being able to do arithmetic and to solve routine mathematical problems.

Mathematical literacy requires students to reason and prove, to solve real mathematical problems, to make connections, to use multiple representations of numerical information, and to communicate mathematical information to other people. All of the courses in the Mathematics Department operate with these learning goals in mind. The mathematics curriculum is comprehensive in design and aims to challenge students at all academic levels. Curriculum maps have been redesigned to parallel structure in other departments and to use Understanding by Design as the philosophy behind the curriculum and instructional mapping. In terms of instruction, teachers are encouraged and guided to use a wide variety of instructional techniques, keeping student engagement and active participation at the forefront of the work. Math teachers use various methodologies to differentiate the instruction for all learners including direct instruction, discussion, problem solving, simulation, inquiry-based investigations, and collaborative groupings. In the past few years, a big focus area has also been on integrating technology into instruction as a core part of classrooms. We have also developed the idea of formative and summative assessment being varied, meaningful, and authentic as we move away from using only traditional assessments and integrate more projects, presentations, demonstrations, and other non-traditional assessments across departments.

Proposed Change: The changes proposed deal with upgraded technology, adjacencies, flexible space and storage as detailed at the end of this section on page 14.

- Science:
  Science educators use various methodologies to differentiate the instruction for all learners including direct instruction, discussion, problem solving, simulation, inquiry-based investigations, and collaborative groupings. Science labs currently include traditional fixed benches that take up much of the room. This lack of flexibility and fixed furnishings, such as laboratory tables, limit group sizes because of safety concerns. The limited flexibility of our small, outdated science labs also includes limited storage areas. We would like to have laboratory science rooms that meet today's lab safety standards and allow us to deliver a high quality, hands-on, inquiry-based science curriculum. We envision providing appropriate opportunities for the authentic application of knowledge and skills in our science curriculum. It is essential to have the space, flexibility and equipment to provide opportunities for students to gather quality data for these authentic experiments. Additionally, in collaboration with Middlesex Community College and U-Mass Lowell, we intend to continue to offer Dual Enrollment courses with a focus on biotechnology and medicine, chemistry, computer science, engineering, robotics, and green and renewable energy. It is essential to support interdisciplinary collaboration between science, math and engineering in order to ensure the success of these programs and the practical application of student

knowledge. We must offer these opportunities to Lowell High School students as these are STEM-related fields with enormous potential for college and career opportunities

*Standard sized (1440sf) science labs are planned for 9th-12th grades, along with associated prep rooms and a central chemical storage room.*

*The programming excerpts below show a consolidated tally of science courses (freshmen vs grades 10th-12th +ELL), prorated for the new design enrollment, with the necessary sections (34 for freshman, 99.5 +15 for grades 10th-12th +ELL) to maintain class size averages (approx. 24, with ELL at approx. 20). Science classes meet 5 times/cycle (totaling 170 for freshman, 572.5 for grades 10th-12th +ELL) that are divided by the available sessions/cycle to tabulate the teaching stations needed (4.86 freshman and 16.36 for 10th-12th +ELL if 100% utilized).*

## Freshman Science

| Subject | | Course Enrollments | Class Size Avg. | Number of Sections | Sessions per Cycle | Total Sessions in Cycle | Teaching Stations Needed |
|---|---|---|---|---|---|---|---|
| C/H Integrated Science | [Sci Lab] | 705 | 24 | 29.0 | 5 | 145.0 | |
| Explor in Integrated Science | [Sci Lab] | 68 | 14 | 5.0 | 5 | 25.0 | |
| | | | | | | 170.0 | 4.857 |
| Total | | 773 | 23 | 34 | | | 4.857 |

## 10th-12th Science

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MCAS Bio Prep, Princ of Bio | [Sci Lab] | 44 | 15 | 3.0 | 5 | 15.0 | |
| C/H/A Bio, Expl in Bio Gen Bio | [Sci Lab] | 809 | 26 | 31.0 | 5 | 155.0 | |
| Anat/Physio/Forens/MicroBio | [Sci Lab] | 462 | 26 | 18.0 | 5 | 90.0 | |
| Genetics | [Sci Lab] | 83 | 24 | 3.5 | 5 | 17.5 | |
| | | | | | | 277.5 | 7.929 |
| C/H Chemistry | [Sci Lab] | 513 | 24 | 21.0 | 5 | 105.0 | |
| A Chemistry | [Sci Lab] | 34 | 17 | 2.0 | 5 | 10.0 | |
| | | | | | | 115.0 | 3.286 |
| H/A Physics | [Sci Lab] | 236 | 24 | 10.0 | 5 | 50.0 | |
| Partnership Experience | [Sci Lab] | 9 | 9 | 1.0 | 5 | 5.0 | |
| Geolo/Meteor/Ocean/Astron | [Sci Lab] | 206 | 26 | 8.0 | 5 | 40.0 | |
| Clean Energy Career Explor | [Sci Lab] | 17 | 17 | 1.0 | 5 | 5.0 | |
| Environmental Studies | [Sci Lab] | 20 | 20 | 1.0 | 5 | 5.0 | |
| | | | | | | 105.0 | 3.000 |
| Total | | 2433 | 24 | 99.5 | | | 14.214 |

## ELL Science

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELL Integrated Science | [Sci Lab] | 91 | 18 | 5.0 | 5 | 25.0 | |
| ELL Biology | [Sci Lab] | 152 | 19 | 8.0 | 5 | 40.0 | |
| ELL Chemistry | [Sci Lab] | 41 | 20 | 2.0 | 5 | 10.0 | |
| | | | | | | 75.0 | 2.143 |

*Using the estimated number of teaching stations and applying an 85% utilization factor, these numbers increase to 5.7 freshman spaces and 19.8 labs for grades*

*10-12 +ELL. With freshman organized in teams of 8 (2 Eng, 2 Soc.S, 2 Math, 2 Sci.), and requiring 24 general classrooms, the number of freshman science rooms were rounded-up to complete 4 teams and result in 8 freshman science rooms and 20 grade 10-12 +ELL science labs with an overall utilization of 76%.*

*A total of 28 labs, 8 being Freshman, are proposed. 2 of the 28 are for Health and Bioscience as previously noted. All labs will have 200sf of Prep/Storage space, typically grouped in two's as 400sf, and (1) Chemical Storage is also provided.*

- Social Studies:
  The Social Studies Department offers a four-year course of study in history and the social sciences. The content, reading materials, instructional activities, and assessments are designed to promote higher-level thinking and communication skills. All of the history and social science courses at Lowell High School adhere to the Massachusetts Social Studies Curriculum Frameworks and the Common Core State Standards. Social Studies at LHS promotes a College, Career, and Citizenship (C3) approach to student learning and engagement in social studies. The Social Studies curriculum is comprehensive in design and aims to challenge students at all academic levels. Curriculum maps are being designed to parallel structure in other departments and to use Understanding by Design as the philosophy behind the curriculum and instructional mapping. In terms of instruction, teachers are encouraged and guided to use a wide variety of instructional techniques, keeping student engagement and active participation at the forefront of the work. In the past few years, a big focus area has also been on integrating technology into instruction as a core part of classrooms. We have also developed the idea of formative and summative assessment being varied, meaningful, and authentic as we move away from using only traditional assessments and integrate more projects, presentations, demonstrations, and other non-traditional assessments across departments.

Proposed Change: The changes proposed deal with upgraded technology, adjacencies, flexible space and storage as detailed at the end of this section on page 14.

- World Languages/English Language Learners:
  It is the goal of the Foreign Language Department that every student achieves an ability to understand, speak, read and write in the target language, while at the same time developing global awareness and knowledge of different cultures.

  Lowell High School offers English Language Learners (ELLs) in grades nine through twelve a comprehensive academic program to build English language proficiency and academic content knowledge. English Language Learners develop English proficiency while learning the general curriculum. Instruction also

recognizes that language modalities (speaking, listening, reading, and writing) develop interdependently and, therefore, should be integrated to promote skill development. English Language Learners at Lowell High School participate in one or more program models that support English language and content knowledge development. Students' English language proficiency is assessed and academic background reviewed in order to recommend an appropriate program placement in English Language Development (ELD) classes, Sheltered English Instruction (SEI) content classes, and/or English Language Development support classes.

We are not looking for traditional language lab space with fixed listening booths, but rather flexible spaces within foreign language and ELL classrooms that can integrate technology to have "speaking and listening" centers taking place throughout the departments. These classrooms are the regular, classroom teaching spaces (not a shared lab) for ELL and Foreign Languages and ELL and Foreign Languages classes will be scheduled there throughout the day. Both of these departments need classrooms that can serve as flexible language "lab" classrooms, with technology of our current language lab and areas of the classroom that can be used for individual listening/speaking practice as well as collaborative spaces for using the lab technology in small groups, working with direct teacher instruction, or other areas of a language classroom that would allow students to engage in discourse for language practice.

Proposed Change for All Departments: To help ensure the best learning opportunities for students, all academic department teaching spaces must include:

- Modern classrooms with interactive LCD projectors, adequate whiteboard space, adequate storage, maximum natural lighting with windows that open, ample outlets for device charging, FM systems for all classrooms and a streamlined, moveable teacher desk and podium.
- Classrooms that are clustered into inter-disciplinary configurations (adjacencies) to promote cross planning and discourse between academic teachers. While this will not have a direct impact on student scheduling (our school clusters students into multiple classes in grade 9 only), the adjacencies and common teacher planning space will address the NEASC concern that teachers do not have enough time or space to plan collaboratively across departments.
- In terms of adjacencies, we propose that Math and Science teachers have this common planning space together (for STEM collaboration as mentioned in the last bullet) and that English and History teachers have this common space as well (for Humanities collaboration as mentioned in the last bullet).
- Multiple large, flexible group instruction spaces that can be used for combined classes, presentations, lectures, seminar, faculty meetings, and parent meetings. These could be various-sized spaces that can be split up or combined (with movable walls) to better suit the needs of the various users.
- Adequate book storage for all departments, but especially for the core departments (English, Foreign Language, History, Math and Science) where

textbooks and trade books are used extensively in all classes. We would prefer to have a central storage location for many of the books but with smaller distributed book and supply storage for specific departments.

*The program/plans provide large, flexible and fully integrated technology for all classroom spaces, including World Language and ELL programs. ELL rooms are intended to be dispersed with general classrooms, but clustered or paired for inter and intra collaborative opportunities. World Language rooms are to be grouped as a department or potentially semi-dispersed by language for the same collaborative opportunities. The Freshman Academy, as a separate zone within the overall school, should have easy access to all language classrooms and will have one ELL team included within (ELL language, social studies, math and science).*

*Operable walls can be used between select sets of classrooms (1 per cluster) to allow large group gatherings. Likewise, select single classrooms can have sub dividable partitions to allow small group flexibility.*

- Academic Support Programming Spaces:
  Lowell High School has 3 Instructional Specialists: 1 is focused on Instructional Technology Support, one is focused on classroom/instructional support, and the third is focused on academic testing support (MCAS, ACCESS, etc.). We also have number of academic tutors (part-time) who work in classrooms to support student learning; these are specifically language tutors in the Newcomers classroom and a “Read 180” tutor for additional literacy support with grade 9 students.

  *(1) Office for the academic Instructional Specialist is provided with other Dept Offices, a second will use space within the Tech Center and third will use space within the MCAS room.*

- Student Guidance and Support Services:
  School guidance counselors are located in house offices. A social worker is assigned to each house office and the Freshman Academy but not every social worker is physically located in the house due to space constraints.

  Proposed change: Ensure that there is space in each house office to accommodate the assigned social worker for more effective case management.

  Student Support Services suite provides for enrollment, working papers, parent liaison, and support for critical student issues including homelessness. There is a separate college and career center staffed by three guidance counselors with an

attached computer lab for use of Naviance and other college/career research activities.

*As noted under Administrative and Academic Organization/Structure, the House Administration areas include (2) Guidance Counselors and (1) Social Worker. Freshman House will include a third Guidance Counselor and (1) Student Support Specialists. A separate Student Support Services Center is provided for the full school.*

Accessibility to Restrooms, Locker Rooms and Changing Facilities:
A student may access the restrooms, locker rooms and changing facilities that corresponds to the student's gender identity, with the understanding that he/she is subject to the same rules as all other students utilizing the facilities. Upon a student's request, any student who is uncomfortable using a shared facility, regardless of the reason, shall be provided with a safe and non-stigmatizing alternative. Based upon availability and the appropriateness to address privacy concerns, accommodations that may be offered to a student who desires increased privacy may include, but are not limited, to: (a) use of a nearby private area (such as a gender neutral restroom, gender neutral changing room, nurse's restroom, or a nurse's office); (b) a separate changing schedule, or (c) use of private area within a public area (such as, an area separated by a curtain, or a bathroom or changing stall with a door). Schools will consult with a student and the parents/guardians of the student if they are involved in the process or in the case of a younger student with the student's parents/guardians, to ensure accessibility and address any concerns that may arise.

## E. TEACHER PLANNING AND ROOM ASSIGNMENT POLICIES

Lowell High School teachers are assigned to one of 12 departments and for administrative purposes to one of four house offices or the Freshman Academy. There is one Teachers' Center which also houses the majority of the department chairs but no department centers which has hindered collaboration between teachers.

Proposed change: Moving forward the school would benefit from combined academic wings (humanities, STEM, CVT) with teacher workrooms (located near classroom clusters) and multi-media rooms that help to foster cross-curriculum collaboration and support. Teacher workroom space that is designed for both inter and intra departmental collaborative work as well as professional development would greatly enhance the ability of teachers to plan and support robust curriculum. The majority of teachers currently have their own classrooms, teaching 5 periods of a 7 period day with one 50 minute period of prep time, one 50 minute period of duty or collaborative time and a 25 minute lunch period. A combination of dispersed planning rooms that are sized for both small, localized and large, centralized planning is desired and would include smaller planning rooms for each team or

cluster, a medium size department office cluster and the large development/training room. The large space is intended for larger and small planning activities, full departments and inter-department work, gatherings, professional development and training. This type of space exists, currently coined the Little Theater. It is one of the more highly utilized, flexible use spaces in the school and cited as a high priority to maintain.

*Classrooms are planned at approximately 85% utilization per state requirements vs 71% per current practices. This effectively means non-ownership of classrooms; most teachers would have primary ownership, but would need to share if one period a day or, conversely, all academic teachers might share two rooms (one for 3 periods, another for 2 periods per day). In either case a dedicated work space for each teacher is required and would be provided via planning rooms dispersed throughout the school and located convenient to each teacher's classroom(s).*

*The new plans anticipate having (4) freshman planning rooms; (1) for each team and sized for 10+ staff, anticipating SPED & ELL specialists. (13) Additional planning rooms are to be dispersed with grade 10-12 academic classrooms/labs, including (1) with World Language. The program also provides a large seminar room (little theater) to be used for teacher seminars, professional development and other multi-purpose activities as currently occurs.*

*Note: the proposed number of classrooms/sci-labs are projected at fewer than exist despite a 12.5% planned enrollment increase. This is primarily due to the difference in utilization. For example; 148 core academic classrooms/sci-labs exist for approximately 3,125 students. If enrollment increases 12.5% (to 3,520), you would expect classrooms/labs to increase to approx.166, but if the utilization of those rooms increased 14%, then 166 would become 143 rooms. The program calculates 146 classrooms/sci-labs are required (including 6 scheduled small group classrooms).*

## F. CLASSROOM INSTRUCTION (9-12)

As described in sub-section D and broken down into each academic subject

## G. FOOD SERVICE PROGRAMS

Aramark provides food service for Lowell High School. All lunches are made at the high school. The school has a full service kitchen for grades 10-12 and a warming kitchen at the Freshman Academy. Breakfast is available to all students from 7:00 am to 7:55 am. There are two breakfast carts along with the service in the cafeteria. Lunch is served daily in four 25 minute seatings between 10:45 am and 1:40 pm. in two separate cafeterias (main school and Freshman Academy). All breakfasts and lunches for students are free of charge.

The current space does not adequately accommodate all the students scheduled for lunch in the main school so many students eat in the lobby in front of Student Support Services and in the hallways outside the cafeteria.

Proposed Changes: Ensuring that the designated cafeteria space can accommodate enough students to allow for three lunch periods instead of four will have a positive impact on the scheduling process. It is also important to have a small satellite space off the main cafeteria for students who cannot function in a large space or large groups.

*Kitchen and Cafeteria areas are undersized now. The design/program meets the MSBA guidelines for 3 seatings (1/3 of the student population) and is anticipated to be developed as space that has a variety of zones within to accommodate different predilections and to be more flexible for alternative and multi-purpose uses. The potential of separating the freshmen portion of cafeteria, along with a satellite server will be explored during design.*

*The Cafeteria is to be located for easy and flexible access of students for early and extended hours, as well as for community use. The school would like to include easy and increased access to the breakfast service.*

## H. TECHNOLOGY POLICIES/PROGRAM REQUIREMENTS

Technology at Lowell High School is not equitable and needs significant upgrading within classrooms and throughout the building. There is a need for reliable technology that assists in the deliver 21st century curriculum along with a robust, high-speed wireless network with enough bandwidth to support a digital learning environment.

All teachers and administrators were recently issued MacBook Air computers. The school has invested in LCD projectors and document cameras over recent years to assist in presenting material in a effective manner to students and this is a basic tool that we are striving to ensure is in every classroom.

The district has computer technicians who are assigned through an online work order process to help maintain technology for the district. Currently the high school has ten shared labs (6 PC and 4 Mac) along with 16 restricted-use computer lab classrooms (8 PC classrooms, 5 Mac classrooms, 1 language lab, 2 ROTC, 1 Maker Space). The school has been migrating to mobile technology carts shared on an as needed basis by the community (4 iPad, 3 Macbook, 1 iPad science cart and 1 Chromebook cart). The school has one technology specialist whose primary focus is helping teachers

integrate technology into their classrooms. She works one-on-one with teachers, offers group trainings, and has open lab hours for teachers to drop in.

The school is moving forward with online curriculum resources as allowed by the current technology. For example, business courses are completely online. While the current facility includes 33 classrooms equipped with Apple TVs and mobile iPad carts, and ten classrooms recently outfitted with interactive whiteboards, the use of such technology is generally limited to those classrooms and the trained teachers using them. While the current budget does not contain specific earmarks for the expansion of new technology to other classrooms, the library media center, or computer labs, the school purchases digital projectors and document cameras to upgrade classrooms when the budget allows. Twenty of these setups were added to classrooms across all academic departments in 2014-15, and another ten in the 2015-16 school year. A few classrooms have older model PCs dedicated to student use, but LHS does not provide classroom sets of mobile laptop computers or other digital devices for general use by teachers or students except in the Apple TV/iPad equipped rooms or with the "rental" carts. One recent technological improvement in the past few years is the installation of wireless access points in most classrooms, which has improved connection to the Internet throughout the school via personal mobile devices. However there are still too many areas in the school where WiFi connection is weak.

Teachers in all disciplines integrate technology into instructional practices. This means the use of technology in classroom pedagogy (e.g., iPads in some classrooms, computer labs in most instructional areas, a growing number of interactive whiteboards, digital projectors and document cameras) and the inclusion of technology in student assignments and outcomes. Some of the latter technologies include Google Apps for Education such as Google Drive, Google Classroom, YouTube and Blogger, iMovie, and Keynote (on iPads and iMacs). Students use a variety of mediums to demonstrate their learning including audio, video, and cloud-based apps. Students in graphic design, television production, and engineering classes use technologies including CAD, Photoshop, Adobe, digital cameras, Avid, etc.

Proposed Change: Moving forward the high school anticipates moving away from shared computer labs to technology embedded in all classrooms with the use of mobile computer carts that allow for greater flexibility in the use of space. Eventually the school would like to be in a position to have student 1:1 use and install an interactive projector in every classroom.

*The new school will include robust infrastructure with fiber optics delivery into the building and a fully wireless environment planned for 1:1 capability in the future and designed for access to laptop and/or tablet devices. Specialty labs that require*

*substantial computing, graphics and streaming capabilities will be outfitted as required.*

*All classrooms, special education/small group, arts, music, media center and flexible learning areas and conference rooms will be planned with data-projectors, document camera capability, fully wireless computing and have access to laptop or tablet cart storage/charging areas.*

*The (10) existing unassigned computer labs will not be replicated in the new program, but instead larger rooms and computer carts allow every classroom to become a computer lab.*

*The proposed program includes (12) specialty computer labs, including (5) Business/Mktg, (3) Art/Graph, (2) Engineering/Robotics, (1) Maker Space and (1) Digital Music are included in the program, along with (4) classrooms with computers; (2) ROTC + (1) World Language + (1) Math/Computer Sci. Additional computer lab settings occur within the TV/Media Studio, Library/Media with Technology Center and the Career Center.*

*Space is required for the existing and ongoing computer/technical support staff, equipment, work area and training lab. These spaces will be included as part of the overall Media Center that will more than double in size, per MSBA standards (from approximately 9,000sf to 22,000sf).*

- Media Center/Library:
  The school has a library media center staffed by one Library Media Specialist along with two library aides. The library media center is used broadly by various departments. Teachers schedule time in the library when they need students to research material (3 classes can be scheduled at the same time), work collaboratively in groups, the library also offers instructional sessions on how to use a library or take out books. The center is also open an hour before school five days per week and an hour after school four days per week with teachers hired to provide tutoring or homework help. The Library Media Specialist focuses on using technology as a viable research tool coordinating google docs and the use of library research databases which is the number one library skill students need for college. The library media center has a dedicated computer lab which is essential for both visiting classes and for students coming in during lunch, before/after school and advisory time that need access to computers and printing capabilities. The library also has banks of computers in the library proper. These computers allow students to access key search engines, databases and allow students to write and edit papers.

The Library Media Center also houses the Lowell High School archive which has material dating back to the 1830s.

Proposed change: The library media center needs an upgrade in technology to include a dedicated laptop cart along with a balance of quiet areas, reading areas, collaboration areas, meeting areas and storage space. The space needs to support multi-media, flexible group space and current research practices along with small alcoves for small group or one-on-one tutoring.

*The current Media Center is approximately half the size of the state's standards and will be increased substantially, while also accommodating the needs of the school's Technology Center and professional training.*

*The new Media Center will serve as the technology hub and will be positioned to offer access to students in the morning and for extended day use. The space will be planned to accommodate 3 or more classes simultaneously with reading/soft seating areas, computer lab(s), instructional/presentation area(s) and a series of quiet/small group spaces. The space will include storage/charging for laptop carts and provide a room for Lowell High School archives.*

# I. ART PROGRAMS

The Mission of the Fine Arts Department of Lowell High School is to provide all students with a wide variety of high quality artistic experiences in Dance, Music, Theater and Visual Arts and to encourage creativity, the development of a unique artistic voice, and the enthusiastic pursuit of excellence in the Arts. The Philosophy of the Fine Arts Department at Lowell High School is to encourage all students to learn in, about, and through the Arts as a process of intellectual growth and self-discovery and as a contribution to the advancement of our collective cultural heritage. We believe that the creative process is essential to learning and we endeavor to provide a diverse, comprehensive, and sequential curriculum that includes creating, performing, presenting, and producing, making aesthetic judgments as well as responding to the numerous connections between art and life. At the core of this creative work is using one's risk-taking, curiosity and collaborative abilities. We challenge students to become life-long learners who understand and appreciate the potential of the Arts. We strive to build student confidence and resiliency that fundamentally transforms students into creative thinkers with 21st-century skills.

Although Graphic Design, Digital Photography, Digital Audio and Animation are listed in the communications pathway, they are also part of the Fine Arts Pathway. Labs with the appropriate technology, data storage and file sharing systems and flexible furniture (except in Digital Audio lab due to pianos) are needed.

The visual arts curricula includes both traditional and digital arts classes. Visual arts courses include Introduction to Studio Art, Intermediate Studio Art and Studio Art Portfolio. Additional traditional arts courses include Drawing and Sculpture. Digital Media Arts include TV Production, Animation, Digital Photography, Graphic Design and Digital Audio Production. In all arts classes students engage in well-rounded curricula delivered through whole and small group instruction where engagement in the process produces product. The visual arts curricula consists of experiences in four interrelated kinds of artistic activity: creating, producing, responding and connecting. Students involved in these ways of learning gain knowledge about the arts, refine their perceptual and expressive skills, and exercise their powers of analysis in order to make and justify judgments about works of art. Multiple sections of Digital Photography, Introduction to Graphic Design, Introduction to TV Production, Drawing, Sculpture and Introduction to Studio Art along with Art Exploration, Animation, Studio Art Portfolio, Advanced Graphic Design, Advanced TV Production, and Film, Video and Society meet approximately 90 times for 50 minute class periods per semester. Each of the 5 Visual Arts educators teaches 5 classes per day providing 25 arts offerings per week and approximately 500 periods of arts instruction per academic cycle.

Currently, the arts classrooms and studios are on three floors and located in two buildings, a definite disadvantage. While the majority of the traditional arts classes take place in close proximity, the TV studio, graphic design lab, digital photography lab and digital audio piano lab are not on the same floors or within one building. The current size of the classrooms and labs are adequate and in some cases somewhat small due to the large numbers of students enrolled, but their lack of proximity makes it difficult to collaborate and share resources. The labs also lack appropriate updated technology, data storage and file sharing systems. For example, students creating audio files in the digital audio lab have no way of digitally sharing those files with students in TV Production who may need audio for a roll in at the start of a news segment. Students in TV production cannot digitally access artwork created in the graphic design lab for use. Cameras and other technology are not easily shared as the labs where they are housed are on different floors and in some cases different buildings. The furnishings in the labs currently do not allow for small, flexible groupings as the tables are long built in pieces of furniture and chairs do not have wheels. Large volume data storage specifically for the arts classes is essential.

*The program/plans provide dedicated spaces for Visual Arts in the form of separate 2D, 3D & General Art Studio, Graphics Lab, Digital Photography/Animation Lab and TV Production Classroom. Additional Dark Room, Kiln and Storage and space is provided. The size of each lab is proposed slightly larger than State standards due to the class sizes that run higher than standards.*

## J. MUSIC AND PERFORMING ARTS PROGRAMS

In the performing arts, a Dance Studio - large enough for 2 classes simultaneously with ballet bars, mirrored walls, appropriate flooring, sound system and technology.

The chorus room should have a flexible foot print. The room does not need built in risers but the floor should be hardwood to allow dancing for show choir. Portable platform and choral risers along with sufficient storage and sound system.

The band room requires very large storage spaces due to the size of many of the instruments including marimbas, tubas, and drums. It also requires practice rooms and an office area. We would like to keep the current size of the auditorium to best meet the needs of the program and school.

The performing arts curricula currently includes Concert Band, Marching Band, Jazz Band (After School), Concert Chorus, Show Choir, String Ensemble, Introduction to Theater Arts, Advanced Theater Arts, Dance I, II, III, IV, Advanced Dance and Senior Dance Project. In addition, we also offer Beginner Guitar, Advanced Guitar Beginner and Advanced Piano, World Drums, and Advanced Music Theory. Like the Visual Arts, the Performing Arts curricula consists of experiences in four interrelated kinds of artistic activity: creating, producing, responding and connecting. Arts education broadens students' thinking about ways of expression and communication, enabling them to create and perform, as well as to respond and connect to both historical and contemporary forms. Performing and visual arts studios, classrooms and digital labs are places where emerging intuitive and intellectual skills can be physically tested. They are places in which students can reflect upon, play with, and remake in their own voices that which they hear, see, and feel in their lives. As they learn to communicate through the arts, students understand why people need more than words alone for eloquent expression.

The space required to engage in these artistic endeavors need to be sizable enough to hold large classes such as band (currently 62 students) as well as the instruments. In particular, percussion instruments such as timpani, marimbas, and vibraphones have large footprints and require space to move around them. Accessible, secure storage for these instruments is needed in addition to secure storage for uniforms, music and additional equipment such as the drum major's conducting podium, portable sound system and the color guard flags, uniforms and gear. The furnishings for the band room should include chairs that allow students to sit with the correct posture while playing an instrument. A sound system, appropriate technology – projector or flat screen TV monitors should also be included. Practice rooms and an office area are essential as the band performs outside of the school day throughout the year. A meeting area plus band office and restroom facilities to support both during the day and out of school use of the band area.

The piano /digital audio production lab serves dual purposes as it provides students instrumental instruction in piano as well as instruction in the creation of digital music.

The chorus room should have a flexible footprint. The current choral room has built in risers and carpeted floor. The room would be far more functional with portable platform and choral risers, hardwood floor, mirrored wall similar to dance studio and storage for choral equipment and show choir costumes. Technology should include a sound system, digital piano for the classroom teacher and flat screen monitors or

projector. Appropriate furniture would include chairs designed specifically for sitting with good posture while singing.

The Dance classrooms/studio should be large enough for 2 simultaneous classes with ballet bars, mirrored walls, appropriate flooring, sound system and technology with adequate sound insulation so each class can play music at an appropriate volume without interrupting the other class. Currently, the dance program has almost 300 students participating and continues to grow each year.

Students are engaged in arts curriculum that enables them to communicate fluently and effectively in the arts, apply both imagination and rational thinking in the creation of art, understand the value of reflection and critical judgment in creative work while presenting art publicly with confidence, pride and distinction. In addition, students in the arts learn how world cultures have been historically shaped and influenced by the arts and understand the ways in which the arts contribute to everyday life.

*The Performing Arts spaces include separate Chorus, Band, Digital Music/Piano Lab and (2) Dance Classrooms along with associated practice rooms, storage and office area. Similar to Visual Arts, the traditional Band and Chorus Rooms are proposed larger than State standards.*

## K. PHYSICAL EDUCATION PROGRAMS

Gymnasium:

The gymnasium and its supporting spaces would be the primary area for physical education instruction and on-campus athletics. Students are required to take 4 years of Physical Education for 1 semester per year. Therefore, the Physical Education spaces are used by at least 9 classes each period. Moving forward the gymnasium should include a flat track (ideally 6-lane, 150 or 200m) and three basketball courts (ideally 4 and not overlapping the track) for physical education, athletic team conditioning and track and field and sub-varsity basketball practices, (currently the four sub-varsity basketball teams and one varsity basketball team practice off campus). The space would also include spectator seating with storage underneath.

An additional gym for special education/adaptive physical education instruction, would be located adjacent to the main gym, allowing for individual and class activities in support of students educational plans. The gym would have a wood floor with set up for three volleyball courts for special education physical education and interscholastic practice and interscholastic volleyball matches. Additionally, a main basketball court with 2 courts lined side by side across the main court for special education physical education and interscholastic practice is included. Spectator stands on one side of the gym with the set up for team benches and scoring table on the other side closest to the locker rooms, trainer's room. Storage needs would include wrestling mat storage for at least two mats.

The supporting spaces in the gymnasium would include:

- A shared space for weights/functional strength with a focus on Olympic-type lifting and dynamic/core training for physical education and athletics.
- Double sized (space for two wrestling mats) and divisible wrestling/multipurpose room for physical education instruction and wrestling practice. The divider would allow for combined or differentiated instructional offerings for physical education and for our large wrestling program to separate practice based on instructional level (currently our beginning/freshman wrestling practice in the Murphy Cafeteria).
- A multipurpose, flexible room with some spectator seating could be used for alternative physical education options during the day such as yoga, pilates, zumba, cheering and gymnastics (moveable equipment)

The programming excerpt below shows a consolidated tally of all PE courses (9th-12th grade), prorated for the new design enrollment, with the necessary number of sections (53) to maintain class size averages (in this case 26). PE classes meet 5 times/cycle (totaling 265 sessions) that are divided by available periods/cycle (35) to tabulate the number of teaching stations needed (7.57 if 100% utilized).

PE Courses 9-12

| Subject | Course Enrollments | Class Size Avg. | Number of Sections | Sessions per Cycle | Total Sessions in Cycle | Teaching Stations Needed |
|---|---|---|---|---|---|---|
| Physical Education [Gym] | 1359 | 26 | 53.0 | 5 | 265.0 | |
| | | | | | 265.0 | 7.571 |

Using the estimated number of teaching stations and applying an 85% utilization factor, these numbers increase to 8.9 spaces required. This is the justification for 9 fully utilized teaching stations. The 9 spaces are planned as 6 half-court stations in the Gym (18,000sf), 1 PE alternative space (strength/fitness) at 3,000sf, 1 open floor space (proportioned for flexible use as wrestling) at 3,500sf and 1 multi-purpose space at 3,000sf.

Physical Education classes will no longer utilize the pool.

Administrative/Support:

The administrative/support spaces would include an ice and water fill station for team access without entering the trainer's room. Male and female PE/coaches' offices with showers and restrooms Secure Storage for uniforms, clothing and equipment. An administrative office with a conference room. An athletic training room and locker rooms for use by physical education students and student-athletes.

*The MSBA's standards are focused on meeting the needs of Physical Education as opposed to Athletics. As such, the creative/flexible use of PE teaching stations is necessary to best serve the needs of all. A total of (9) stations can be justified based*

*on the schedule of PE courses, each station is considered to be 3000sf (half a basketball court sized gym).*

*The program/plans have allocated the 9 station equivalent which allows a 3 court gym with overlapping track, a weights/strength room, a 2-mat wrestling room and separate multi-purpose room (for gymnastics/cheering/yoga) with adjacent storage. The intent is to co-locate the SPED Adaptive PE gym and ROTC Multi-Purpose space within the overall PE/Athletic area for beneficial adjacencies and create an overall space that could include an overlapping 134.1m, 4-lane track (12 laps =1600m)*

*Note: the MSBA does not fund projects with Natatoriums, as such a pool is not proposed as part of this project.*

*Separate boys' and girls' locker rooms, team rooms, athletic director's suite, coach's offices, trainer's room and storage rooms are included in the program.*

## L. SPECIAL EDUCATION PROGRAMS

Currently there is limited handicapped access to the 1922 building. Moving forward this needs to be addressed to ensure that all handicapped students can easily access all buildings to include doors that have handicapped access. Currently inside the 1922 classroom doorways have thresholds which limit a student's independence and mobility to freely move in/out of the room. Another obstacle for the students in being able to turn the door knob. Lever style handles in the classroom would again provide students independence in moving in/out of the classrooms.

It is also important for the steps to be color coded on the edges to allow those visually impaired students independence in getting from area to area. At present we have had a number of falls/trips on the steps due to the perceptual depth problems of some students.

*The design plans are to be fully accessible, and seek to accommodate all learners, including those with sight, hearing, cognitive and physical impairments through a universal design approach. This approach focuses on inherent equity and barrier free planning for physical, sensory and cognitive differences. In other words, a fully sloped corridor would be preferred over corridors with a separate stair and ramp, to provide equal access and common experiences for the able and impaired alike. This concept carries into the treatment of wall and floor finishes and colors that should be used to help accentuate changes-of-plane with visual cues. Acoustic considerations include recognition of mechanical system noise, and even quieting the sound of rain on roofs and window sills.*

The co-taught inclusion classrooms have two teachers, one special education and one general education teacher teaching in the following areas: one English I, two English II, one English III, one Geometry, one Algebra, one Biology. The makeup is

approximately ⅓ special education with sizes of approximately 26-28 students. This does not affect the design, these are regular sized classrooms. Every special education student is assigned a liaison who helps track progress and supports students as needed and ensures that IEP are being followed and maintained. All special education classrooms should be at general ed size with the exception of 10 Fundamental classrooms that are ½ size and the Instructional Support classroom that is larger than average with all the necessary supporting resources including every textbook and instructional material.

The special education classrooms will be dispersed throughout the school. The only exception is the intensive needs program (two classrooms) needs to be adjacent with a connecting door for toilet/toilet training purposes. The autistic classrooms (four classrooms) should be paired also for the same purpose and for teacher/student collaboration, though the pairs can be in separate sections of the school.

In addition to the number of classrooms that are required by the department, there are some programs that have specific needs. Each will be addressed below:

Life Skills Program Classrooms *(4) – to reach beyond other programs:*
Presently in the 1922 building one of our life skill classrooms houses a cooking area and a laundry area. This room is also the classroom for a group of 18-22 year old students. The facilities provided should be accessible to the entire special education program and not limited to a class. Although the 2 class periods a day that are free can be utilized, it does not afford students the amount of time required to learn the skills needed to successfully transition to adult independent living. The proposal is to have separate space for the kitchens, laundry, mail room and copy center allowing staff to sign up for the rooms.

Intensive Classrooms *(2):*
The Intensive Needs classrooms house our neediest students in terms of physical, medical and cognitive needs. Each class must be full sized to allow for wheelchairs, standing apparatus, swings, etc. The classrooms also need to have full size sinks with running hot water to clean the tubing and machinery (food processors, blenders, etc) used to prepare food and feed students. Presently there is one small room attached to room 118 that serves as a sensory room for the students. It is small and presents an issue of movement on some days; a larger room, though not full size, would alleviate the jams that can be created. In terms of personal needs, the high school has 3 changing bathrooms for our students. There is one in the 1980 building (near the nurse's office) and 2 in the 1922 (ground and first floor). Staff are required to take students out of the classrooms in order to change students. A changing room/bathroom connected to the classrooms is ideal. These bathrooms need toilet facilities with handicap bars, changing tables, sinks, and hoyer lifts.

Autism Classrooms *(8):*

The classrooms for students with autism also require a full-size classroom to allow for movement space and planning stations for students. Even in high school we continue the process of toilet training some of our students so an attached single bathroom in each classroom is ideal. Presently our 18-22 year old class has an attached bathroom. At times students need to be able to go to a quiet area that gives them room to meltdown and then regroup. Presently in our older classroom we have a separate backroom which has been utilized consistently and effectively while in the younger class we had the school department install partitions to allow for such a space. Again it is optimal to keep these types of separations/rooms to manage the potential volatility of some of the students.

*The program/plans provide (4) Life Skills classrooms at 1200sf each grouped in two's (one for ages 14-18, the other for 18-22). The duel labs include dedicated toilets and shared kitchen, laundry and mail room areas. A separate Hygiene (wash/changing) space will be provided in a location that can be shared among the program.*

*The Life Skills program also includes (2) Intensive Classrooms with toilets, (8) Autism Classrooms with toilets, a shared Sensory Room and (2) Adaptive PE (Sensory/Large Motor) stations to be collocated with the main Gym. The Intensive Needs (full sized) Classrooms are also intended to be split-up between two age groups*

Adaptive PE *(2):*
Lowell High School services a diverse population of students, which includes students with disabilities that require a specialized program such as Life Skills, CSA and Adjustment. Students with disabilities need to learn about exercise, participate in exercise and adopt an active lifestyle. They are at greater risk for being sedentary and experiencing related health problems. Access to community-based physical activities is often limited due to a myriad of reasons. The American Academy of Pediatrics Council on School Health's Policy Statement *(Active Healthy Living, 2006)* states that physical education and other school-based physical activity opportunities are as important to a student's long-term productivity as are academics.

The importance of the public school in supporting increased physical activity levels in students with disabilities cannot be overstated. The facilities, staff, programming and equipment required needs to be identified through a collaboration between a certified adaptive physical education teacher, physical therapist and teachers. Primary considerations include accessibility, adapted equipment, safety concerns for all students and the range of student abilities within a class. Adaptive PE activities warrant a large open area with tall space that should be able to accommodate twelve students in wheelchairs or other apparatus to participate in activities including: volleyball, basketball, floor hockey, etc. It is important to note that planning for storage of loose, movable equipment is essential.

Students in the Intensive Special Needs Life Skills Program have complex medical and physical needs. They require highly specialized equipment and adequate space

to accommodate the equipment including their wheelchairs. The students with complex medical needs, significant physical disabilities and sensory processing deficits need daily access to a separate sensory motor room that is specifically designed to stimulates the senses of hearing, vision and touch and is a place for students to work on cause and effect through switch use as well as meaningful functional movement using equipment, such as, gait trainers, therapy platform mats, and hand-cycles. It would be optimal that acoustics be controlled in the space with an operable hard wall and overhead treatment.

We believe that it is important to have the adaptive physical education program connected to gym space to ensure that these students feel that they are a part of the high school and engaging in the same types of activities of students outside their program. In some activities and uses, the partition-wall would remain open and connected to the gym.

In summary, considerations for meeting a subset of the needs of students with disabilities at LHS should include:

- Accessibility and inclusion in physical education
- Adaptive equipment for participation in the physical education curriculum
- Certified adaptive physical education teacher
- A large Sensory Motor Room designed to accommodate positioning equipment, immerse the students in a multisensory environment and provide opportunities for meaningful functional movement and sensory stimulation.

*Note: Special Education - Adaptive PE/Sensory-Motor is prorated at 92 students with class sizes averaging 12, for 8 sections that meet 5 times/week. This totals 40 sessions and can't be scheduled into a single space with only 35 periods possible per week. Two Adaptive PE spaces would have only a 57% (scheduled) utilization rate, but every bit of need, particularly with regular PE spaces scheduled efficiently at 85% utilization.*

<u>Adjustment Program</u> *(8):*
The Adjustment program has a social worker devoted to the program to help manage the behavioral outbursts and emotional breakdowns of students with emotional disabilities. Presently the social worker is housed central to those classrooms and has a 2-room suite to both counsel and give students space as needed. This type of arrangement needs to continue in order to afford the adjustment students the services they require. Additionally, the adjustment classrooms need to be of good size to allow space between the students and for the opportunity to complete project based activities while allowing areas for students to regroup/take space.

*The program/plans provide (8) Adjustment Classrooms (2 to be located with the Freshman Academy) and space for the associated Social Worker, Counseling and Storage.*

***Fundamental Program*** *(10 half + 1 suite):*
One of the course offering in the Fundamentals Program is the Instructional Support Class which services well over 100 students. In this class we presently work on transitional skills, self-determination skills, and largely on academics from other classrooms. These subject area classes are using Google Classroom and students are regularly accessing information on Aspen. Presently many teachers teach this course with inadequate materials and space to truly service students fully. To meet the students' required work we require a large classroom (larger than the average) that can house up to 10-12 computers for students to regularly access. Our "Instructional support" classroom - solely dedicated to this class- presently houses as many as 12-16 students with a mere 4 computers. Students are continuously waiting to get on the systems to complete their work or check in on their progress/work that needs to be completed. As a school we are having students send information/work through Google Drive constantly but we cannot meet this need in our classes. In order to meet needs we need a large space with many computers and study carrels for students to use when they come to take a test. Presently students will leave a gen education class and come to test in the IS class but we have no private/quiet space to offer them and the efforts we and the student put in are compromised. In addition, shelving is critical as the IS center should house a textbook from each classroom as well as space for every student to have an individualized binder to track their work and transitional planning.

*The program/plans provides (10) half-classroom sized spaces (2 to be located with the Freshman Academy) and space for the large Instructional Support suite. The Instructional Support space must support the equivalent of 3 classes of 10-12 students working closely with specialists.*

Deaf and Hard of Hearing *(1):*
The DHOH program is presently housed at the Freshman Academy. It requires a ½ size classroom with the typical classroom needs (i.e. whiteboard, computer, etc.).

The DHOH students follow a regular schedule with an interpreter in general education classes or special education classes. For one or two periods per day DHOH students are in a substantially separate classroom to work on sign language skills and other study skills.

*Speech and Language (SPL):*
Presently housed in 2 smaller rooms in the back of a classroom (#305), the SPL class requires office space as well as teaching space. There is an assistant that works with the speech therapist. A ½ size classroom would be sufficient and would also house a little space for the Occupational Therapist and the Physical Therapist to complete some paperwork. The Speech Therapist holds small groups (6-8) students that work as a group at a round table.

Administrative Needs:
The Special Education administrative team at LHS consists of the following: 2 Evaluation Team Chairpersons (ETC), 1 Social Worker (in addition to adjustment social worker), 2 Evaluators, 2 Psychologists, 1 Department Chair and 1 Clerk. The staff requires office space, meeting rooms and testing rooms in order to complete their work. The main office for special education must be a locked room as it contains confidential files. This room (presently #144) houses the clerk, Department Head, and ETCs and works well. Optimally, each staff member evaluating (evaluators, psychologists) would have a small office to allow them to test in their room where all the materials are located. Presently evaluations occur in a number of places - wherever there is a free spot. The teams hold over 400 meetings a year and the need for meeting rooms is critical. We presently have 2 rooms: one is located in the Students Support Services office and one is located in room #220. Social workers also need a room that is individual in order to service students. The adjustment program is a little different and is addressed above.

*The program/plans provide a half classroom for the Deaf/Hearing Impaired program, Speech Office for 3 + meeting for 6, (2) Social Workers, (2) Psychologists with (2) Evaluators/Testing, (2) Meeting Rooms, a SPED Dept. Chair, (2) Team Eval. Chairs and SPED Office/Clerk.*

# M. VOCATIONAL EDUCATION PROGRAMS

Non-chapter 74 Programming

- Air Force ROTC
  The Air Force Junior ROTC Pathway is a four-year citizenship program designed to develop citizens of character dedicated to serving their nation and community. The objectives of AFJROTC are to educate and train high school cadets in citizenship, promote community service, instill responsibility, character, and self-discipline, and provide instruction in air and space fundamentals. The program is grounded in the Air Force core values of integrity first, service before self, and excellence in all we do. The curriculum emphasizes the Air Force heritage and traditions, the development of flight, applied flight sciences, military aerospace policies, and global awareness. Rigid academic courses in military science and leadership provide a solid foundation. The curriculum shows students how to reach their full potential while serving society through self-discipline, structure, followership, and leadership. Students are challenged by assuming various leadership positions throughout the Lowell High School Cadet Corps. Senior Cadets are responsible for organizing, planning, and coordinating all cadet operations and activities. In addition to classroom curriculum, learning includes numerous extra-curricular activities including before/after school programs, field

trips, and community service activities. These activities emphasize teamwork, discipline, and community engagement.

This program provides both classroom instruction and physical fitness training that requires multiple classrooms and a dedicated physical training space where cadets can drill and conduct physical training without disturbing other classes in the vicinity.

*The program/plans provide (5) classrooms/PT (1 more than exists) and a 2,500sf multi-purpose space dedicated for drills, color guard, etc. per USAF standards. Additional prescriptive storage, cadet office and conference areas are provided. The ideal location for ROTC programs would be near PE/Athletic areas for shared use of spaces and with easy access to outdoors.*

- Communications

  The Colleen Creegan Media Center: The Digital Media Studio requires an adjacent flexible classroom, a Digital Media Production Lab, with state of the art computers, wall monitors and secure storage where students will learn all aspects of media production - pre-production through broadcasting in a flexible, authentic environment. In addition, the Digital Media Studio should have individual editing bays with computers and updated software, a collaborative meeting space for students and digital media studio staff along with sufficient storage to house all the equipment required to maintain a state of the art digital media production studio.

  Within the actual studio, there needs to be a lighting grid with a sufficient number of light fixtures to allow for dedicated lighting cues for sets - newsroom desk, interview set, etc. A teleprompter, digital light and sound boards, the ability to add graphics and transitions, production switchers, duplication and storage, capture and playback deck, broadcast converters, video monitoring, audio monitoring, working communication between studio floor and control room and the ability to shoot/broadcast in HD. An edit/share system allowing for collaboration between digital media classes, graphic design classes, digital photography and digital audio classes.

  In addition to the Digital Media Production studio and lab, additional labs for graphic design and digital photography as well as a digital audio lab that included digital pianos are essential. An edit sharing/storage system that would allow students and staff to work collaboratively - graphic design students create images and logos for TV broadcast, digital audio students create soundtracks for news segments, etc. For animation, tablets and computers are needed.

The Colleen Creegan Media Center also houses Lowell Educational Television, the educational access channel for the city of Lowell. Three staff members manage content and programming for channel 22 and let22.org as well as support LHS class activity. The studio contains a full sized media studio, edit rooms, small offices, and storage rooms. A teacher works in a media computer lab classroom where students create content for in school and city of Lowell broadcasts.

Proposed change: Locate the classroom within the media studio suite and provide students with private workspaces that allow them to focus on their media projects. It is essential to have flexible space and classroom adjacencies to allow for additional related programs to enhance the learning experience and allow for collaboration between the studio and journalism, music and digital music production, graphics, live music production, web radio production and drama and acting.

*The Media Studio is replicated in the new program and ideally located with other digital media programs and/or arts programs in the plans, with classroom space nearby.*

*The program/plans provide equivalent square footage to what exists, with a slight increase to address the need for a larger conference/meeting room. The suite will be configured with a full-size Studio, Waiting Room, Control Room, (8) Editing Suites, Media Classroom, Equipment Room, Offices for 3 and a Conference Room for 15. The location would ideally be clustered near other Digital Media spaces and/or with Fine Arts (Digital Photo/Animation, TV Production & Graphics).*

- Culinary

  The Culinary Arts Department is designed for students interested in careers within the Food Service Industry, one of the largest and fastest growing industries in the world. This Pathway is ideally a three year program that can be tailored to one or two years on an individual basis. This Pathway integrates a rigorous academic curriculum, but it also provides “hands-on” training in a student-operated restaurant. Students are exposed to different baking and cooking techniques, a variety of table services, and customer relations. This Pathway provides a professional environment so students will culminate a basic, well-rounded education in Culinary Arts. All students complete the program with a portfolio and enough experience to secure an entry-level position within the Food Service Industry or pursue careers through higher education. Students also have the opportunity to train and test for the Serve-Safe Certification.

  Proposed change: The restaurant with its full service kitchen is not in the best location to serve the general public. It is currently in the basement and anyone being buzzed in the exterior door can go in many different directions within the

school. This is a safety concern. The restaurant should be located with easy monitored access from the lobby in the same vicinity as the school store and the bank. This would keep our school businesses accessible to the general public while ensuring safety. The configuration of culinary area should be made up of the restaurant/kitchen with adjacent classroom space and an adjacent culinary lab for feeder culinary program. This would allow for more effective collaboration within the department. The other piece that is crucial is adequate storage space for inventory to include adjacent space for walk in freezers and refrigerators.

*The program/plans provide (2) Culinary Classrooms along with the Kitchen/Restaurant and associated Freezer/Cooler and Dry Storage spaces. The new spaces are sized slightly larger than the existing and ideally located for easy, but controlled access by the public and for after-hours use. The kitchen will benefit further from shared access to loading/receiving areas.*

- Engineering
  *Maker Space Lab* - The LHS Makerspace will allow for student intrinsic motivation and self-directed learning, while engaging students in significant content by allowing for connections to curriculum. The Makerspace will reinforce or introduce to students the components of all LHS STEM disciplines.

  *An unassigned Maker Space serves as pull-out space for the 9th Grade. The Science Lab sized space will have an adjacent prep room for associated storage of materials, projects and 3D printing. The space will be located within the Freshman Academy areas.*

  *Engineering Lab* - Technology/engineering classes will be able to move seamlessly between tool-based work, lecture, group work, and non-tool-based labs. Physics and robotics classes will have direct access to woodworking and metal tools for hands-on applications. All classes in this Pathway will be able to move from paper-based lecture or group work to computer based design to manufacturing

  Proposed change: The growth of this program has prompted the need for 2 Engineering labs so that all classes can have full access to this facility and educational/technology tools.

  *The program/plans provide (2) Engineering Labs as required to meet prorated scheduling. Each room is sized as a traditional Science Lab, but will be outfitted according to the specific needs for CADD and Robotics.*

- Environmental Sustainability (in development)

All classes in this Pathway will be able to move from classroom/academic work to hands-on, designing and manufacturing (computer-based, solar panels, etc.)

Proposed change: With the addition of a lab, students will be able to access design and manufacturing tools in house (rather than using facilities at satellite locations - such as businesses and collaboratives).

*The program/plans provide a Science Lab sized space that will be developed as a new pathway for clean energy and sustainable design. The enrollment for this program is expected to come from other tech/engineering programs which might reduce in utilization, but provide specialized spaces to support each pathway.*

- Health & Bioscience
  The Health and Bioscience Pathway is designed for students with an interest in the fields of allied health and/or the emerging field of biotechnology. The Health and Bioscience Pathway offers students a unique opportunity to gain essential classroom knowledge and practical experience within the local medical or biotechnological community.

  Proposed change: *Hospital Room Model Classroom* - Students will interact with model patients and learn how to conduct electrocardiograms, draw blood, interpret X-rays, set broken bones, and perform a range of other challenging tasks.

  *The program/plans provide a separate Health and Bioscience Lab as part of the overall count of Science Labs, but each is to be outfitted for the specifics of either medical assisting, including associated patient beds, mock toilet/changing room or micro/biotech which includes specialized fume hoods and clean room set-up.*

  *The design/plans seek to create a dispersed pattern of interdisciplinary STEM and Humanities clusters, each potentially grouped as (3) science labs with (3) math classrooms vs (3) english with (3) social studies classrooms. Ideally, each cluster would have shared pull-out spaces and good visibility to foster collaboration and small-group and project-based activities. The visibility may allow a bit more independent work by students and also provides passive supervision throughout academic areas. ELL academic classrooms/labs will be woven alongside regular academic clusters in groupings of (2), as will health classrooms and special education spaces. World Language is to be grouped as a department, similar to Fine Arts, Business/Tech, ROTC and Physical Education, and located for ease of access among all grades.*

*Larger classrooms are critical to meet the needs of more active learning and to accommodate more flexible furniture that allows for multi-mode set-ups and better accommodates individual computing.*

## Chapter 74 Programming:

- Business Marketing & Finance

Lowell High School offers a Marketing & Finance Pathway for students interested in majoring in Business Administration in college or entering the workforce in the areas of management, finance, accounting, or marketing. The Marketing & Finance Pathway offers students authentic learning opportunities. Our students have the ability to work in the 1826 School Store, with a site in the high school and another in the downtown. Students experience the excitement and challenges of being a small business owner. Our marketing program partners with NFTE (Network for Teaching Entrepreneurship) which provides numerous hands-on learning activities and opportunities. Our partnership with the Jeanne D'Arc Credit Union allows students in the pathway to work in the Lowell High School branch of the Jeanne D'Arc Credit Union. In this branch, students learn the day-to-day operations of the banking industry. Both these valuable business opportunities allow students to earn high school credit and real world experiences while providing valuable services to the school and community.

Proposed change: The school store requires an adjacent flexible classroom (marketing retail lab) with retail and storage space to effectively provide students with real world experience in running a store, which includes customization of t-shirts, inventory control, customer service, accounting, marketing/advertising, and online sales. Beyond the retail program there is a need for flexible, technologically-equipped classroom space that allows for the use of online business and marketing simulations, software designed specifically for these types of classes, and online research. Positioning the other four business classrooms in the vicinity of the store would be beneficial in allowing more collaboration between the teachers. The bank is currently located within the cafeteria which allows for access by students and staff but does not allow for easy public access. There is a need for a larger space for the bank. The store and the bank should be co-located with the restaurant program in a configuration that allows for access through the main lobby for security purposes.

*The program/plans provide (5) Business Finance/Marketing classroom/labs, (3) of which are recognized under Massachusetts Chapter 74 Program for Marketing and include the School Store. A separate space for the Bank is provided as a pull-out component of this program.*

*All Business programs would ideally be located as a cluster, but the larger priority is positioning the Bank, Store and associated Classrooms near the Cafeteria, Main*

*Entry/Lobby and easily accessible for public and afterhours uses. Separate storage for retail/supplies is provided.*

## N. TRANSPORTATION POLICIES

Transportation is not provided to Lowell High students to get them to and from school. If a student wishes to use the Lowell Regional Transit Authority bus, the cost of a bus pass is $20.00 per month. A survey of students conducted during the 2014-2015 school year indicated that students commute to and from school using the following methods: ride from family/friend (33%), walk (32%), ride city bus (24%), drive (11%). Daily, 11 LRTA buses transport students at drop-off and pick-up times, lining up along French Street and Kirk Street.

Approximately 83 SPED students are transported to and from LHS separately each day with 10 total of the following: specialty equipped wheelchair vans, yellow buses, and smaller vehicles.

Transportation for Athletics is extensive. Daily, about 7 buses line up at the main entrance on Father Morissette Boulevard to transport students to practices at Cawley Stadium, the boat house and other locations. Students provide their own transportation home from practice. On game days, there can be up to 4 additional buses that pick up students (also at the Father Morissette location) for transportation to games.

*Note; the Educational Program does not address parking needs. The site program is articulated in section 3.1.5 Site Development Requirements. The school currently benefits from its location that utilizes city transportation, wide streets and adjacent parking garage. Planning options that create a new school a different site will need to account for parking and transportation as part of the site program.*

## O. FUNCTIONAL AND SPACIAL RELATIONSHIPS

Lowell High is interested in exploring different organizational structures that would more fully support the concept of expanding areas organized for STEM classrooms, Humanities classrooms, and CVTE classrooms. LHS is considering clustering academic Department Head offices together by subject matter connections (Humanities, STEM, CVT) and integrating the houses into this configuration. One way to do this would be to place two house offices in a combined house and guidance suite in proximity to a department center. This would allow for administrative presence in multiple areas of a large building. Another option would be to place all the house offices into one central space near the main office, such as a house and guidance suite. The Freshman Academy, while housed within the same large building, would have a separate office suite for the Director of the Freshman Academy.

- Classrooms that are clustered into inter-disciplinary configurations (adjacencies) to promote cross planning and discourse between academic teachers. While this will not have a direct impact on student scheduling (our school clusters students into multiple classes in grade 9 only), the adjacencies and common teacher planning space will address the NEASC concern that teachers do not have enough time or space to plan collaboratively across departments.
- In terms of adjacencies, we propose that Math and Science teachers have this common planning space together (for STEM collaboration as mentioned in the last bullet) and that English and History teachers have this common space as well (for Humanities collaboration as mentioned in the last bullet).
- Multiple large, flexible group instruction spaces that can be used for combined classes, presentations, lectures, seminar, faculty meetings, and parent meetings. These could be various-sized spaces that can be split up or combined (with movable walls) to better suit the needs of the various users.
- Adequate book storage for all departments, but especially for the core departments (English, Foreign Language, History, Math and Science) where textbooks and trade books are used extensively in all classes. We would prefer to have a central storage location for many of the books but with smaller distributed book and supply storage for specific departments.

*The broad planning goals are to organize a new or renovated school for community use and control by having a zone or zones with major activity areas, such as the PE/Athletics spaces, Auditorium, Cafeteria and Media Center able to be opened or closed in a controlled and naturally supervisable way. The Cafeteria and Media Center seek to serve as the heart of the school, one as the social core and the other as the technology hub. Both located and configured for flexible use and access to views and outdoors. The culinary program would ideally be in proximity to the lobby as well as cafeteria kitchen/loading areas. The culinary restaurant, school store and bank also need to be located near the main lobby/community use areas.*

*The freshman are to be zoned in a separate wing, but well connected to shared programs and major spaces. Freshman academic rooms are to be clustered as teams of 6 classrooms + 2 science labs with nearby special education, health, ELL classrooms and a teacher planning room. Other academic rooms are to be organized in STEM clusters (3 science with 3 math) and Humanities clusters (3 english and 3 social studies), but in an alternating pattern that promotes collaboration within each cluster and convenient cross-discipline connections between STEM and Humanities.*

*Special Education, ELL and Health Classrooms are to be dispersed with general academic areas (grades 9-12), but ideally in groups of two.*

*Fine-Arts, World Language, ROTC and Digital Media programs are to be clustered alike, while seeking proximity to general academics for foster potential inter-disciplinary efforts.*

# P. KEY PROGRAMMATIC ADJACENCIES

As described in section O above

# Q. SECURITY AND VISUAL ACCESS REQUIREMENTS

Of critical importance to the Lowell High community is an environment that is safe and secure. The school currently has 32 entrances. After the start of the school day, all doors are kept locked with the exception of the main lobby door. A security guard monitors the door closest to the Freshman Academy at class changing time to allow student to enter the main school without having to go to the main entrance. The main entrance has no buzzer or electronic monitoring system to manage entrance into the building. There is a security desk in the main lobby where visitors are expected to check in and be given a visitor's pass but visitors can easily bypass the guard who might be busy checking another visitor in. The school uses the Raptor visitor system and during school hours the school has over 10,000 visits each year. The high school has approximately 110 analog cameras throughout the three buildings that are being replaced by digital cameras as the analog cameras wear out. Currently the command and control center in an emergency is the security office that has multiple camera monitors and the ability to use the intercom. This space is not secure having both an interior glass door and large ground level windows to the outside.

At its current site the high school has a neighboring facility that is of adequate size to house students in an emergency/evacuation situation. This is important factor in our safety protocols that allows us to account for both students and staff in a safe alternative environment.

The Medical Emergency Response Plan was submitted to DESE on September 23, 2015.

Proposed Change: The plan should include an upgrade to the cameras system. The security vestibule should be configured to better monitor the main entrance to the school to include a camera and buzzer system on the door. If the high school continues to occupy multiple buildings the second building should also have a security entrance to better monitor the flow of students, staff and visitors. The school would also benefit from a secure command and control center preferably in the vicinity of the main office with multiple monitors to display footage from security cameras, an intercom system and space for a conference table. To alleviate bottlenecks and overcrowding during class changing time having multi-level bridges would be very beneficial and would limit the amount of students choosing to go outside to move between buildings. The school also needs a more robust security system that allows for automatic lockdowns of all exterior and interior doors along with a system of communicating with police and rescue. The current intercom system

is past its functional life and needs to be upgraded to better meet the needs of the school.

Lowell Public Schools has very close connections with our emergency responders. There are monthly safety meetings which include school representatives from each school level along with central office staff and representatives from fire, police and EMS (emergency service provider). Our visioning work included a police sergeant who oversees the school resource officer program and a captain from the police department who is the chair of the parent group. Moving forward with the planning process, emergency personnel will be an integral part of the process to determine preferred solutions.

*The proposed planning concepts include a controlled main entry vestibule with security desk, adjacent SRO Office and a conference room that can function as Command/Control Center and also serve as DARE meeting space. A satellite SRO Office will be provided due to the large size of the school.*

*The planning layout for new or renovated facilities will be zoned for the ability to lock-off wings and control after-school use and community access. This includes locating the school store, bank, culinary and administrative houses for access from main lobby and functional areas.*

## R. OTHER PROGRAMS

Natatorium:
Omitted

**In-House Suspension** (2): The high school has two separate in-house suspension rooms, one for grades 10-12 and one for grade 9. These rooms are used all day and students do self-reflection and coursework with the assistance of the in-house teacher who acts as tutor/counselor.

**Student Activities**: The high school also has a student activities office that manages 32 after school activities and clubs. This office space is located in the cafeteria for easy access by students.

**Nurses' office**. This office has four assigned nurses. This space needs to have a reception area, private exam rooms and storage space for equipment and student records.

**Outside service providers** provide both academic support and health and social services:

- SCORE Mediation: Mediation office that trains students to work as mediators on student issues referred by house deans and other staff members. This space requires and office and a small meeting room.

- MCC/UMass: Programs provide intensive academic support and college/career support for 1st generation college and underserved populations. These programs require office spaces and a classroom (TRIO; Gear-Up / Talent Search / Upward Bound)

- Catie's Closet: A nonprofit that provides clothing and cosmetic items for students in need. Space needed is the size of a small classroom.

  Catie's Closet-The first location chosen by this non-profit organization was Lowell High School in 2010. Catie's Closet is now located in 37 schools in Massachusetts and New Hampshire. This organization provides in-school resources of clothing and basic necessities to students living in poverty and keeps the closet fully supplied with appropriate seasonal wear. Winter coats, hats and gloves are added to the inventory as the cold weather approaches and is replaced by a shorts and t-shirts with the approach of warm weather. The school location makes it easier for students in need to get access to fundamental necessities, including clothing that is age and design appropriate and helps reduce the stigma of poverty. At Lowell High School the closet is accessed on a daily basis. The space needed for this essential service is the size of a small classroom.

- Health Center: Lowell Community Health has a medical suite at the high school to service students with medical and mental health issues.

  The School-Based Health Center (SBHC) located at Lowell High School is administered by the Massachusetts Department of Public Health through a partnership with Lowell Community Health Center (Lowell CHC). It is one of thirty three (33) SBHCs across the state of Massachusetts and one of 2,315 SBHCs across the country in forty nine (49) states. The SBHC at Lowell High is operated, as a satellite site, by Lowell Community Health Center and licensed by the Massachusetts Department of Public Health's Division of Health Care Quality.

  Lowell CHC's mission to provide caring, quality and culturally competent health services to the people of Greater Lowell regardless of their financial status; to reduce health disparities and enhance the health of the Greater Lowell community; and to empower each individual to maximize their overall well-being.

  The SBHC at Lowell High School provides primary health care and behavioral health services and links students and families to additional services such as dental and vision services currently being offered at Lowell CHC's new facility located on 101 Jackson Street. The SBHC is staffed by a Family Nurse

Practitioner, a Medical Assistant and a Licensed Independent Clinical Social Worker. Services are culturally competent through the availability of trained medical interpreters and telephonic language services. Through well-established collaborative efforts with the school nurses, the SBHC has become an integral part of the health safety net for children in Lowell by promoting easier access to medical care, increasing health utilization among students, and offering students a safe place to receive care.

The partnership between the SBHC and the high school has been extremely beneficial to the student population at LHS. During the 2016-2017 school-years, the SBHC served 410 students through 1,117 primary care visits and 647 behavioral health visits. Examples of services included: immunizations; physical exams; sport exams; exams for employment; sick visits; management of chronic conditions; behavioral health assessments such as depression screening; substance abuse screening and brief interventions; assistance to help families with health insurance enrollment; well-child screenings for vision and hearing; health education and counseling; referrals; and care coordination.

Lowell CHC recognizes that meeting the physical and mental health needs of students increases their readiness for learning, prevents them from missing precious time in class, and enhances opportunities for lifetime success.

- Counseling Services: Outside counseling providers come into the school to support students with mental health needs.

- Safe Harbors Homeless Coordinator: Office space needed for program coordinator that assists our homeless student population.

*The program includes (2) classrooms for In School Suspension, a student activities space and full Nurses' Suite per MSBA Guidelines. An office and waiting/secretary is provided for Score Mediation, along with a 3-room suite for MCC/UMass Trio programs, 2 spaces for Catie's Closet (1 with freshmen), a suite of rooms for the Community Health Center and space within the Student Support Center for Safe Harbors.*

*The program also provides a small space for Latino Connection and an office for substitute teachers. Counseling Services occur throughout the school, within available space.*
*See Appendix for further information*

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# *Proposed Space Summary v12 (for revised PSR)*

| | Spaces Existing | | | Spaces Proposed | | | | Spaces per Guidelines | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3125stu/25class/.71util.=176rms | | 177 | 3520stu/24class/.85util.=172rms | | 172 | | 3520stu/23class/.85util.=181rms | | 183 | |
| **LOWELL HIGH SCHOOL** | **Existing Conditions** | | | **Proposed Total** | | | | **MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)** | | | |
| ROOM TYPE | **ROOM NFA[1]** | # OF RMS | **area totals** | **ROOM NFA[1]** | # OF RMS | **area totals** | | **ROOM NFA[1]** | # OF RMS | **area totals** | **Comments** |
| **CORE ACADEMIC SPACES** | | | **136,088** | | | **161,620** | -7K OFFSET BY SPED/ART/TECH | | | **169,040** | |
| Classroom - Freshman (incl Health) | 849 | 27 | | 900 | 24 | 21,600 | | | | | |
| Classroom - Gr. 10-12 (incl. Health & ELL) | 825 | 95 | | 900 | 88 | 79,200 | | | | | |
| Classroom - General | | 122 | | | 112 | | UTILIZ+CL.SIZE=LES | 850 | 120 | 102,000 | 825 SF min - 950 SF max |
| Teacher Planning - Freshman | 493 | 1 | 493 | 450 | 4 | 1,800 | | | | | |
| Tchr Plng (Tch-Out, Lng, Ktch, Comp, Copy) | 604 | 8 | 4,834 | 450 | 13 | 5,850 | | | | | |
| Dept Off's (Eng, SS, Mth, Sci, WL/ELL, Instr) | 112 | 6 | 671 | 125 | 6 | 750 | | | | | |
| Teacher Develop/Training (Little Thtr + Cntrl) | 3,568 | 1 | 3,568 | 3,600 | 1 | 3,600 | | | | | |
| Teacher Planning | | 16 | | | 24 | | | 100 | 120 | 12,000 | |
| Small Group Seminar (20-30 seats) | | | | 450 | 6 | 2,700 | | 500 | 8 | 4,000 | |
| Science Classroom / Lab - Freshman | 978 | 7 | 6,849 | 1,440 | 8 | 11,520 | | | | | |
| Science Classroom / Lab - Gr.10-12 | 900 | 19 | 17,100 | 1,440 | 20 | 28,800 | | | | | |
| Science Classroom / Lab (incl. 3 ELL Sci) | | 26 | | | 28 | | UTILIZ+CL.SIZE=LES | 1,440 | 31 | 44,640 | 3 x85% ut=20 Seats-1 per /day/student |
| Prep Room | 156 | 7 | 1,091 | 200 | 28 | 5,600 | | 200 | 31 | 6,200 | |
| Central Chemical Storage Rm | | | | 200 | 1 | 200 | | 200 | 1 | 200 | reasonable not to scale (typically) |
| Unassigned Green House/Growing Room | 196 | 1 | 196 | 200 | 0 | 0 | INCL. VIA PREP | | | | |
| Clean Room (w/ Micro/Bio Tech Lab) | | | | 400 | 0 | 0 | INCL. VIA TEC | | | | |
| **SPECIAL EDUCATION** | | | **21,950** | | | **38,950** | +5 CR's/SPED, -2 CR's/ART/TECH | | | **34,240** | |
| **LIFE SKILLS (69 stu's =78 prorated)** | | | | | | | | | | | |
| Life Skills CRs (2 ages +Kitch/Laund/Mail) | 968 | 4 | 3,870 | 1,200 | 4 | 4,800 | | | | | |
| Life Skills Hygene (Wash/Changing Room) | | | | 450 | 1 | 450 | | | | | |
| Life Skills Intensive CR +Tlt (2 age grps) | 872 | 2 | 1,744 | 950 | 2 | 1,900 | | | | | |
| Life Skills Sensory Room | 344 | 1 | 344 | 450 | 1 | 450 | | | | | |
| Life Skills (CSA) Autism CR + Tlt & Quiet | 816 | 2 | 1,632 | 950 | 8 | 7,600 | | | | | |
| Life Skills - AdaptivePE / Sensory-Motor | | | | 3,000 | 2 | 6,000 | | | | | |
| **ADJUSTMENTS (40 stu's =46 prorated)** | | | | | | | | | | | |
| Adjustments CR | 738 | 7 | 5,169 | 900 | 8 | 7,200 | | | | | |
| Adjust Social Worker | 165 | 1 | 165 | 150 | 1 | 150 | | | | | |
| Counseling Room | | | | 200 | 1 | 200 | | | | | |
| Storage | | | | 100 | 1 | 100 | | | | | |
| **FUNDAMNTL (190 stu's =214 prorated)** | | | | | | | | | | | |
| Fundamentals - Freshman | 810 | 2 | 1,619 | 450 | 2 | 900 | | | | | |
| Fundamentals - Gr.10-12 | 545 | 7 | 3,812 | 450 | 8 | 3,600 | +1 PER SPED DEPT | | | | |
| Fundamentals Instruct. Support CR (for 24+) | | | | 1,900 | 1 | 1,900 | | | | | |
| **OTHER SPECIAL NEEDS** | | | | | | | | | | | |
| OT/PT (part-time) | | | | therapy occurs in CRs | | | | | | | |
| Deaf/Hearing Impared Suite | 1,066 | 1 | 1,066 | 450 | 1 | 450 | | | | | |
| Speech & OT/PT (Office for 3 + mtgs for 6) | 178 | 3 | 534 | 450 | 1 | 450 | | | | | |
| Psych + Evaluators/Testing | 299 | 2 | 598 | 150 | 4 | 600 | | | | | |
| Social Worker | 189 | 1 | 189 | 150 | 1 | 150 | | | | | |
| PALS Mentoring Office/Conf | 161 | 2 | 321 | part of soc worker | | | | | | | |
| SPED Dept Chair | 241 | 1 | 241 | 250 | 1 | 250 | | | | | |
| SPED Eval Team Chair | 237 | 1 | 237 | 150 | 2 | 300 | | | | | |
| SPED Office (Clerk/Waiting/Files) | 304 | 1 | 304 | 300 | 1 | 300 | | | | | |
| Conference (1 for 12, 1 for 20) | | | | 600 | 2 | 1,200 | | | | | |

**SUBJECT TO DESE REVIEW**

# *Proposed Space Summary v12 (for revised PSR)*

| | Spaces Existing | | | Spaces Proposed | | | Spaces per Guidelines | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3125stu/25class/.71util.=176rms | | 177 | 3520stu/24class/.85util.=172rms | | 172 | 3520stu/23class/.85util.=181rms | | 183 | |
| **LOWELL HIGH SCHOOL** | **Existing Conditions** | | | **Proposed Total** | | | **MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)** | | | |
| ROOM TYPE | ROOM NFA[1] | # OF RMS | area totals | ROOM NFA[1] | # OF RMS | area totals | ROOM NFA[1] | # OF RMS | area totals | Comments |
| | | | | | | | | | | |
| | | | | | | | | | | |
| **ART & MUSIC** | | | **19,851** | | | **17,700** | +5K OFFSET BY CR's/SPED/TECH | | **13,075** | |
| Art CR (incl. Photo/Anim, Graph, TV Prod) | 1,301 | 6 | 7,803 | 1,350 | 6 | 8,100 | 1,200 | 6 | 7,200 | Assumed use - 25% Population - 5 times/week |
| Art Workroom w/ Storage & kiln | 370 | 4 | 1,482 | 150 | 6 | 900 | 150 | 6 | 900 | |
| Band - 50 - 100 seats | 2,791 | 1 | 2,791 | 2,000 | 1 | 2,000 | 1,500 | 1 | 1,500 | BROKEN FORMULA (+ see note below) |
| Chorus - 50 - 100 seats (incl. Drama) | 2,652 | 1 | 2,652 | 1,500 | 1 | 1,500 | 1,500 | 1 | 1,500 | reasonable if combined count w/ tech |
| Dance (also uses stage) | 866 | 1 | 866 | 1,200 | 2 | 2,400 | PER TEST PLAN | | | ⇩ |
| | | | | | | | | | | |
| Ensemble | | | | | | 0 | 200 | 1 | 200 | reasonable if combined count w/ tech |
| Piano/Digital Lab | 1,186 | 1 | 1,186 | 1,000 | 1 | 1,000 | | | | ⇩ |
| Music Practice (incl. Guitar) | 81 | 3 | 244 | 75 | 5 | 375 | 75 | 17 | 1,275 | |
| | | | | | | | | | | |
| Music Storage | 256 | 7 | 1,789 | 500 | 2 | 1,000 | 500 | 1 | 500 | reasonable not to scale (typically) |
| Fine Arts Dept Office | 155 | 1 | 155 | 125 | 1 | 125 | | | | |
| Music Admin - Conf/ Off | 183 | 4 | 731 | 300 | 1 | 300 | | | | |
| Dark Room | 152 | 1 | 152 | | | 0 | | | | |
| | | | | | | | | | | |
| **VOCATIONS & TECHNOLOGY** | | | **28,533** | | | **35,615** | -3K OFFSET BY CR's/SPED/ART | | **38,400** | |
| ROTC Classroom/PT (385 stu = 434 prorated) | 955 | 4 | 3,819 | 900 | 5 | 4,500 | 5th Rm sqfd @ 351 | | | |
| Culinary Arts Classroom | 1,163 | 2 | 2,325 | 1,200 | 2 | 2,400 | | | | |
| Business (Accounting/Pers-Finance/Law) | 869 | 2 | 1,738 | 1,200 | 2 | 2,400 | | | | |
| Business (Mktg/Sports Mktg) **CH.74** | 994 | 2 | 1,987 | | incl. below | | Ch.74 calc's **NOT** in MSBA totals | | | Exist 281stu in 14.5sect 5x/wk of 35p cyc at 85% =2.4rms of 20 |
| Business (Retail Mktg - CR) **CH.74** | 812 | 1 | 812 | 1,200 | 3 | 3,600 | FTE | SF/stu. | SF Reg's | Adjust to 316 in 15.5sect x5/wk of 35p cyc at 85% =2.6 rms of 20 |
| Business (Retail Mktg - Store) **CH.74** | 532 | 1 | 532 | | incl. above | | **60** | **110** | **6,600** | 20:1 stu/tchr ratio (2200sf min, 12' clear), 3 rm capacity = 60 |
| Tech Clrm. - (E.G. Drafting, Business) | | 12 | | | 12 | | 1,200 | 12 | 14,400 | Assumed use - 50% Population - 5 times/week |
| | | | | | | | | | | |
| ROTC MP/Gym w/ Stor (Drills/Band) | 755 | 1 | 755 | 2,500 | 1 | 2,500 | | | | |
| Culinary Arts Kitch + Restaurant (for 25-30) | 2,494 | 1 | 2,494 | 2,975 | 1 | 2,975 | | | | |
| Costume Shop w/ Sewing, Storage | 727 | 1 | 727 | 1,440 | 1 | 1,440 | | | | |
| Scene Shop | future conversion of storage above | | | 1,440 | 1 | 1,440 | | | | |
| TV Studio (w/ cntrl, edit/scrn, off/wait, equip) | 3,882 | 1 | 3,882 | 4,000 | 1 | 4,000 | | | | |
| Robotics/CADD (w/ Engnr) | 1,577 | 1 | 1,577 | 1,440 | 2 | 2,880 | | | | |
| Clean Enegry Lab (w/ Engnr) | 1,577 | 1 | 1,577 | 1,440 | 1 | 1,440 | | | | |
| Maker Space (w/ Freshman Integr. Sci) | 1,512 | 1 | 1,512 | 1,440 | 1 | 1,440 | | | | |
| Business (Bank/Credit Union) | 287 | 1 | 287 | 400 | 1 | 400 | | | | |
| Tech Shop - (E.G. Consumer, Wood) | | 8 | | | 10 | | 2,000 | 12 | 24,000 | Assumed use - 50% Population - 5 times/week |
| | | | | | | | | | | |
| ROTC Off/ Conf. | 788 | 2 | 1,576 | 800 | 2 | 1,600 | | | | |
| ROTC Storage (4sf/cadet + mock weapons) | 254 | 7 | 1,779 | 600 | 3 | 1,800 | 434 x4 =1736 + 64 | | | |
| Culinary Arts Storage | 216 | 2 | 432 | 300 | 2 | 600 | | | | |
| Scene and Costume Storage | 722 | 1 | 722 | 0 | | 0 | IN ROOM STOR. | | | |
| Retail/Store Storage | | | | 200 | 1 | 200 | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

✓ EXCEPT STORE & BANK + TV AREA UNDER REVIEW ✓

# *Proposed Space Summary v12 (for revised PSR)*

| | Spaces Existing | | | Spaces Proposed | | | | Spaces per Guidelines | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3125stu/25class/.71util.=176rms | | 177 | 3520stu/24class/.85util.=172rms | | 172 | | 3520stu/23class/.85util.=181rms | | 183 | |
| **LOWELL HIGH SCHOOL** | **Existing Conditions** | | | **Proposed Total** | | | | **MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)** | | | |
| ROOM TYPE | **ROOM NFA[1]** | **# OF RMS** | **area totals** | **ROOM NFA[1]** | **# OF RMS** | **area totals** | | **ROOM NFA[1]** | **# OF RMS** | **area totals** | **Comments** |
| **HEALTH & PHYSICAL EDUCATION** | | | **46,121** | | | **41,700** | +6K (MORE STA) | | | **35,912** | |
| Gymnasium (6 lane 134.1m trck, LJ, TJ, SP) | 28,408 | 1 | 28,408 | 3,000 | 6 | 18,000 | REQD w GUIDELN | 12,000 | 1 | 12,000 | DOESN'T SCALE, BUT TIED TO ENROLL. |
| PE Alternatives (Wrestling 42x84 req'd) | 1,960 | 1 | 1,960 | 3,500 | 1 | 3,500 | OFFSET w/ LCKRS | 3,000 | 1 | 3,000 | DOESN'T SCALE, BUT TIED TO ENROLL. |
| Fitness & Functional Strngth | 1,474 | 2 | 2,948 | 3,000 | 1 | 3,000 | | | | | ⇩ |
| Multi-Purpose (Gymnastics/Yoga/Cheering) | currently off-site | | | 3,000 | 1 | 3,000 | | | | | |
| Gym Storeroom (incl. Gymnastics w/ MP) | 1,133 | 1 | 1,133 | 1,400 | 1 | 1,400 | | 300 | 1 | 300 | DOESN'T SCALE, BUT TIED TO SIZE |
| Locker Rooms - Boys / Girls w/ Toilets | 3,245 | 2 | 6,490 | 3,600 | 2 | 7,200 | | 19,712 | 1 | 19,712 | 5.6 sf/student total |
| Varsity Lockers - Boys/ Girls w/ Toilets | 870 | 2 | 1,740 | 1,200 | 2 | 2,400 | | | | | |
| Phys. Ed. Storage (incl. Equipment) | 258 | 5 | 1,292 | 250 | 6 | 1,500 | | 500 | 1 | 500 | DOESN'T SCALE, BUT TIED TO SIZE |
| Athletic Director's Office (Lord 1st fl -South) | 185 | 1 | 185 | 150 | 1 | 150 | | 150 | 1 | 150 | reasonable not to scale (typically) |
| AD Secr, Bursor, Conf (Lord 1st fl - South) | 155 | 3 | 464 | 150 | 3 | 450 | | | | | ⇩ |
| Health Instructor's Office w/ Shower & Toilet | 170 | 5 | 852 | 125 | 4 | 500 | | 250 | 1 | 250 | DOESN'T SCALE, BUT TIED TO ENROLL. |
| Trainers Room | 216 | 3 | 649 | 600 | 1 | 600 | | | | | not recognized, but common in HS's |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **MEDIA CENTER** | | | **13,164** | | | **21,900** | | | | **21,900** | |
| Media Center / Reading Room | 9,137 | 1 | 9,137 | 21,900 | 1 | 21,900 | | 21,900 | 1 | 21,900 | |
| Computer Lab | | | | | | | | | | | |
| Tech Ctr, Stor + Training Lab (incl instr sp.) | 666 | 3 | 1,998 | included above | | | | | | | |
| Data Processing + Scheduler | 1,036 | 1 | 1,036 | included above | | | | | | | |
| MCAS/Testing Stor (incl instr specialist) | 993 | 1 | 993 | included above | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **AUDITORIUM / DRAMA** | | | **20,233** | | | **15,516** | +5K FOR MODEST 1/3 SEATING REQUEST | | | **10,400** | |
| Auditorium | 11,627 | 1 | 11,627 | 11,616 | 1 | 11,616 | | 7,500 | 1 | 7,500 | 2/3 Enrollment @ 10 SF/Seat - 750 seats MAX |
| Stage | 2,614 | 1 | 2,614 | 2,600 | 1 | 2,600 | | 1,600 | 1 | 1,600 | reasonable not to scale, but small |
| Auditorium Storage (incl Prop Storage) | 598 | 2 | 1,196 | 500 | 1 | 500 | | 500 | 1 | 500 | |
| Make-up / Dressing Rooms | | | | 300 | 2 | 600 | | 300 | 2 | 600 | reasonable not to scale (typically) |
| Controls / Lighting / Projection | 233 | 1 | 233 | 200 | 1 | 200 | | 200 | 1 | 200 | |
| | | | | | | | | | | | |
| Theater - Freshman | 3,438 | 1 | 3,438 | | | | | | | | |
| Stage - Freshman | 691 | 1 | 691 | | | | | | | | |
| Dressing/Storage | 217 | 2 | 434 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **DINING & FOOD SERVICE** | | | **21,955** | | | **25,180** | | | | **25,180** | |
| Cafeteria - Freshman | 4,215 | 1 | 4,215 | 5,000 | 1 | 5,000 | | | | | |
| Cafeteria / Student Lounge / Break-out | 10,408 | 1 | 10,408 | 12,600 | 1 | 12,600 | | 17,600 | 1 | 17,600 | 3 seatings - 15SF per seat |
| Chair / Table Storage | 156 | 1 | 156 | 1,030 | 1 | 1,030 | | 1,030 | 1 | 1,030 | |
| Scramble Serving Area | 2,486 | 1 | 2,486 | 600 | 1 | 600 | | 600 | 1 | 600 | reasonable not to scale (typically) |
| Kitchen - Freshman | 466 | 1 | 466 | 1,000 | 1 | 1,000 | | | | | ⇩ |
| Kitchen | 3,553 | 1 | 3,553 | 3,820 | 1 | 3,820 | | 4,820 | 1 | 4,820 | 1600 SF for first 300 + 1 SF/student Add'l |
| | | | | | | | | | | | |
| Staff Lunch Room | 671 | 1 | 671 | 1,130 | 1 | 1,130 | | 1,130 | 1 | 1,130 | 20 SF/Occupant |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

✓ EXCEPT EXTRA 450 AD + PLANS UNDER REVIEW

✓ EXCEPT REDUCE 2,216sf (IF NEW?)

✓

✓

Version
11.24.2010

# *Proposed Space Summary v12 (for revised PSR)*

| | Spaces Existing | | | Spaces Proposed | | | | Spaces per Guidelines | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3125stu/25class/.71util.=176rms | | 177 | 3520stu/24class/.85util.=172rms | | 172 | | 3520stu/23class/.85util.=181rms | | 183 | |
| **LOWELL HIGH SCHOOL** | **Existing Conditions** | | | **Proposed Total** | | | | **MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)** | | | |
| ROOM TYPE | ROOM NFA[1] | # OF RMS | area totals | ROOM NFA[1] | # OF RMS | area totals | | ROOM NFA[1] | # OF RMS | area totals | Comments |
| **MEDICAL** | | | **2,215** | | | **2,610** | ✓ | | | **2,610** | |
| Medical Suite Toilet | 62 | 2 | 124 | 60 | 4 | 240 | | 60 | 1 | 60 | reasonable not to scale, but needs 2 |
| Nurses' Office / Waiting Room | 217 | 2 | 434 | 450 | 1 | 450 | | 250 | 1 | 250 | DOESN'T SCALE, BUT TIED TO ENROLL. |
| Interview Room | | | | 100 | 8 | 800 | | 100 | 8 | 800 | |
| Examination Room / Resting | 103 | 8 | 820 | 100 | 10 | 1,000 | | 100 | 15 | 1,500 | |
| Medical Suite Toilet - Freshman | 47 | 1 | 47 | | | | | | | | |
| Nurses' Office - Freshman | 126 | 1 | 126 | | | | | | | | |
| Exam / Resting - Freshman | 332 | 2 | 664 | | | | | | | | |
| Lactation Room | | | | 60 | 2 | 120 | | | | | |
| | | | | | | | | | | | |
| **ADMINISTRATION & GUIDANCE** | | | **15,423** | | | **13,055** | +3.5K PER REAL NEED | | | **9,785** | |
| General Office / Waiting Room / Toilet | 231 | 1 | 231 | 300 | 1 | 300 | | 1,760 | 1 | 1,760 | |
| Freshman Office / Waiting Rm / Tlt | 793 | 1 | 793 | 200 | 1 | 200 | | | | | |
| House Office / Waiting Rm / Tlt (B, C, D, E) | 509 | 3 | 1,527 | 200 | 4 | 800 | | | | | |
| Teachers' Mail and Time Room | 138 | 1 | 138 | 250 | 1 | 250 | | 100 | 1 | 100 | DOESN'T SCALE, BUT TIED TO SIZE |
| Duplicating Room - C, D Houses | 178 | 2 | 355 | 200 | 1 | 200 | | 200 | 1 | 200 | reasonable not to scale (typically) |
| Records Room - Main, E House | 58 | 2 | 115 | 200 | 1 | 200 | | 200 | 1 | 200 | reasonable not to scale (typically) |
| Principal's Office w/ Conference Area | 305 | 1 | 305 | 375 | 1 | 375 | | 375 | 1 | 375 | DOESN'T SCALE, BUT TIED TO SIZE |
| Principal's Office w/ Conf Area - Freshman | 206 | 1 | 206 | 150 | 1 | 150 | | | | | ⇩ |
| Principal's Secretary / Waiting | 268 | 1 | 268 | 125 | 1 | 125 | | 125 | 1 | 125 | reasonable not to scale (typically) |
| Asst Principal's Office - AP1 (Discipl/Oper) | 280 | 1 | 280 | 200 | 1 | 200 | | 150 | 1 | 150 | reasonable not scaled if other off's do |
| Asst Principal's Office - AP2 (Dir.ofCurric) | 541 | 1 | 541 | 200 | 1 | 200 | | 150 | 1 | 150 | DOESN'T SCALE, BUT TIED TO SIZE |
| Asst Principal's Office (B,C,D,E) | 265 | 4 | 1,058 | 150 | 4 | 600 | | | | | ⇩ |
| Supervisory / Spare Office (Accts Payable) | 137 | 1 | 137 | 120 | 1 | 120 | | 120 | 1 | 120 | reasonable not scaled if other off's do |
| Conference Room (Administration) | 386 | 2 | 772 | 450 | 1 | 450 | | 450 | 1 | 450 | DOESN'T SCALE, BUT TIED TO SIZE |
| Conference Room - Freshman | 175 | 1 | 175 | 200 | 1 | 200 | | | | | ⇩ |
| Conference Room - B House | 81 | 1 | 81 | | | | | | | | |
| | | | | | | | | | | | |
| Guidance Office | | | | 150 | 10 | 1,500 | | 150 | 18 | 2,700 | |
| Guidance Office - Freshman | 187 | 3 | 562 | included above | | | | | | | |
| Guidance Office - B, C, D, E House | 152 | 8 | 1,219 | included above | | | | | | | |
| Social Worker Office - Freshman | 129 | 1 | 129 | 150 | 1 | 150 | | | | | |
| Social Worker Office - B, C, D, E House | 169 | 4 | 676 | 150 | 4 | 600 | | | | | |
| Guidance Waiting Room - C House | 292 | 1 | 292 | 100 | 5 | 500 | | 100 | 1 | 100 | DOESN'T SCALE, BUT TIED TO SIZE |
| Guidance Waiting Room - Freshman | 559 | 1 | 559 | included above | | | | | | | |
| Guidance Storeroom | | | | 100 | 5 | 500 | | 100 | 1 | 100 | DOESN'T SCALE, BUT TIED TO SIZE |
| Guidance Storeroom - Freshman | 124 | 1 | 124 | included above | | | | | | | |
| Career Center | 677 | 2 | 1,354 | 1,030 | 1 | 1,030 | | 1,030 | 1 | 1,030 | not recognized, but common in HS's |
| Records Room - Freshman | 77 | 1 | 77 | 465 | 1 | 465 | | 465 | 1 | 465 | DOESN'T SCALE, BUT TIED TO SIZE |
| Kitchenette - Freshman | 200 | 1 | 200 | 100 | 1 | 100 | | | | | ⇩ |
| | | | | | | | | | | | |
| Student Support Offices - Freshman | 115 | 2 | 229 | 150 | 1 | 150 | | | | | OFTEN w/ SPED, BUT SMALLER SCALE |
| Student Support Conf. - Freshman | 230 | 1 | 230 | 200 | 1 | 200 | | | | | ⇩ |
| Sudent Support Suite (incl. Safe Harbors) | 1,183 | 1 | 1,183 | 1,200 | 1 | 1,200 | | | | | ⇩ |
| Student Support Offices - Gr.10-12 | 85 | 3 | 256 | 150 | 3 | 450 | | | | | ⇩ |
| Student Support Conf. Gr.10-12 | 140 | 1 | 140 | 150 | 1 | 150 | | | | | ⇩ |
| Dir of Students | 278 | 1 | 278 | 200 | 1 | 200 | | | | | ⇩ |
| ELL Dept Head + Testing | 81 | 2 | 161 | 120 | 2 | 240 | | | | | ⇩ |

? MSBA CONT'D REVIEW

Version
11.24.2010

# *Proposed Space Summary v12 (for revised PSR)*

| | Spaces Existing | | | Spaces Proposed | | | | Spaces per Guidelines | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3125stu/25class/.71util.=176rms | | 177 | 3520stu/24class/.85util.=172rms | | 172 | | 3520stu/23class/.85util.=181rms | | 183 | |
| **LOWELL HIGH SCHOOL** | **Existing Conditions** | | | **Proposed Total** | | | | **MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)** | | | |
| ROOM TYPE | **ROOM NFA[1]** | # OF RMS | **area totals** | **ROOM NFA[1]** | # OF RMS | **area totals** | | **ROOM NFA[1]** | # OF RMS | **area totals** | **Comments** |
| Teachers' Work Room - Freshman | 386 | 2 | 772 | 250 | 5 | 1,250 | | 1,760 | 1 | 1,760 | |
| **CUSTODIAL & MAINTENANCE** | | | **6,775** | | | **5,440** | +1K PER BLDG SCALE | | | **4,265** | |
| Custodian's Office + Lockers | 77 | 3 | 232 | 150 | 2 | 300 | | 150 | 1 | 150 | |
| Custodian's Workshop | 525 | 1 | 525 | 500 | 1 | 500 | | 250 | 1 | 250 | |
| Custodian's Storage | 72 | 26 | 1,884 | 375 | 2 | 750 | | 375 | 1 | 375 | |
| Recycling Room / Trash | 85 | 1 | 85 | 400 | 1 | 400 | | 400 | 1 | 400 | |
| Receiving and General Supply | 84 | 1 | 84 | 1,030 | 1 | 1,030 | | 1,030 | 1 | 1,030 | |
| Storeroom + Books | 220 | 11 | 2,417 | 1,860 | 1 | 1,860 | | 1,860 | 1 | 1,860 | |
| Network / Telecom Room | 86 | 18 | 1,548 | 75 | 8 | 600 | | 200 | 1 | 200 | |
| **OTHER** | | | **19,764** | | | **6,800** | +7K FGMs REQUESTED | | | **0** | |
| Unassigned Computer Lab - Freshman | 868 | 2 | 1,736 | | | | | | | | |
| Unassigned Computer Lab - Gr.10-12 | 960 | 7 | 6,721 | | | | | | | | |
| Unassigned Science Lab - Freshman | 1,385 | 1 | 1,385 | | | | | | | | |
| Unassigned Green House/Growing Room | 207 | 2 | 413 | | | | | | | | |
| Spare Off, Wait, Conf (220A,B,C) | 185 | 3 | 556 | | | | | | | | |
| Lowell Comm Hlth Center | 608 | 1 | 608 | 1,500 | 1 | 1,500 | | | | | |
| Lowell Comm Hlth Center - Exam | 80 | 3 | 241 | included above | | | | | | | |
| Lowell Comm Hlth Center - Office | 103 | 2 | 205 | included above | | | | | | | |
| Lowell Comm Hlth Center - File and Storage | 146 | 3 | 437 | included above | | | | | | | |
| Lowell Comm Hlth Center - Toilet | 72 | 1 | 72 | included above | | | | | | | |
| Catie's Closet - Freshman | 225 | 1 | 225 | 350 | 2 | 700 | | | | | |
| Catie's Closet - Gr.10-12 | 364 | 1 | 364 | included above | | | | | | | |
| Trio - Gear Up/Talent/Upward - Freshman | 473 | 1 | 473 | 500 | 3 | 1,500 | | | | | |
| Trio - Upward | 579 | 1 | 579 | included above | | | | | | | |
| Trio - Suite (recept, wait, 2 offices, conf) | 197 | 5 | 984 | included above | | | | | | | |
| In School Suspension - Freshman | 809 | 1 | 809 | 450 | 1 | 600 | | | | | |
| In House Detention Gr.10-12 | 969 | 1 | 969 | 900 | 1 | 900 | | | | | |
| Score Mediation (Office, Entry, Stor) | 132 | 3 | 395 | 150 | 2 | 300 | | | | | |
| Interactive Learning Center + Storage | 995 | 1 | 995 | use typ CRs/laptops | | | | | | | |
| Latino Connection | 228 | 1 | 228 | 250 | 1 | 250 | | | | | |
| Student Activities (Lord 1st fl - North) | 284 | 1 | 284 | 300 | 1 | 300 | | | | | |
| Substitute Teacher's Office | 127 | 1 | 127 | 150 | 1 | 150 | | | | | |
| Conseling Services | occurs in available space | | | use typ CRs/other space | | | | | | | |
| DARE Office & Security | 233 | 3 | 700 | 150 | 2 | 300 | | | | | |
| SRO Office & Entry (Lord 1st fl - North) | 129 | 2 | 258 | 150 | 2 | 300 | | | | | |
| Total Building Net Floor Area (NFA) | | | **352,071** | | | **386,086** | +21.5K(7K OTH +6K PE+5K AUD +3.5K ADMIN) | | | **364,807** | |
| Proposed Student Capacity / Enrollment | | | 3,125 | | | 3,520 | | | | **3,520** | 157 |
| Total Building Gross Floor Area (GFA)[2] | | | 628,558 | | | 579,129 | | | | **552,640** | Note: MSBA does not incl. Ch.74 calc's |
| Grossing factor (GFA/NFA) | | | **1.79** | | | **1.50** | | | | **1.51** | |

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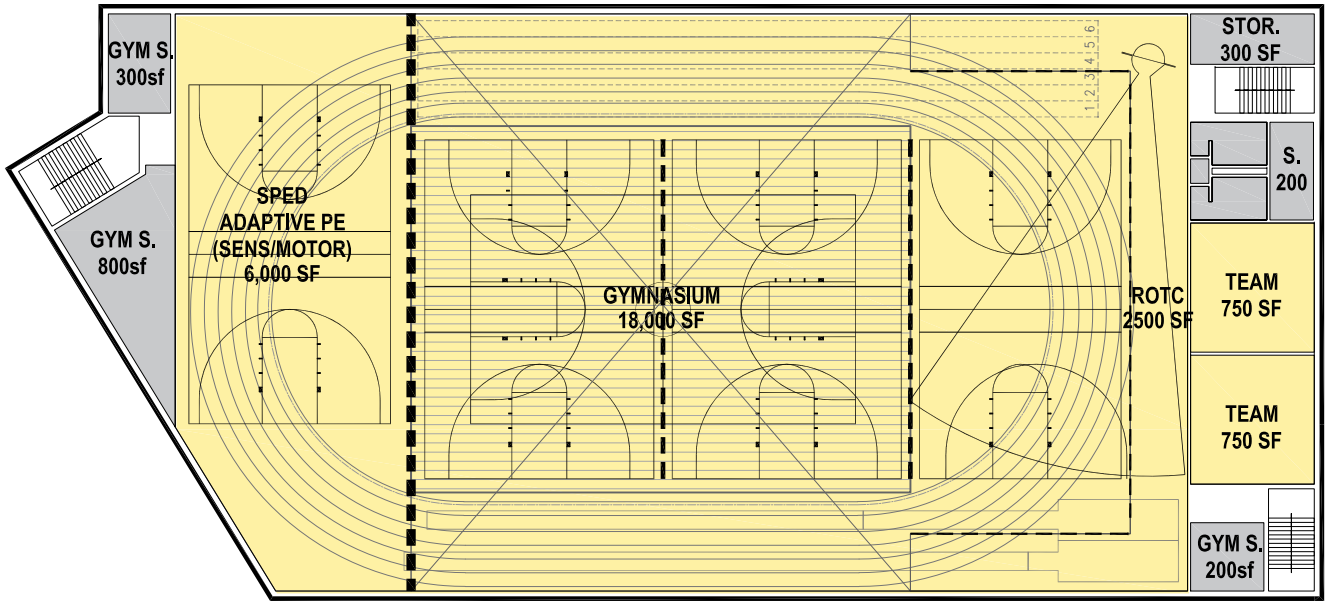
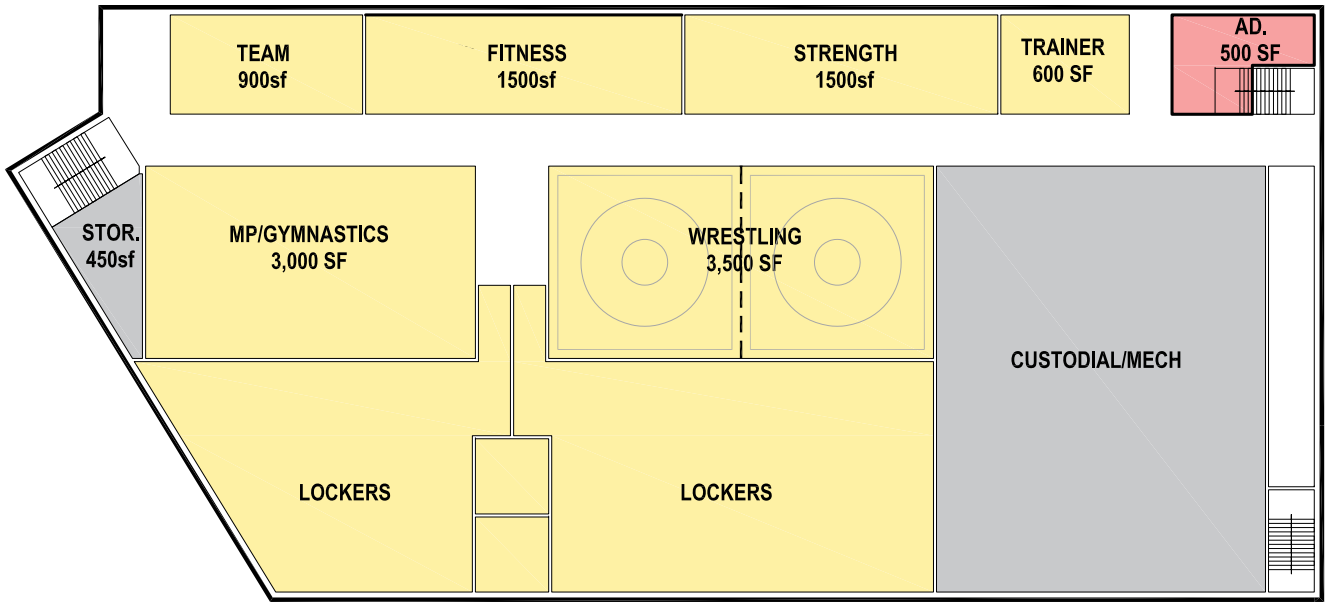
**MSBA CONT'D REVIEW**

✓

**EXCEPT HEALTH CTR & CATIE'S**


GYM S.
300sf
GYM S.
800sf
SPED
ADAPTIVE PE
(SENS/MOTOR)
6,000 SF
GYMNASIUM
18,000 SF
ROTC
2500 SF
STOR.
300 SF
S.
200
TEAM
750 SF
TEAM
750 SF
GYM S.
200sf


TEAM
900sf
FITNESS
1500sf
STRENGTH
1500sf
TRAINER
600 SF
AD.
500 SF
STOR.
450sf
MP/GYMNASTICS
3,000 SF
WRESTLING
3,500 SF
CUSTODIAL/MECH
LOCKERS
LOCKERS