HMFH Architects, Inc.

Brookline High School

Concept Study Report

Brookline, MA

September 2013

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Section 1 - Study Overview

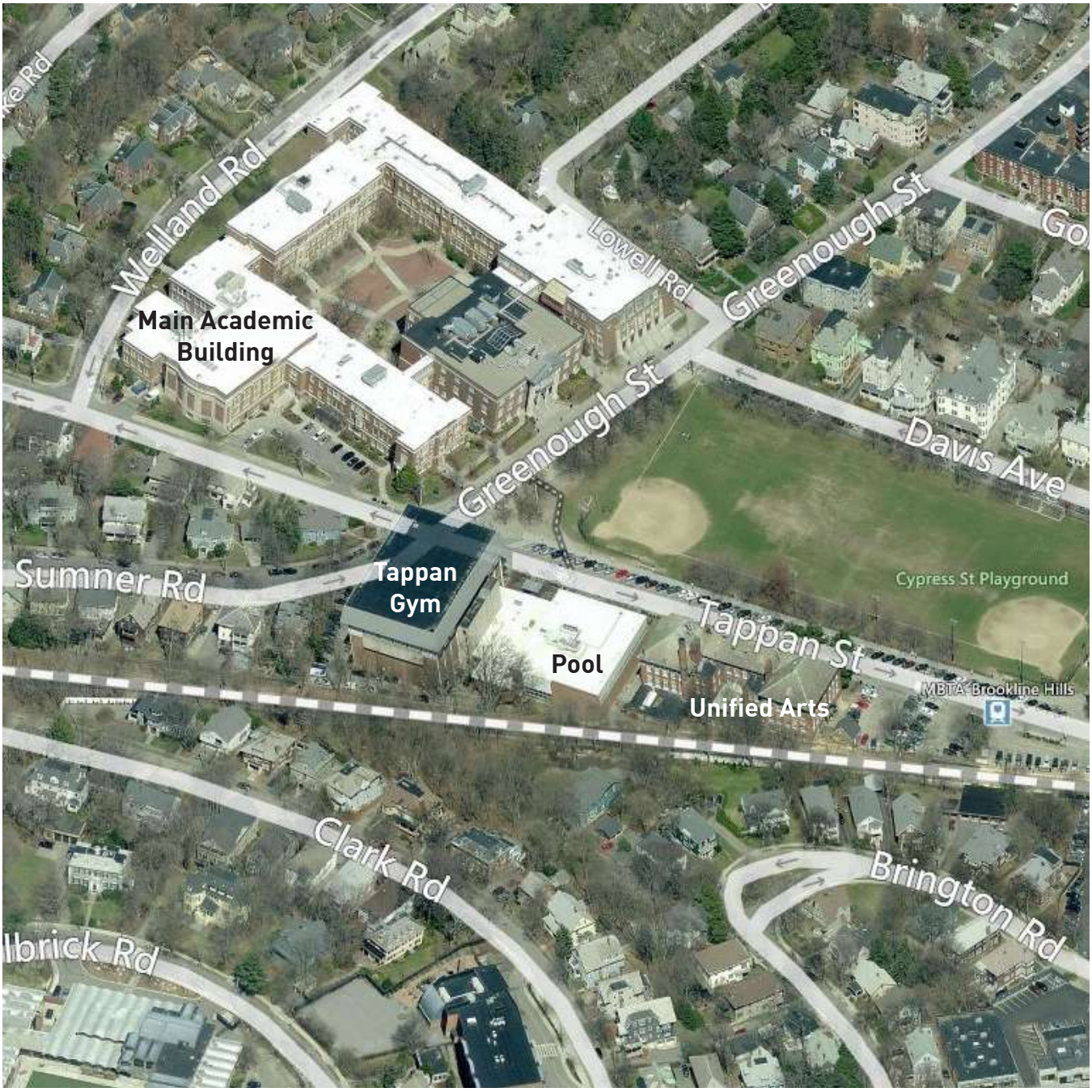


Image courtesy of Bing maps

Aerial of the Brookline High School Campus

HMFH Architects, Inc. was selected by the Town of Brookline to study possibilities for expansion at the current Brookline High School (BHS) facility at 115 Greenough Street to accommodate significant student enrollment growth that is anticipated in coming years. This study is a brief pre-MSBA look at general needs and options. It is anticipated that any actual BHS expansion project would seek Massachusetts School Building Committee (MSBA) funding and would include a more extensive feasibility study consistent with MSBA guidelines and conducted in conjunction with the Town of Brookline and the MSBA.

The current enrollment of the high school for the 2013 – 2014 school year is 1,774 students. The projected enrollment is 2,008 students by the year 2017 and 2,499 students by the year 2022. In anticipation of this growth, the high school facilities will need to be expanded to accommodate this enlarged student population.

The current Brookline High School campus consists of a main academic building which fronts Greenough Street and is bordered by Tappan Street, Welland Road and Lowell Road. This building is a complex of a number of three-and four-story buildings and additions that date from 1937 to 1996 and that wrap around a large central courtyard. This portion of the high school campus contains most of the main academic spaces, administration, the library, cafeteria, auditorium, and some of the physical education spaces.

The Unified Arts Building, a secondary academic building which houses most of the visual arts and technical programs, is located on Tappan Street and is furthest from the main academic building. Constructed in 1900, this is the oldest portion of the Brookline High School campus. Located between these two facilities is the Tappan Street Gym Building and pool complex. The gym building is a four-story complex containing an indoor tennis pavilion, a weight/fitness facility, dance studios, a wrestling gym, a basketball gym, and a climbing gym. This facility is not solely under the high school's jurisdiction, and is heavily used by the Brookline town recreation department.

Calculation of Capacity

(Based on MGT Methodology with revised Classroom Numbers and Sizes)

HMFH Architects, Inc.

MGT

Room Type	Number of Classrooms	Students per Classroom	Capacity
General Classrooms	69	24	1656
Art	6	24	144
Music	2	24	48
Performing Arts	3	44	132
Science	24	22	528
Vocational Education	15	22	330
Physical Education	8	44	352
Computer Labs	2	22	44
Special Education (Self-Contained)	2	8	16
Special Education (Resource)	0	0	0
Total Capacity (w/o Scheduling Factor)			**3250**
x High School Scheduling Factor			**0.75**
MGT Brookline High School Capacity			2438

Revised

Room Type	Number of Classrooms	Students per Classroom	Capacity
General Classrooms*	57	23	1311
Art	6	23	138
Music	2	23	46
Performing Arts***	3	23	69
Science (includes Engineering)**	20	23	460
Vocational Education	10	16	160
Physical Education***	10	23	230
Computer Labs	2	23	46
Special Education (Self-Contained)	2	8	16
Special Education (Resource)	0	0	0
Total Capacity (w/o Scheduling Factor)			**2476**
x High School Scheduling Factor			**0.75**
Revised Brookline High School Capacity using a 0.75 Utilization Factor			1857
Total Capacity (w/o Scheduling Factor)			**2476**
x High School Scheduling Factor			**0.80**
Revised Brookline High School Capacity using a 0.80 Utilization Factor			1981
Total Capacity (w/o Scheduling Factor)			**2476**
x High School Scheduling Factor			**0.85**
Revised Brookline High School Capacity using a 0.85 Utilization Factor			2105

* Does not include 12 Classrooms used for Opportunity for Change, Excel, and School within a School

** Includes the 19 labs that are scheduled for Science and 1 space used for Engineering. All of these are below standard in size.

*** PE and Performing are capped at an average of 24, not 44 students as assumed by MGT.

The graphic above summarizes the differences between the MGT study enrollment capacity and our calculations. Note that the resulting capacity depends greatly on the utilization factor that you choose to use. With a school such as the Brookline High School, with so many specialized programs, accomplishing a utilization of 0.85 is very difficult because it is such a challenge to nearly fully utilize each space. A more conservative approach is to use a 0.75% factor because some specialized paces will be utilized less fully than standard classrooms. The 0.75 utilization factor is consistent with the MGT study.

In 2012 a district-wide enrollment capacity study was conducted by MGT of America, Inc. The MGT study calculated the enrollment capacity of the Brookline High School as 2,438. Using this number, it would appear that most of the projected enrollment of 2,499 can be accommodated within the existing facility. However, HMFH finds a very different number to be the actual effective capacity of the school. The MGT study states that capacity is a matter of policy. This is a very true statement, and the Brookline Public School Department's policies for classroom size and programs that are included within the school facility greatly affect the enrollment capacity that can actually be practically achieved.

Using the MGT methodology but revising the number of spaces and the limits on numbers of students per class to more accurately reflect the Brookline situation and policies, we get a capacity of only 1,857 at the Brookline High School as opposed to 2,438. The important differences between MGT's numbers and ours are as follows:

- Number of General Classrooms – We only count 57, not 69, because 12 of these are used for the School within a School, the Opportunity for Change SPED Program, and the Excel SPED program.
- Number of Vocational Education Spaces – We cannot find the 15 spaces indicated in the MGT report. We only count 10. We also note that these are limited to 16 students per class.
- Physical Education Spaces – We count two more spaces than in the MGT report.
- Science – While there are 24 spaces in the High School outfitted for science, only 19 of these are scheduled. One is scheduled for engineering. The others may be considered too small to hold a full science class.
- Number of Students per Classroom – Hal Mason, the Assistant Headmaster, tells us that the "lid" or capacity, as set by policy, for typical academic classes at the school is 22, but 24 for honors classes. We find some variation from this in reality, but we used an average of 23 for the sake of simplicity. 23 is also the number recommended by the MSBA.
- Number of Students in PE and Performance – The MGT study assumes classes here are double in size and average a 44 student lid. In reality the school does not schedule this way. Many of these classes are limited to just 15 or 16, but I have used 23 as the average lid. I think that this shows that the actual capacity of the Brookline HS is much lower than indicated in the MGT report.

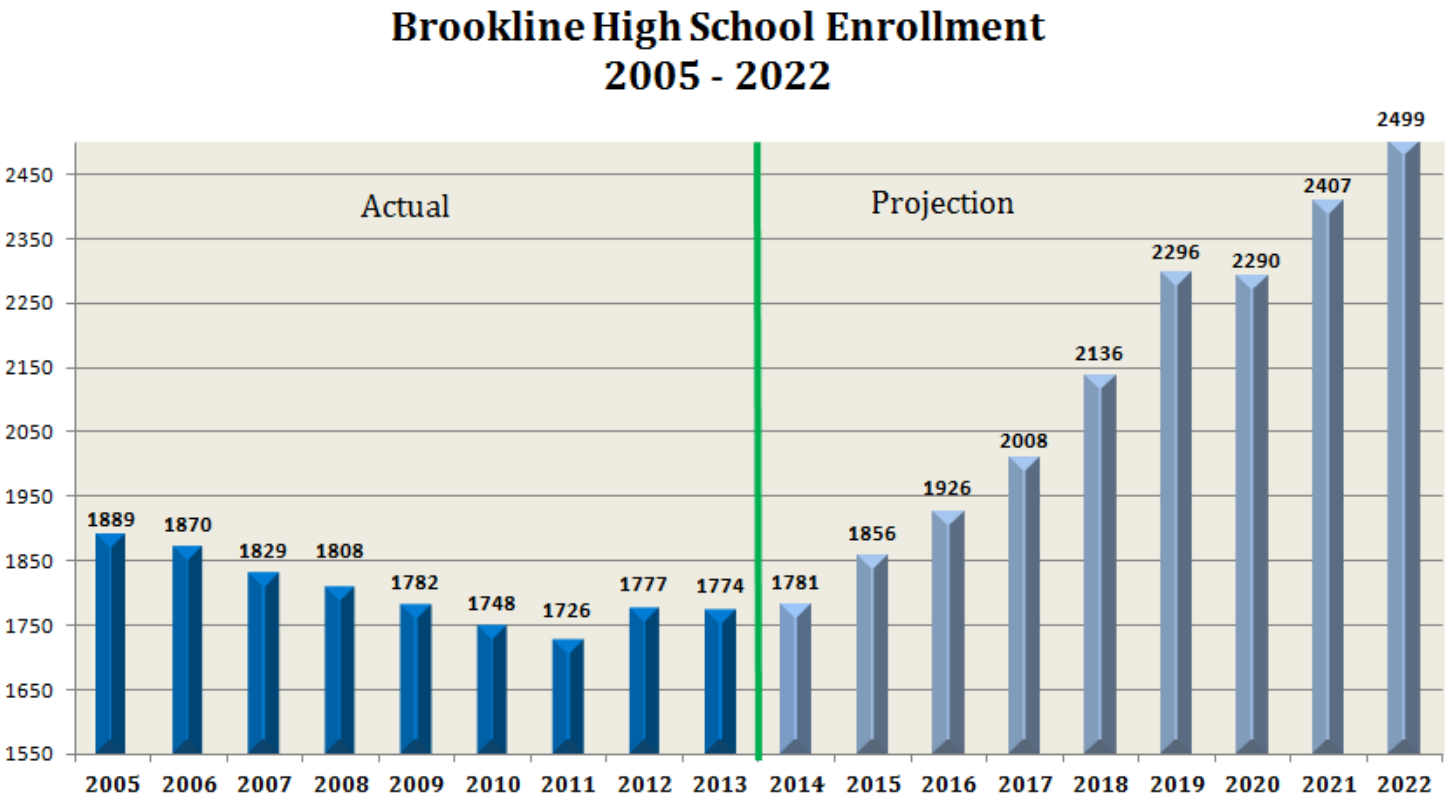


Image courtesy of Brookline Public Schools Department

The current Brookline High School campus is housing just under 1,800 students and is anticipated to operate in its current layout until the 1,800 student number is surpassed, after which incremental movements will need to be made in order to accommodate the expanding population until a full build out is finished which can accommodate the expansion to 2,500 students. These incremental moves will include steps to free up classroom space from other uses. This includes the relocation of the Brookline Early Education Program (BEEP) out of four classrooms and into leased space elsewhere in town. The copy center and student newspaper might relocate to space in the basement. The Martin Luther King Room could be scheduled for classroom space. More of these potential spaces are identified later in the report. These incremental moves will buy time but will max out at some point and a significant facility expansion will be required to house the increasing enrollment.

For the purposes of this study, the educational space program that will be required to accommodate 2,500 students was established by two different methods. First, the high school's current space program and utilization was expanded proportionally from its current enrollment up to the expected enrollment of 2,500. Secondly, the MSBA Space Summary spreadsheet was used to establish the program of spaces that is typically expected for a high school with this enrollment. This was used to cross check the BHS based program to ensure that nothing is out of line. The educational space summary that was developed is included in this study.

This study did not take into consideration any modifications to the existing program that might be desired by the school to modernize the types of courses offered or to tailor to other specific needs. Any actual BHS expansion project should be preceded by a more extensive programming exercise involving interviews with faculty and administration.

Additional Spaces Needed

The current facility will need the following additional spaces in order to accommodate 2,500 students:

- 26 additional general classrooms
- 5 additional science labs - The additional number of science labs necessary was determined by using the 19 of the existing 23 science labs that are currently being scheduled for science and adding labs as required to accommodate the additional student population. This is due to the small size constraints of the existing lab facilities. A total of 24, (19 + 5) would be necessary for a 2,500 student population.
- 1 additional culinary arts classroom
- 3,000 sf of administration spaces
- 3,000 sf of teacher planning spaces
- 1 additional lunch period in existing cafeteria
- Library increase from approximately 10,000 sf to 15,000 sf

Certain issues required to be examined as part of this concept study involved the relocation of the current student population to allow for construction and relocation of the Adult Education and Early Education programs.

Current Facility

Athletics

The current athletic facilities available to the Brookline High School community include:

- Schluntz Gym - Located within the main academic building, but used as the competition facility because it has a full basketball court with bleachers
- Spinning Room - Basement of the main academic building
- Tappan Street Gym facility, which includes:
  - Full-size gym
  - Climbing gym converted from a second full-size gym
  - Two dance studios
  - Wrestling room
  - Fitness/weight room
  - Indoor tennis pavilion
- Locker/Shower Facilities - These exist both in the main building below the Schluntz Gym and at the Tappan Street Gym facility

It was observed by the design team that the use of the Schluntz Gym within the academic building as the primary varsity basketball venue is the exception to the establishment of the Tappan Street Gym as the site for all other competitive high school sports-related activities. We understand that all PE classes are held at the Tappan Street Gym, rather than in the main building. Possible options for re-use of the full size gym facilities in the Tappan Street Gym as a competition facility are examined later in this study.

Academics

In an effort to identify possibly underutilized spaces the design team reviewed how the main academic building rooms are currently being utilized. This was done by examining the school's space utilization schedule as well as conducting a walkthrough of the facility. It was determined that there is not a large excess of open periods within which additional classes could be scheduled. Therefore additional student capacity cannot be addressed by more efficiently scheduling spaces, as they are already running at a fairly maximized schedule.

A variety of spaces were identified for possible relocation out of the high school's main academic building in order to provide more classroom space for the school. These relocations would assist in providing some additional classrooms to provide additional capacity in an incremental way, but would not be able to provide all the capacity required to accommodate the incoming 2,500 student body. The spaces identified for possible location are as follows:

- BEEP Spaces - 4 classrooms
- Adult Ed Spaces – 3 classrooms
- Copy Center
- Art Gallery
- Study Hall
- Alumni Room
- Martin Luther King Room
- Opportunity for Change Special Education Program – 5 classrooms

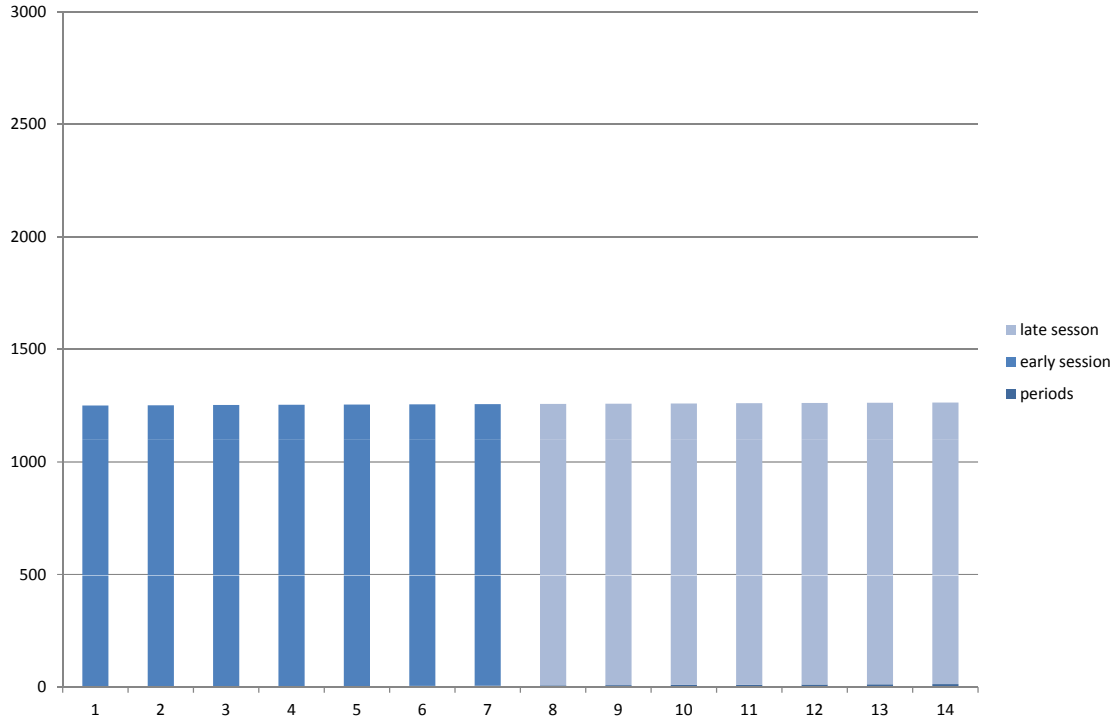
These spaces were identified as possibilities for relocation due to their autonomous function separate from the main high school program, or their ability to be moved without crippling the functioning of the current high school program. The potential relocation space for programs such as BEEP, Adult Ed, and Opportunity for Change were not identified as part of this study, and would need to be determined prior to moving forward with planning for the inclusion of these spaces into the overall expanded general classroom count. It is understood that alternative space elsewhere in the school system is scarce. Therefore, it may not be practical to relocate all of these spaces.

Science

The existing science facility at the BHS consists of 24 rooms that are outfitted as science labs. Each of these spaces is significantly undersized when compared with State-mandated standards. The MSBA has been requiring for the last few years that science labs be 1,440 sf for safety and flexibility. Before that, guidelines showed science labs to be 1,200 sf, while the largest existing lab at the BHS is only about 1,025 sf. Most of the rooms vary between 500 and 800 sf. This is because the science facility is the result of a renovation of standard classrooms into science about 25 years ago. These classrooms were not expanded in size, only outfitted with science furniture and equipment.

Section 2 - Solutions

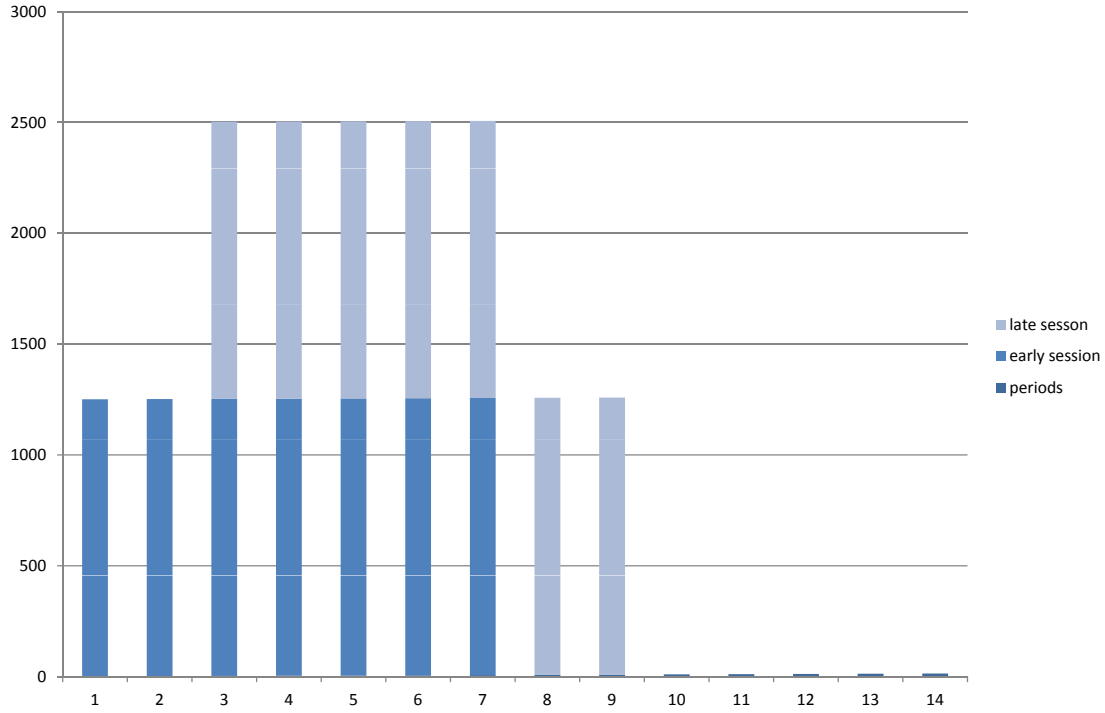
Total students on campus



Double Session - no overlap

Period

Total students on campus



Double Session - overlapping

Period

The current Brookline High School campus capacity has been identified at approximately 1,857 students. The current school runs on a seven period per day schedule. A way to accommodate additional capacity on the current campus without structural modifications would be through adding additional periods, extending the school day. The goal of this would be to provide space for teaching an expanded 2,500 student body, without increasing the capacity of the high school beyond its current 1,800 student capacity.

Running a full two section program, where there is an "early" student body which occupies the school for the first seven periods of the day and a second "late" student body occupying the building for a second set of seven periods, means the high school campus would be open and operating for a total of 14 periods a day. At the anticipated expanded 2,500 student body, 1,250 students will be in the school for any given period during the day. Such an extensive expansion of the school day may place a heavy burden on parents, students, faculty, and administration. After-school programs like sports and music become impractical to schedule. HMFH is not aware of anywhere that such a plan has been implemented except on a short-term basis.

In an effort to shorten the campus operating day from 14 periods, an overlapping schedule was reviewed where the early and late sessions could slightly coincide with one another. This would result in a nine period school day. The result is that, during the middle periods of the day, both the 1,250 students from the early and 1,250 students from the late sessions will need to occupy the campus, resulting in 2,500 students which the current facility cannot accommodate. This does not solve the space problem.

Another possibility is to extend the school day for all students so that each is scheduled for nine or 10 periods per day. Two or three more free periods would be scheduled during the day for each student. In this way, the demand for actual teaching spaces for any given period would be reduced, effectively increasing the facility's capacity. This method will still introduce a hardship for students and parents who will need to plan on a longer school day. Some accommodations will be required for the students during their multiple free periods which may require new construction of study halls, project areas, and lounges. Faculty cost will increase in order to provide coverage over the longer school day.

Either of these adjusted school schedules would impact current faculty work schedules and would need to be further reviewed for viability with the educators and town staff. HMFH does not believe that the challenges of the increased BHS enrollment can be handled permanently through scheduling.

Image courtesy of Google maps

View down Tappan Street

Image courtesy of Bing maps

Aerial of the Cypress Street Playground

An ideal solution in terms of logistics and minimizing disruption of students would be to construct a new facility which could house the excess school capacity but is not attached to any of the existing school buildings. This structure would need to be located on a town-owned property around the campus of the main academic building.

Open space around the campus is extremely limited and restricted in its use. The possible areas for expansion are town-owned property along Tappan Street which is currently occupied by the Tappan Street gym facility, pool complex, Unified Arts Building and associated parking area, and the Cypress Street Playground.

The Cypress Street Playground was concluded as not available for building due to its historical significance as one of the first municipal purchases for playground purposes. The property was purchased by the Town of Brookline in 1871 as "public grounds to use, improve, and maintain for the public use forever, as and for a public square, park, common or playground, not otherwise" for which it was deeded. As such, it could not be used for an educational building without an Article 97 land swap. This would require a two-thirds vote of the State legislature and an equivalent amount of land in Brookline to be set aside for open space and recreational uses.

Another barrier to construction on the Cypress Street Playground is that it contains a major MWRA sewer line which bisects the site diagonally from the corner of Davis and Greenough Streets and heads southeast towards the Brookline Hills T Station. Any construction on the playground would need to be constructed on either side of the easement, and not over, preventing any singular major construction centered on the site.

The second area of open land near the current high school campus is the parking area adjacent to the Unified Arts Building. The MWRA line which traverses the Cypress Street Playground also continues across Tappan Street and through this parking lot. This renders a majority of the site difficult to build upon due to the MBTA's easement.

Therefore there are no easy solutions where a new high school annex building can be built upon open land within close proximity to the current main academic building.

Graduation at Cypress Street Playground

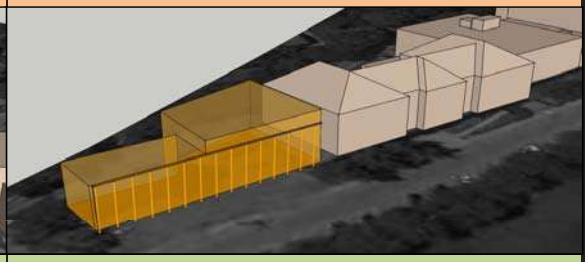
Through the course of this study, a variety of renovation, addition, and new construction options were examined at multiple locations across the current high school campus. Every area of the campus where additions or renovations could be constructed to provide some additional amount of student capacity was examined. This exercise allowed for the development of a catalog of expansion opportunities outlined in the matrix provided.

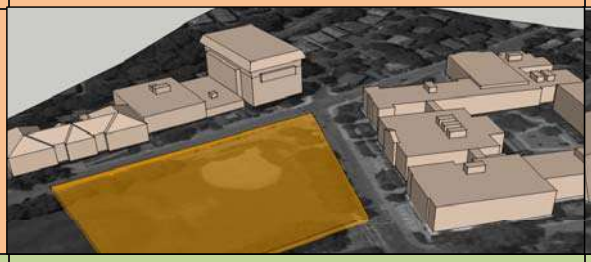
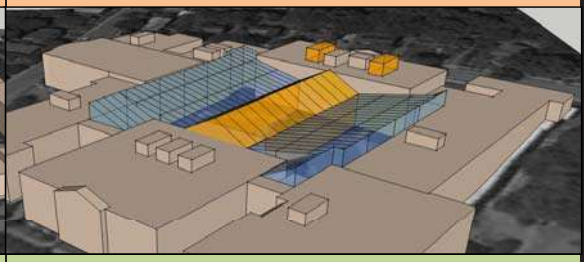
Each opportunity should not be seen as a solution in itself, in that each one does not necessarily provide all of the additional capacity that is needed. Rather the opportunities should be seen as a part that might contribute to a potential solution.

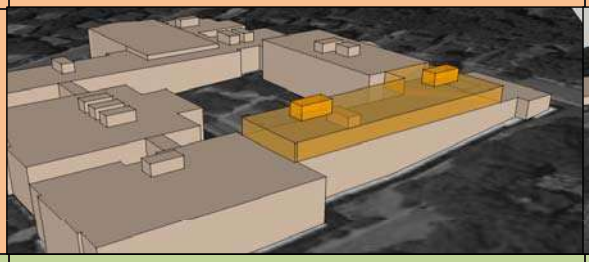
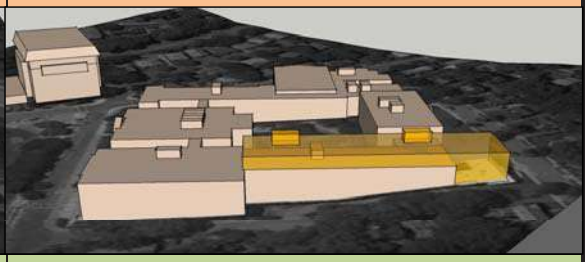
Through the development of these opportunities, three separate solutions were identified that would address the complete 2,500 student capacity expansion. Each solution is a combination of one or more opportunities as necessary to provide the needed additional capacity.

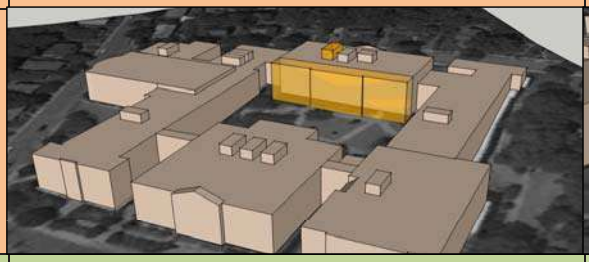
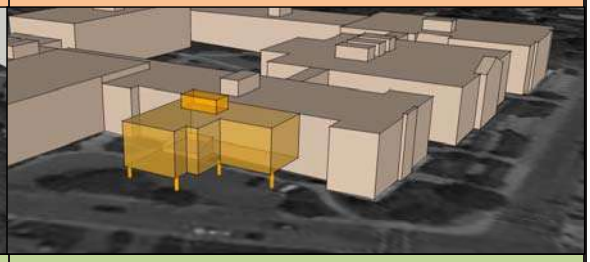
These opportunities and solutions are detailed further in the next sections.

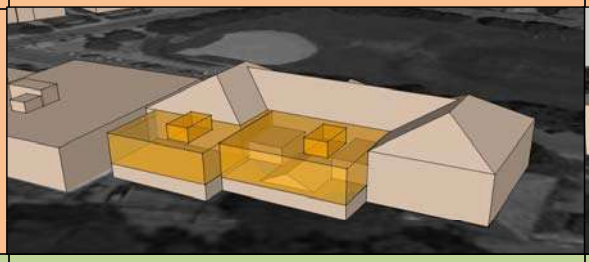
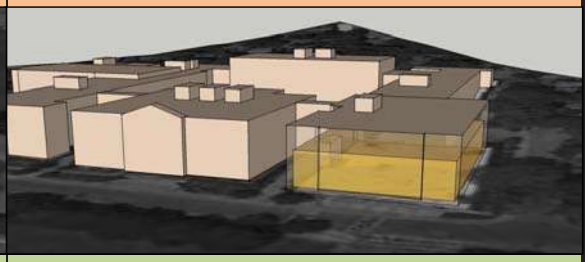
Section 3 - Opportunities

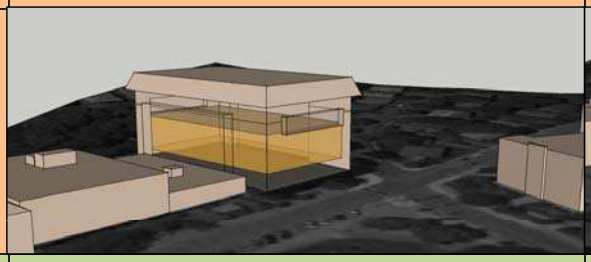
Opportunities	A	B
Layout		
Description	New academic building replacement of existing Tappan St gym and expansion over existing pool structure	New academic building constructed in the Unified Arts parking area
	Pros	**Pros**
	• New Academic spaces could be constructed without disruption to the current main Brookline High School campus. • Opportunity to replace the unattractive Tappan Street Gym building.	• New Academic spaces could be constructed without disruption to the current main Brookline High School. • Would be a convenient location for any expansions to the programs in the Unified Arts Building.
	Cons	**Cons**
	• Demolition of the Tappan Street Gym will result in the loss of numerous athletic facilities shared with the school's PE programs, sports programs, and the Rec. Department whose reconstruction would not be eligible for funding by the MSBA. • Likely opposition in town to this scheme due to the loss of athletic facilities: two gymnasiums, dance studio, wrestling arena, fitness/weight training facility, indoor tennis facility • Expansion over the existing pool structure will be un-feasible due to below grade fuel storage tanks along eastern edge of pool building. • The long span over the pool building will result in very high construction costs. • Places new academic spaces apart from the main building.	• An MWRA Sewer Easement bisects the Unified Arts parking area. Construction would be restricted to either side of the easement, or provide 16' clear access above the easement. • The location is not central to other main campus BHS facilities.

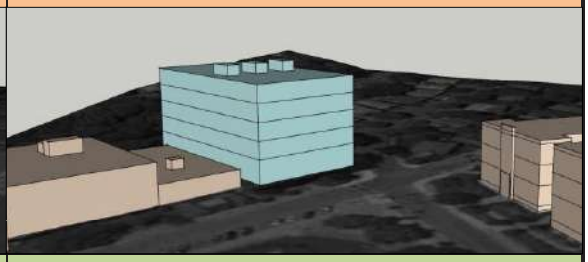
Opportunities	C	D
Layout		
Description	Underground parking lot w/ new field - play area	New construction infill of the main campus building courtyard
	Pros	**Pros**
	• Additional parking spaces could be constructed and be unnoticeable to the surrounding neighborhood; removing numerous staff vehicles from surrounding neighborhoods. • This would present an opportunity to re-construct / re-organize the field area to a format that is most beneficial to the HS.	• A large scale infill project could make a dramatic statement for BHS and create a unique identity and space for the high school. • Large new gathering and communal spaces, library/cafeteria/multi-purpose, can be created with ample daylighting for the use of BHS and the greater Brookline community.
	Cons	**Cons**
	• Structured parking is unusual in a school project and could cause reimbursement issues with the MSBA. The possibility of using the allotted site work funds would need to be negotiated with the MSBA. • Possible neighborhood opposition to underground parking. • An expanded neighborhood parking plan, if feasible, would be much less expensive.	• An infill project would be a costly undertaking which would not result in a large net gain of additional classrooms due to it's location between the existing wings. • The Brookline HS community may oppose the infilling of the existing courtyard.

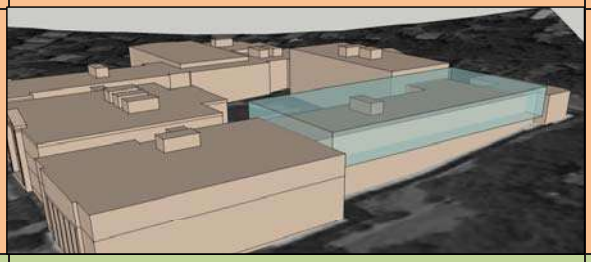
Opportunities	E	F
Layout		
Description	Fourth floor addition to the Welland Rd. wing	Fourth floor addition to the Welland Rd. wing and new construction of a Welland Rd. addition
	Pros	**Pros**
	• Creates new academic spaces within the main academic building in lieu of at an auxiliary location.	• Creates new academic spaces within the main academic building in lieu of at an auxiliary location. • A new entrance can be constructed to better utilize the frontage of the building along Welland Rd. • Takes advantage of the hill to mask the height of the addition to surrounding neighbors.
	Cons	**Cons**
	• Construction of the fourth floor addition will require all spaces below the addition to be emptied during construction, resulting in large amounts of swing space. • We have no indication that existing structure can support an additional floor and may easily result in very expensive structural reinforcing throughout all floors and foundation.	• Construction of the fourth floor addition will require all spaces below the addition to be emptied during construction, resulting in large amounts of swing space. • We have no indication that existing structure can support an additional floor and may easily result in very expensive structural reinforcing throughout all floors and foundation.

Opportunities	G	H
Layout		
Description	Expansion of the existing south courtyard façade into the existing courtyard space	New addition to the main campus building along Tappan St.
	Pros	**Pros**
	• Existing spaces of the building can be re-organized with a minimal footprint addition to the existing building.	• Additional classrooms can be added to the existing building with minimal disruption to existing classroom spaces.
	Cons	**Cons**
	• Construction in this area will require that 40+ classroom spaces be emptied during construction, resulting in high need for swing space. • Resulting classroom configuration working with the existing circulation will result in daylighting compromised classrooms.	• Resulting classroom configuration working with the existing circulation will result in daylighting compromised classrooms. • Provides a very minimal amount of net additional classroom spaces.

Opportunities	I	J
Layout		
Description	Addition to the Unified Arts building above the autoshop and mechanical rooms	Infill of Schluntz Gym with academic spaces
	Pros	**Pros**
	• Additional classrooms can be added to the existing building with disruption only to the auto shop and mechanical spaces.	• Additional classrooms can be added to the existing building with minimal disruption to existing spaces as only locker rooms exist below the current gym. • Makes effective use the Schluntz Gym which appears to be a redundant space when all PE classes occur in the Tappan Street facility.
	Cons	**Cons**
	• Construction at the Unified Arts building will require a historic review and approval, adding additional time to the design and construction process. • Additional spaces added at the UA building will be remote from the majority of the core academic rooms in the main campus building.	• The floor to ceiling height of the floors constructed within the existing gymnasium space will be lower than typically constructed due to existing space constraints. • There will be construction complexities related to the above to make this work well.

Opportunities	K	L
Layout		
Description	Reconstruction of the Tappan St. gymnasiums to a competition gym	New Construction of a four story Science and Cullinary Arts addition along Tappan Street
	Pros	**Pros**
	• A new competition gym facility will be constructed for the benefit of the high school and the greater Brookline community. • The competition gym would be located adjacent to all of the other athletic facilities, and not isolated within the main academic building. • Easily divisible by operable partition into 2 PE stations for normal school use. • Makes more effective use of the existing 2 gym spaces at Tappan. • Constructs a new climbing gym that uses space more efficiently.	• All science lab facilities will be updated for the benefit of all students; Moving the labs into a central wing allows for renovation of the current science labs into academic space. • Demolition of the existing wing along Tappan St is a loss of only 18 classroom spaces, which is the smallest impact of any of the wings.
	Cons	**Cons**
	• The separation of the competition gym into two practice gym stations will be via an operable partition / screen in lieu of a full traditional wall.	• Will require relocation of 18 classrooms, relocation of BEEP and Adult Ed, and temporary suspension of Culinary Arts and the restaurant.

Opportunities	M	N
Layout		
Description	New Construction of a four story Academic/classroom addition along Lowell Street	New Academic Building replacement of existing Tappan Street Gym
	Pros	**Pros**
	• The new construction will be able to provide approx. 40 classroom spaces appropriately sized by today's MSBA standards. • Additional spaces within the addition will provide opportunities for small group and collaborative learning spaces. • Ability to add a large amount of academic space to the main building without displacing classrooms.	• New Academic spaces could be constructed without disruption to the current main Brookline High School campus. • Opportunity to replace the unattractive Tappan Street Gym building.
	Cons	**Cons**
	• The existing Schluntz Gym will be demolished	• Demolition of the existing Tappan Street Gym facility will result in the loss of numerous athletic facilities shared with the school's PE programs, sports programs, and the Recreation Department whose reconstruction would not be eligible for funding by the MSBA. These include 2 gymnasia, dance studio, wrestling arena, fitness/weight training facility, and the indoor tennis facility. • Likely opposition in town to this scheme due to the loss of athletic facilities. • The additional science lab spaces necessary for the enlarged enrollment will be separate from the current science facilities. • Places new academic spaces apart from the main building.

Opportunities	0	
Layout		
Description	Renovation of the Existing third floor Lowell Street Science Labs to general academic spaces	
	Pros	
	• Replaces substandard science labs with properly sized general class rooms. • This is low impact renovation that can be accomplished during a summer.	
	Cons	
	• The loss of the existing lab spaces will require all new full sized and up to date lab spaces be created elsewhere on campus (see Opp. L)	

Section 4 - Recommended Options

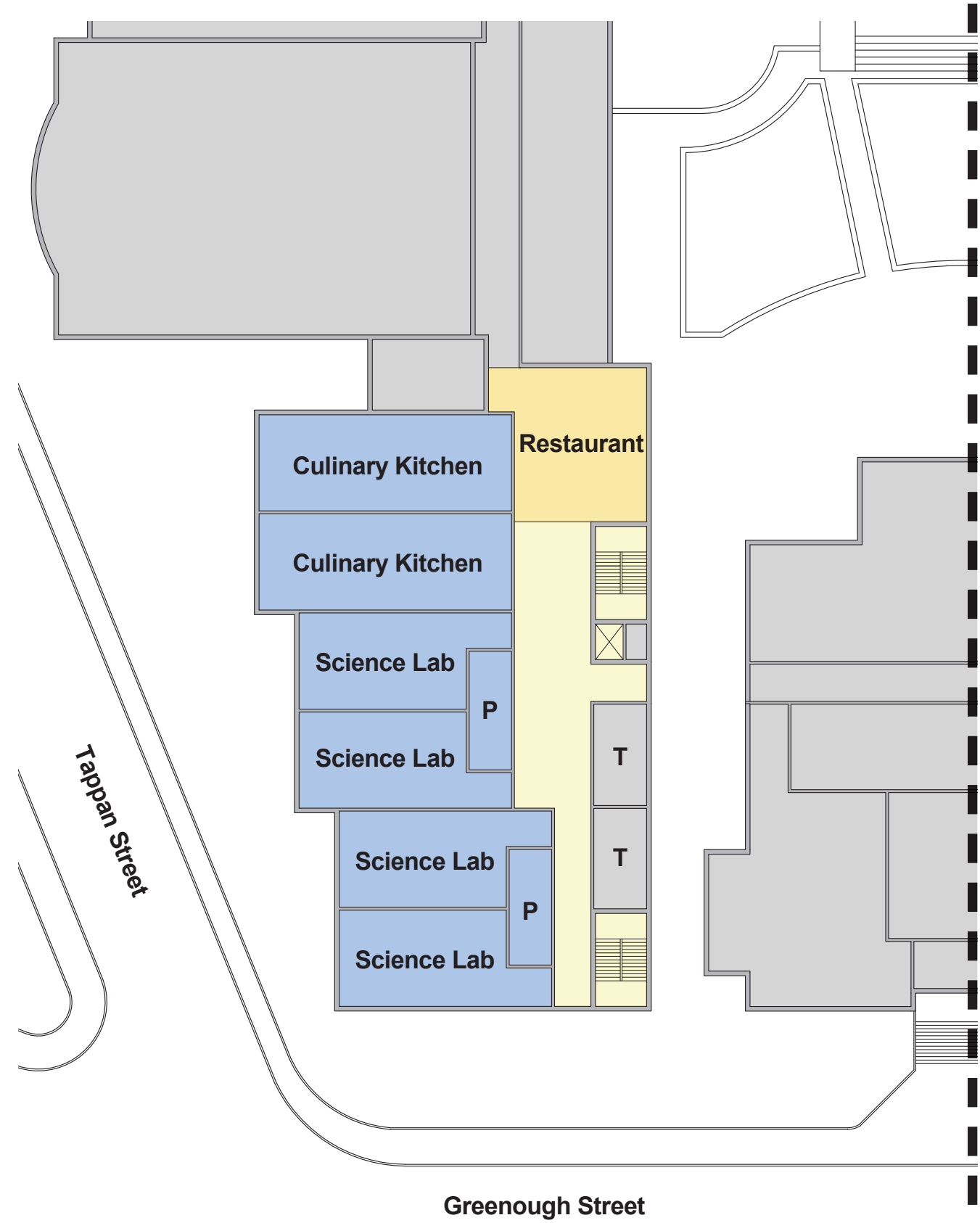
Option	1				
Layout					
Opportunities	**K**	**L**	**M**	**O**	**Total**
Description	Tappan Gym Renovation	New Science & Cullinary Wing	New Academic Wing	Renovation of existing Science Rms	
Sq. Ft.	17,700	73,000	68,500	21,500	180,700
Added CR's	-	-	40	14	54
Added Science Labs	-	24	-	-	24
Additional Added Spaces	competition gym	2 cul. arts & restaurant	collaborative project areas	-	see each opp.
Demolished CR's	-	18	1	-	19
Demolised Science Labs	-	-	9	14	23
Demolised Spaces	two existing gym stations	1 cul. art & restaurant	-	-	see each opp.
Swing Space Requirement	none	18 CR modulars	none when science wing complete	none when science wing complete	see each opp.

Option 1 combines opportunities which will provide entirely new science labs, a new academic wing and renovated competition gym within the Tappan Street Gym Building. The benefits of this option are that it will provide the maximum amount of new classroom spaces and all new science labs which meet MSBA's current guidelines.

The first phase of this construction will involve the demolition of the wing at the corner of Tappan and Greenough Street which houses the BEEP and Adult Ed programs. This wing was identified as most ideal for demolition as it only houses 18 general classroom spaces, the least of any wing of the existing facility. This option requires the fewest temporary classroom spaces. During construction, temporary modular classrooms can be located along the Davis Avenue edge of the Cypress Street Playground without compromising the use of the two ball fields.

The new wing constructed at the corner of Tappan and Greenough Street will house all 24 new science lab spaces and a few other spaces. At the same time, the Tappan Street Gym will need to be renovated in order to accommodate a new competition gym space with bleacher seating. The two existing full size gym spaces will be combined into one large space for the competition gym. A smaller space would be created to house a new climbing facility. A movable partition will divide the gym into half to accommodate multiple PE classes. Upon completion of these two elements, the existing Schluntz Gym wing of the main academic building can be demolished. This demolition will remove the existing Schluntz competition gym which will have been replaced by the new renovated Tappan Gym facility, and the newly constructed science labs will replace the need for the existing labs located on the third floor above the Schluntz Gym.

The final construction phase of the new academic wing built over the footprint of the existing Schluntz wing will create the additional necessary classroom spaces to accommodate the 2,500 student capacity. This will also involve the renovation the remaining existing science labs back into standard classrooms. These rooms are all significantly undersized when compared to the State's science lab standards. They were converted from standard classrooms about 25 years ago and will better function as classrooms again.



Classrooms
Special Education
Shared Group Spaces
Circulation
Administration
Specialty Rooms
Support

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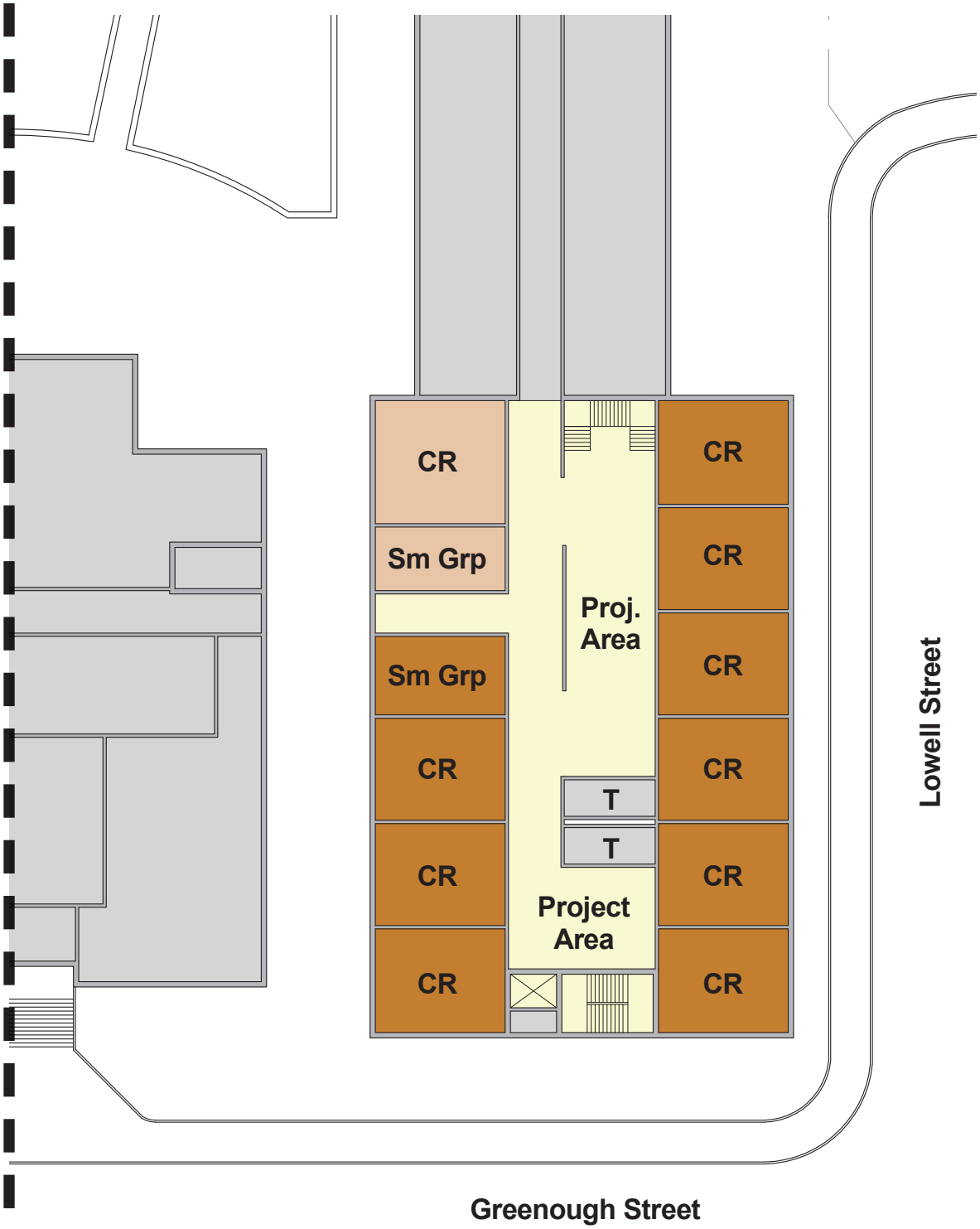
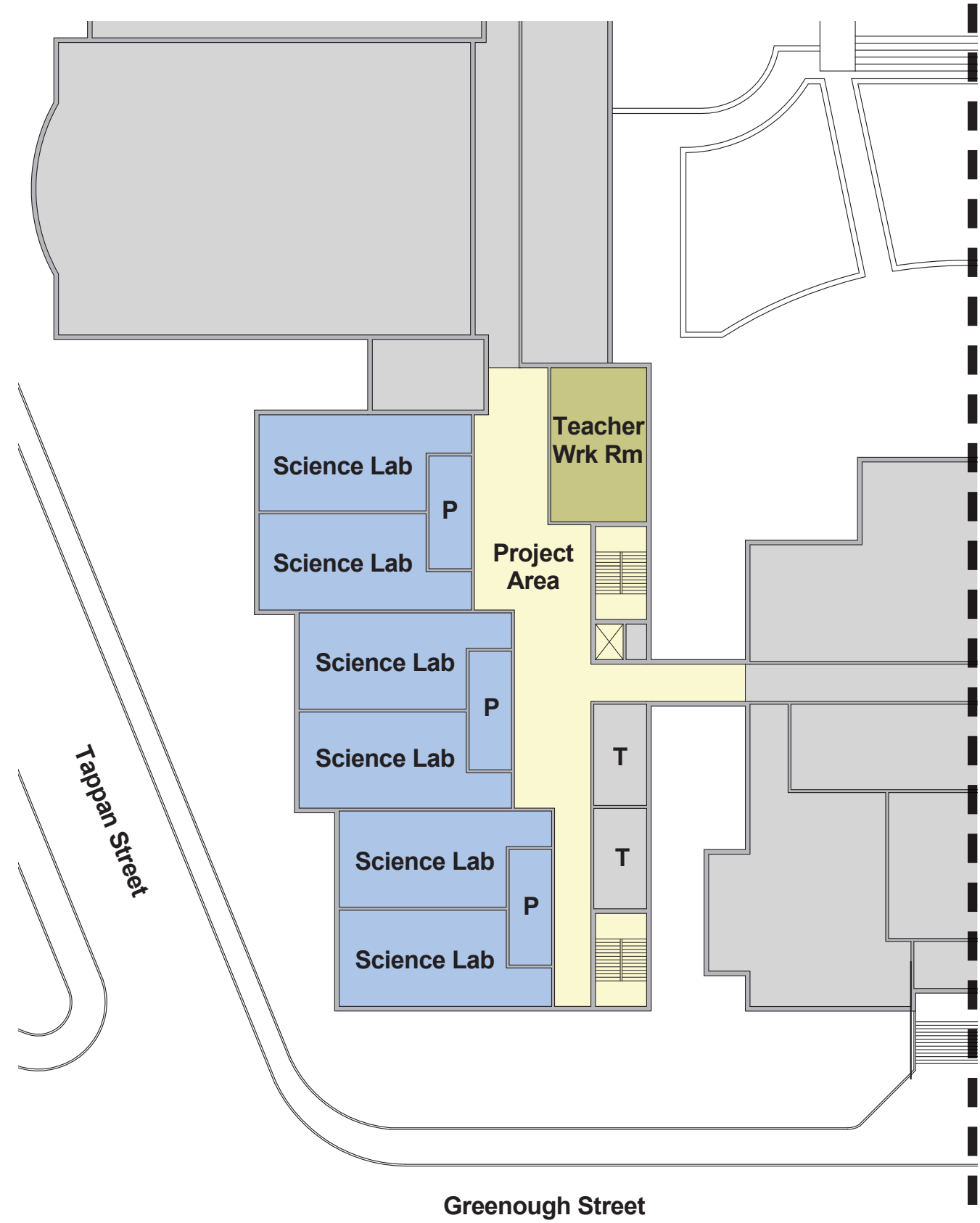


First Floor Plan



Classrooms
Special Education
Shared Group Spaces
Circulation
Administration
Specialty Rooms
Support

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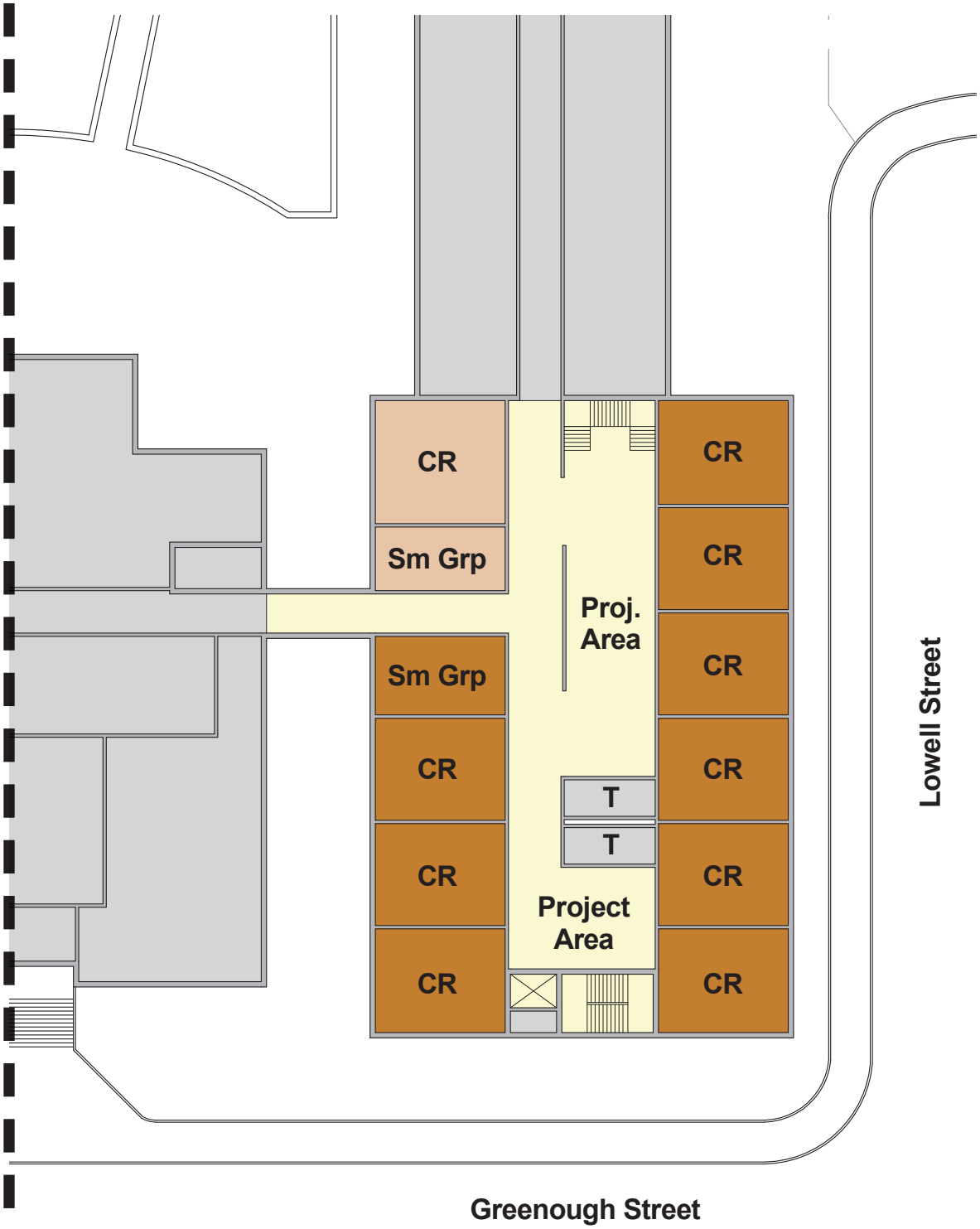
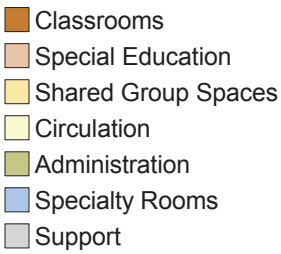
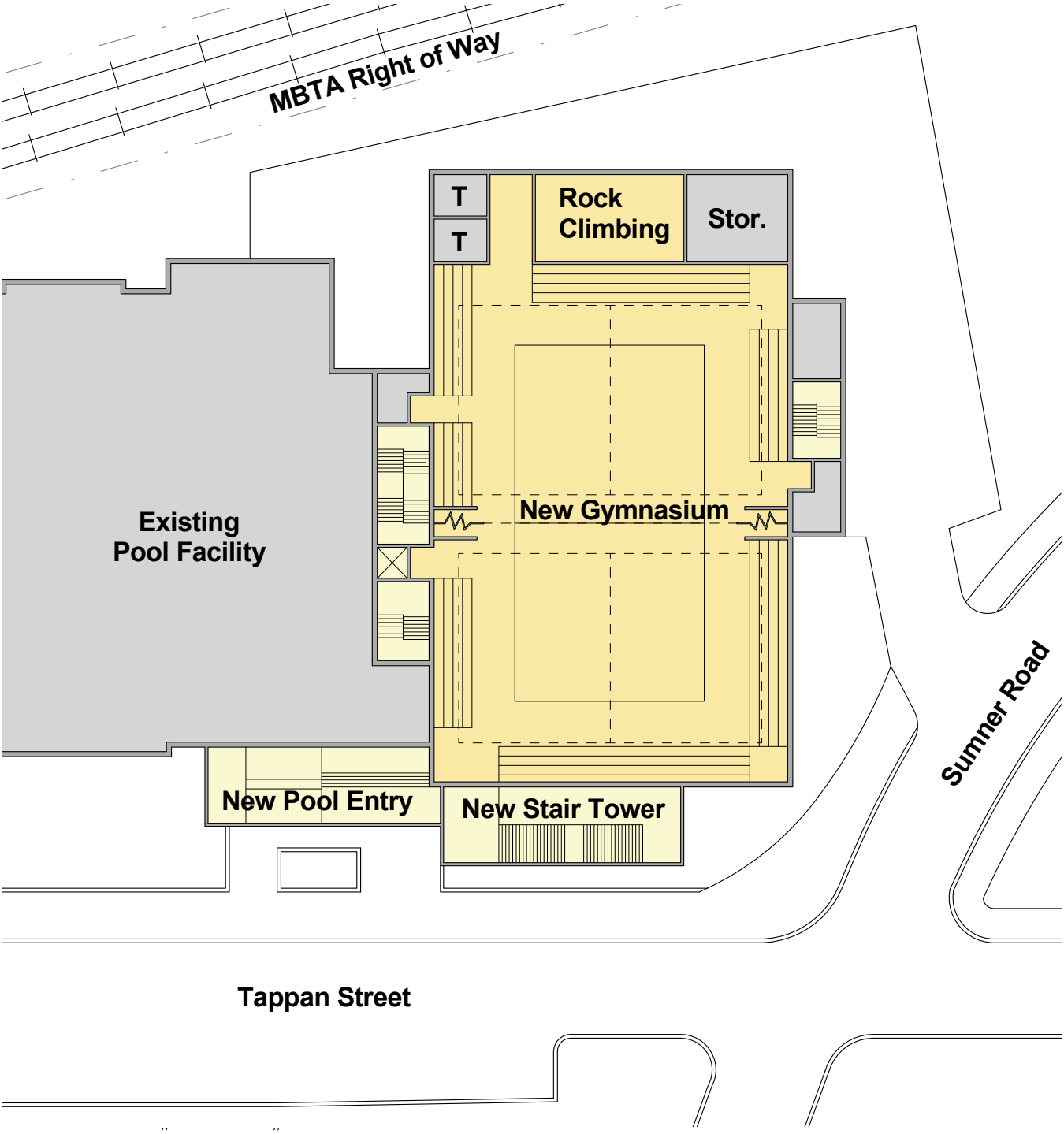
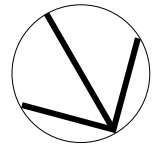


Second & Third Floor Plan


Classrooms
Special Education
Shared Group Spaces
Circulation
Administration
Specialty Rooms
Support





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New Tappan Gym Renovation Plan

Option	2		
Layout			
Opportunities	**N**		**Total**
Description	New Tappan Academic Bldg.		
Sq. Ft.	79,000		79,000
Added CR's	30		30
Added Science Labs	6		6
Additional Added Spaces	collaborative project areas		collaborative project areas
Demolished CR's	-		-
Demolised Science Labs	-		-
Demolised Spaces	entire Tappan St. gym facility		entire Tappan St. gym facility
Swing Space Requirement	none		none

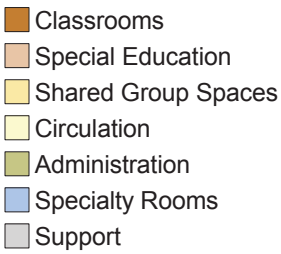
An alternative option to adding onto the existing main academic building is to build all necessary additional capacity nearby, but not attached to the current building. As previously reviewed in this report there are no available open space locations where a new annex building could be constructed, and therefore an existing building must be demolished.

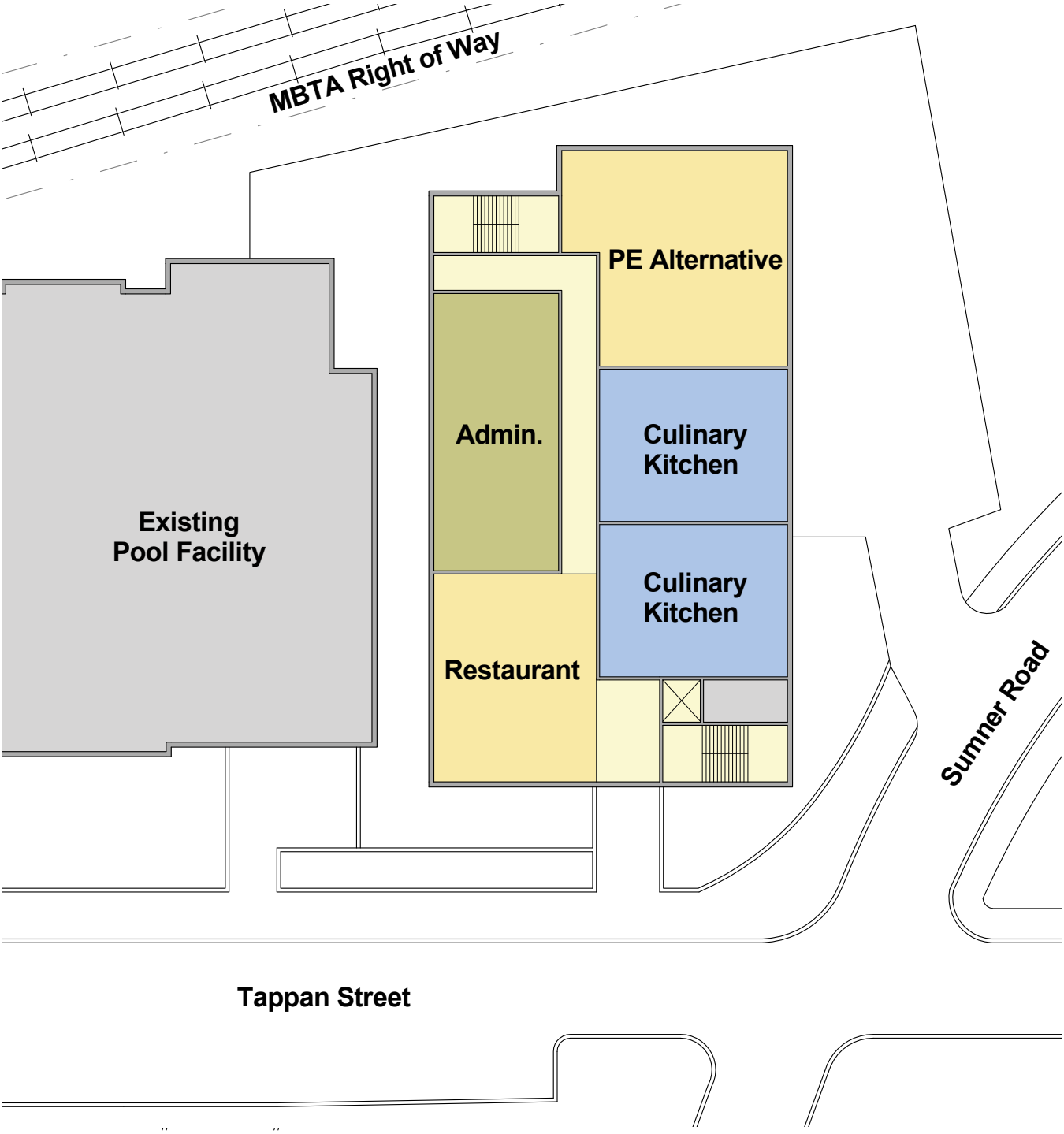
The available town property adjacent to the main academic building is located along Tappan Street. The Unified Arts Building is a historic structure relevant to the historic character of the Cypress Street Playground, and historically significant within its own right, and would therefore not likely be viable for demolition.

This leaves the Tappan Street Gym complex demolition to be reviewed for the possibility of allowing a new academic building expansion in its place.

A new Tappan Street academic facility as outlined in Option 2 provides an option for expansion which will not affect the current academic class schedules. The building would be constructed while students are still attending classes in both the main academic building and Unified Arts Building. The building will house all of the additional classroom, science and specialty spaces which will be required for a 2,500 student body in addition to the existing facilities.

The major downside to this option is that Brookline would lose many of the athletic facilities that the Tappan Street Gym Building now offers, including the full size gym, full size climbing gym, two dance studios, wrestling room, fitness/weight room, and indoor tennis pavilion. It is likely that the MSBA would not participate in reimbursement for the reconstruction of any of these spaces with the exception of one multi-purpose room of around 3,000 sf which is part of the MSBA physical education guidelines. The existing Schluntz Gym would become the only gym / court facility available to the school and town as a result of this option.


Classrooms
Special Education
Shared Group Spaces
Circulation
Administration
Specialty Rooms
Support



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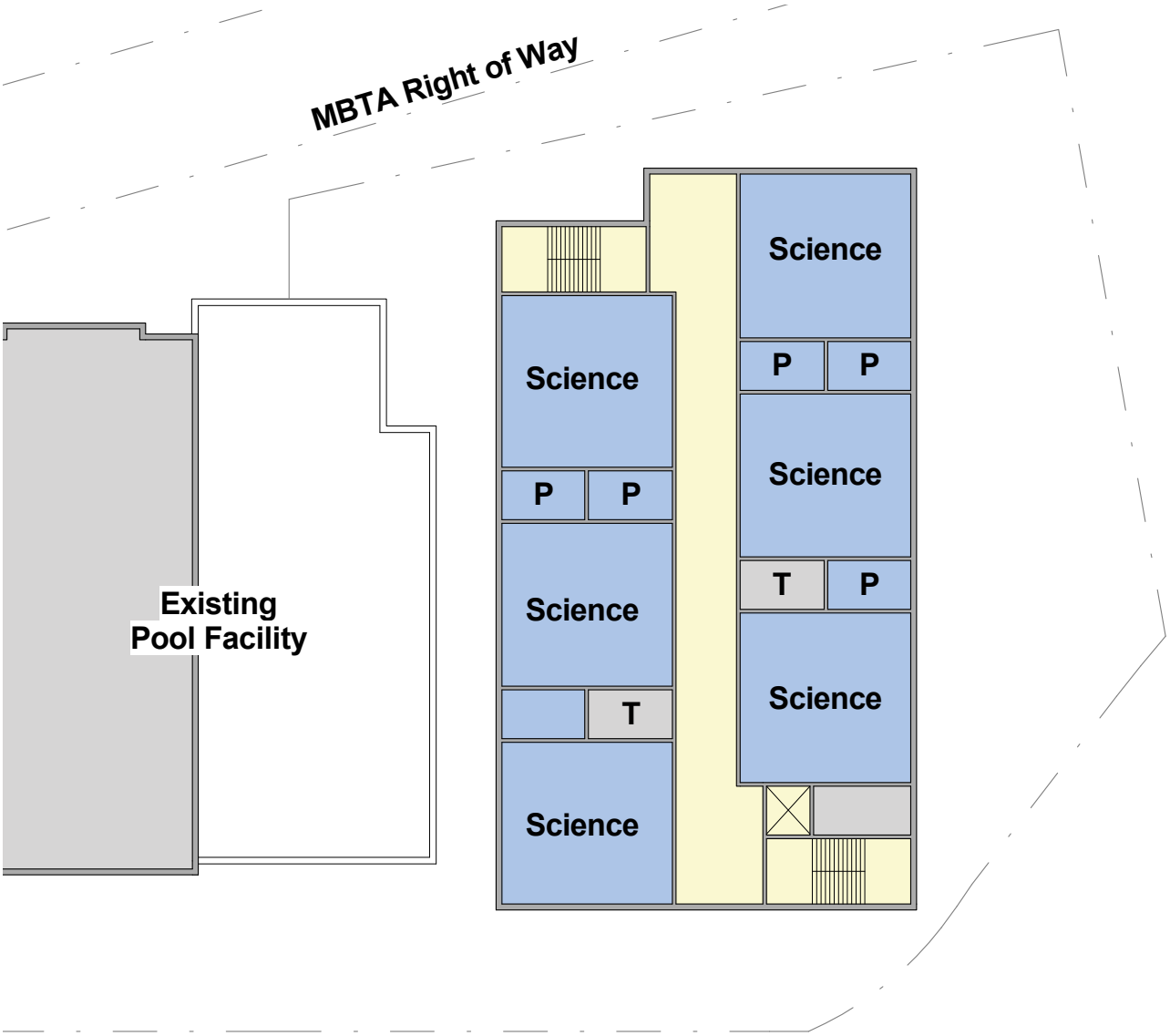
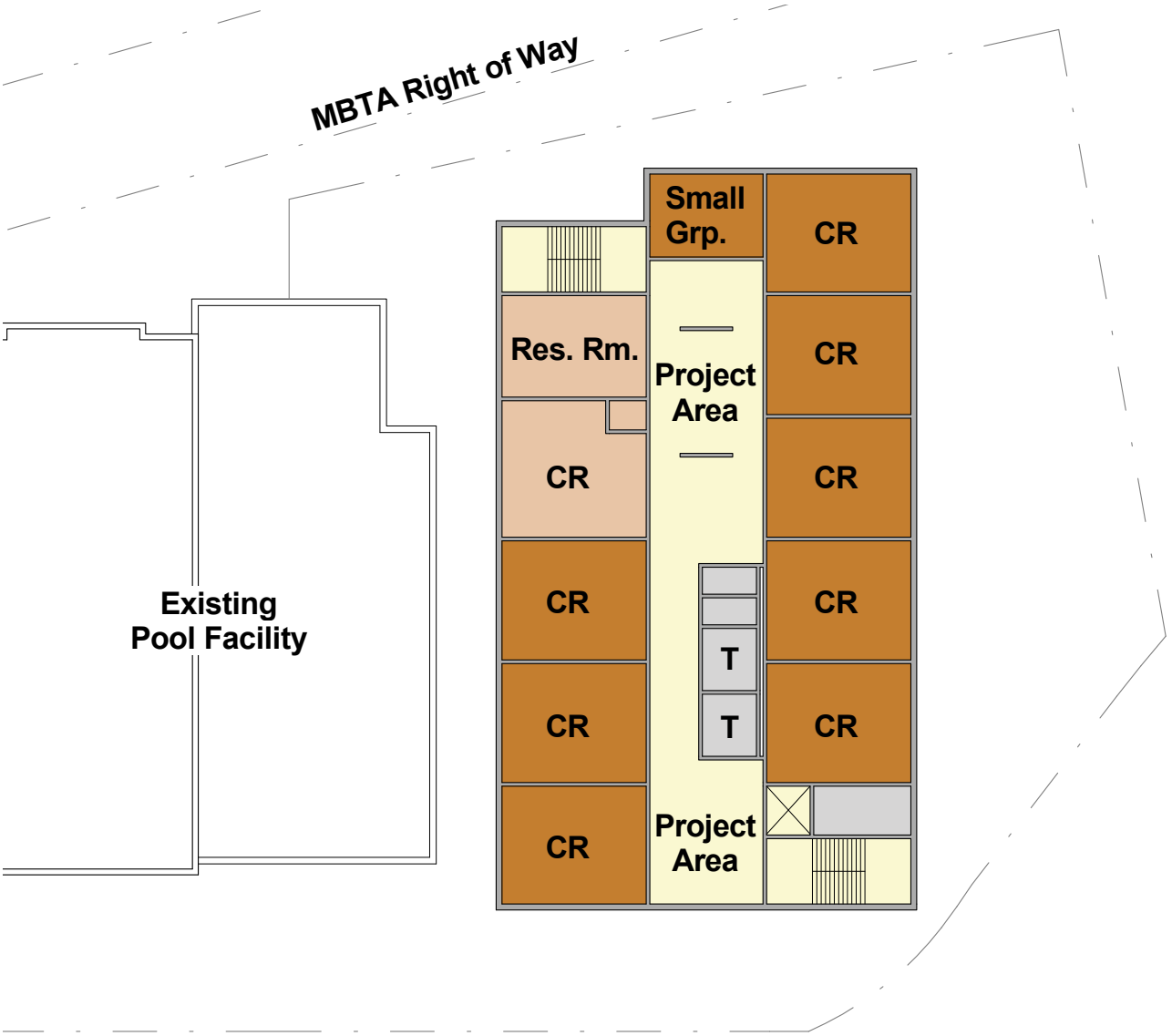
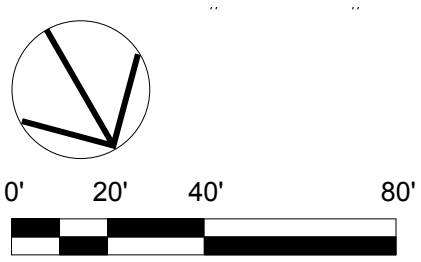
Option 2 - First Floor



- Classrooms
- Special Education
- Shared Group Spaces
- Circulation
- Administration
- Specialty Rooms
- Support

Option 2 - Second Floor





Option 2 - Third to Fifth Floor

Option	3				
Layout					
Opportunities	**J**	**K**	**H**		**Total**
Description	Schluntz Gym CR Infill	Tappan Gym Renovation	Tappan St. CR Addition		
Sq. Ft.	34,000	17,700	28,000		79,700
Added CR's	14	-	6		20
Added Science Labs	6	-	-		6
Additional Added Spaces	collaborative project areas	new competition gym	-		see each opp.
Demolished CR's	-	-	-		-
Demolised Science Labs	-	-	-		-
Demolised Spaces	Schluntz gym	two existing gym stations	-		see each opp.
Swing Space Requirement	none	none	18 CR modulars		see each opp.

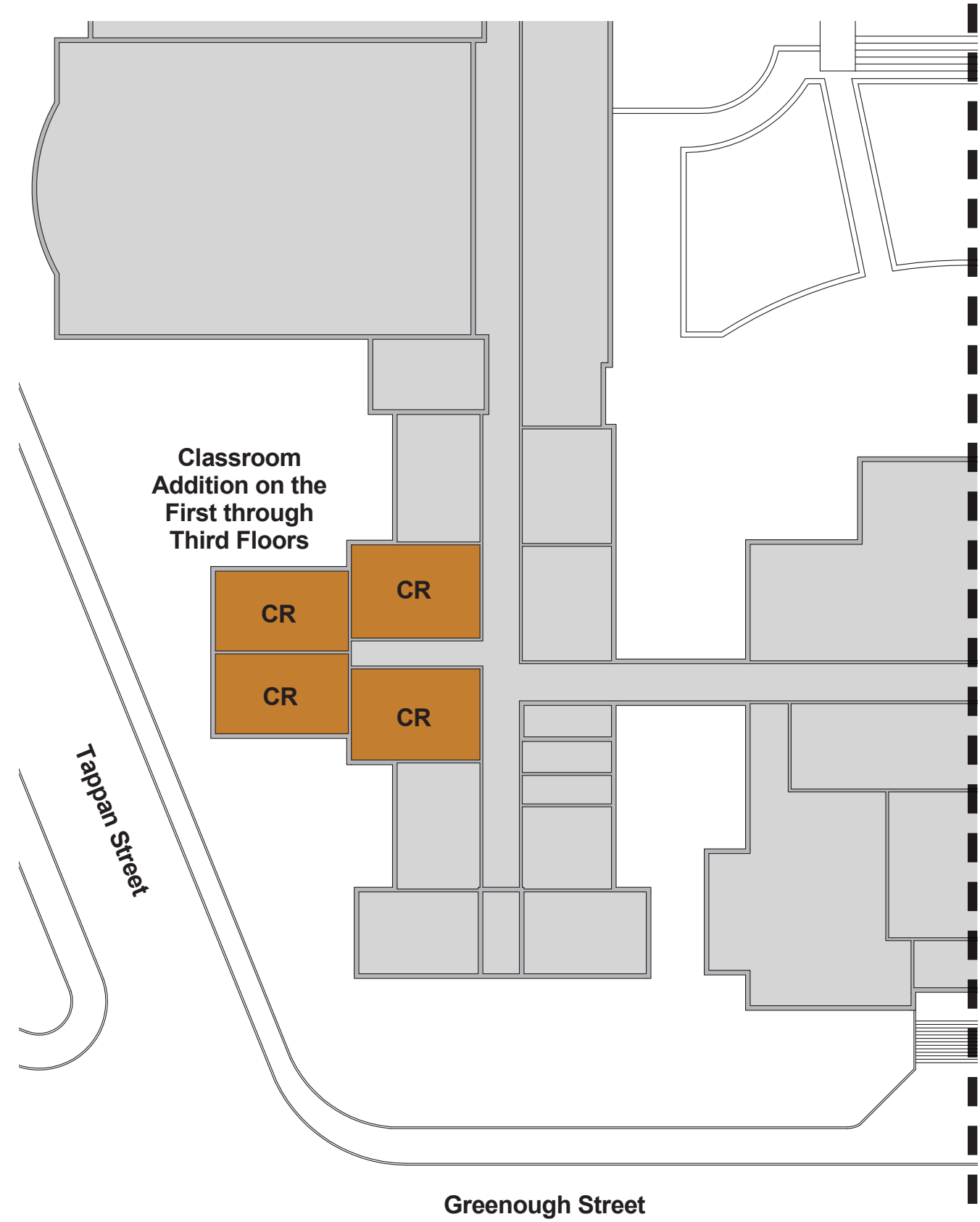
Option 3 evaluates the possibility of constructing the minimum amount of spaces necessary to accommodate the expanded 2,500 student body population. In order for this option to be viable, six additional classrooms must be reclaimed from programs relocated out of the academic building and the majority of science labs will be smaller than MSBA recommended guidelines.

The main addition portion of this option requires that the Schluntz Gym be repurposed and renovated into two separate floors of academic spaces. Within these two new floors, the additional science labs and classroom spaces will be provided.

As in Option 1, the two Tappan Street full-sized gyms will be renovated into a full completion gym space with bleachers, and also usable as a two court PE facility.

The third portion of construction required for this option will be off of the main academic building along Tappan Street above the faculty parking area. A small, three-story, new wing of additional classrooms can be constructed here. While four new classrooms are constructed on each of three levels, this addition requires the removal of two existing classrooms at each level and therefore is only a net gain of six classrooms.

While this option accomplishes many of the things that option 1 accomplishes, but with more renovation, a major drawback to this option is that all of the existing under-sized science labs remain in service. It also requires six spaces to be moved off campus to accommodate additional classrooms.



Classrooms
Special Education
Shared Group Spaces
Circulation
Administration
Specialty Rooms
Support

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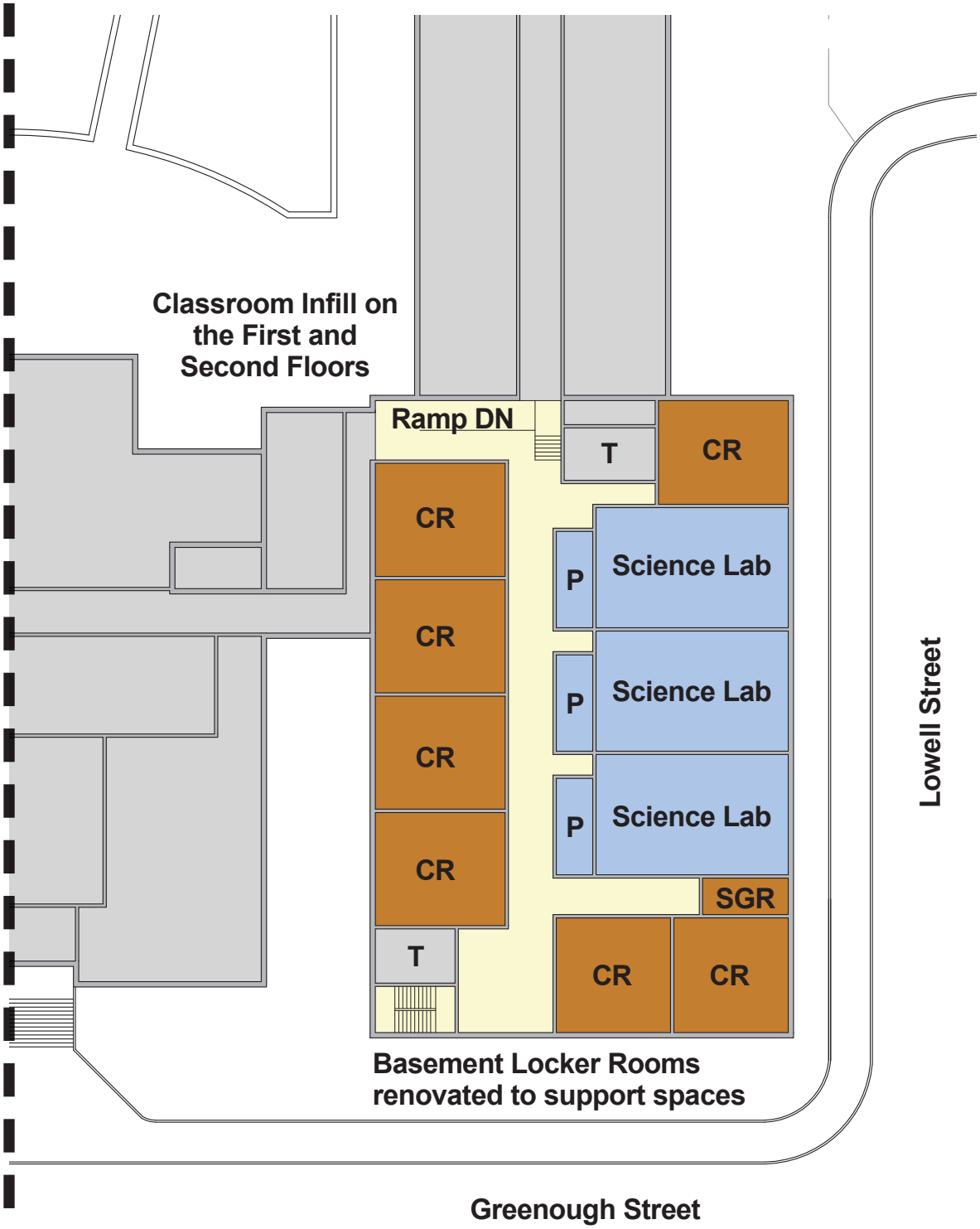
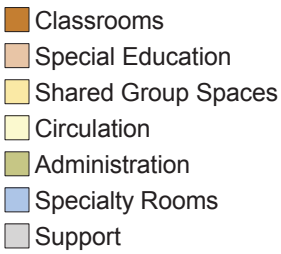


Option 3 - Typical Floor Plan


Classrooms
Special Education
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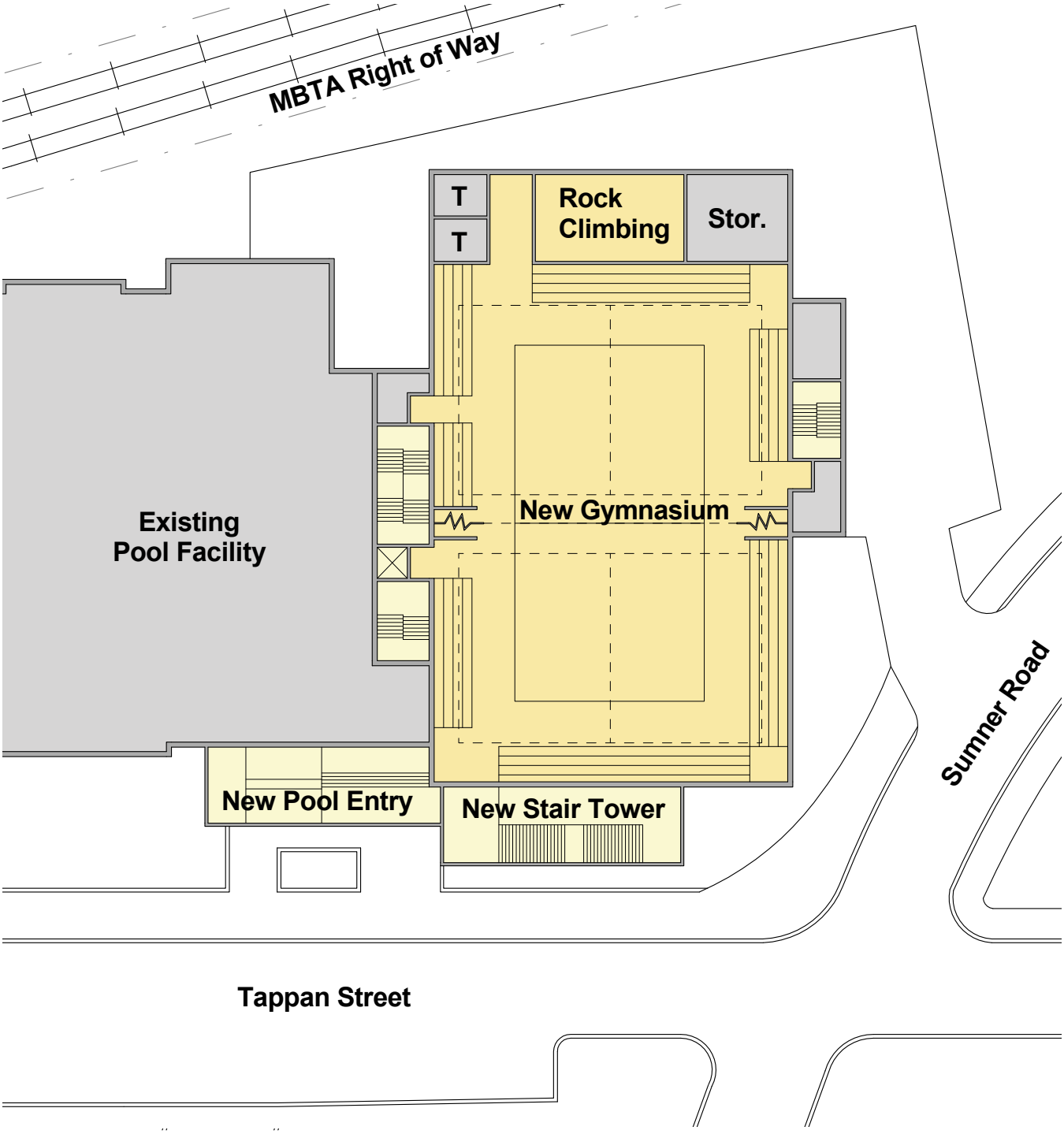

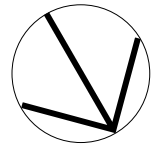

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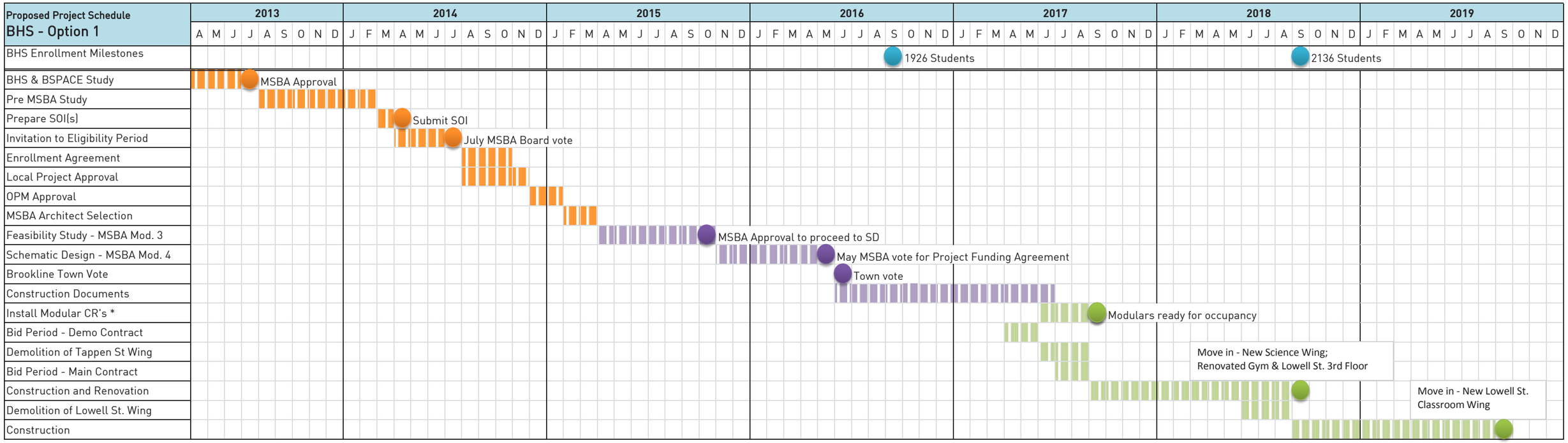
Option 3 - New Tappan Gym Renovation

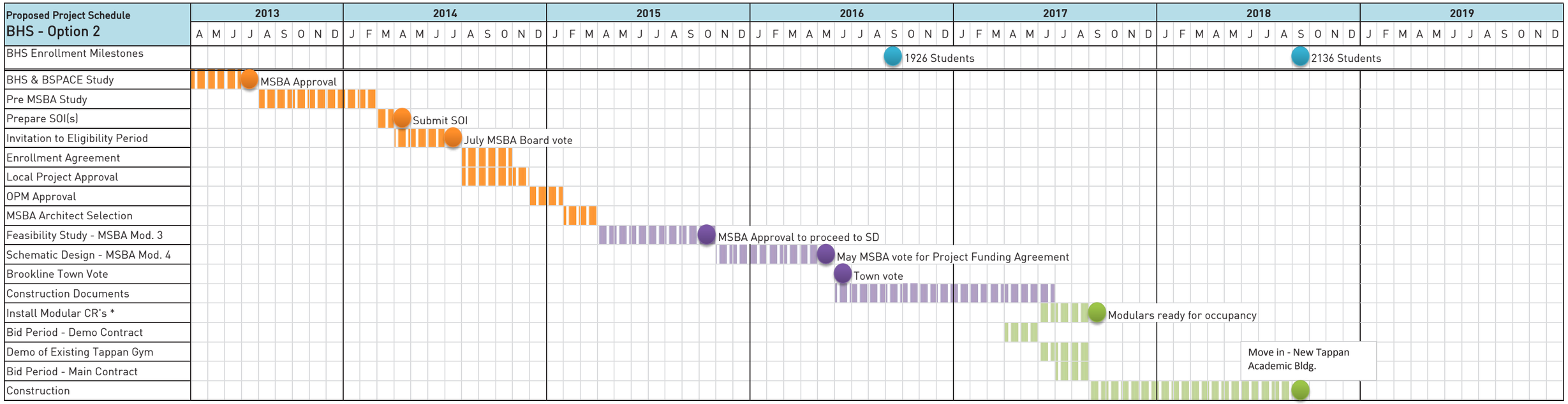
Section 5 - Appendix

Options	1	2	3
Description	**New Science and Academic Wing**	**New Academic Bldg. replaces Tappan Gym**	**Schluntz Gym Infill w/ Modest Additions for CR's**
Renovation Area	28,300	-	-
Tappan St. Gym Reconstruction	22,653	-	22,653
Schluntz Gym Infill	-	-	51,465
New Construction Area	141,784	79,255	13,311
Total Area	**192,737**	**79,255**	**87,429**
Construction Cost	**$ 64,108,421**	**$ 31,483,250**	**$ 24,737,579**
Construction Cost per sqft	**$ 333**	**$ 397**	**$ 283**
Construction Contingency 10%	$ 6,410,842	$ 3,148,325	$ 2,473,758
Phasing Approach	18 Temp CR's	No Swing Space Needed	18 Temp CR's
Temp. Classroom Costs	$ 3,600,000	$ -	$ 3,600,000
A/E Fees at 10%	$ 7,051,926	$ 3,463,158	$ 2,721,134
Other Professional Services at 5% *	$ 3,525,963	$ 1,731,579	$ 1,360,567
F&E w/ Tech - 700 students x $3,000	$ 2,100,000	$ 2,100,000	$ 2,100,000
Project Contingency 5%	4,339,858	2,096,316	1,849,652
Total Project Cost	**$ 91,137,010**	**$ 44,022,627**	**$ 38,842,689**
Project Cost per sqft	**$ 473**	**$ 555**	**$ 444**
MSBA Hard Cost ** Reimbursement (40% up to 275/sf)	**$ 21,201,070**	**$ 8,718,050**	**$ 9,617,190**
MSBA Soft Cost ** Reimbursement (40%)	**$ 9,371,436**	**$ 5,015,751**	**$ 4,202,044**
Town of Brookline Share	**$ 60,564,505**	**$ 30,288,826**	**$ 25,023,455**

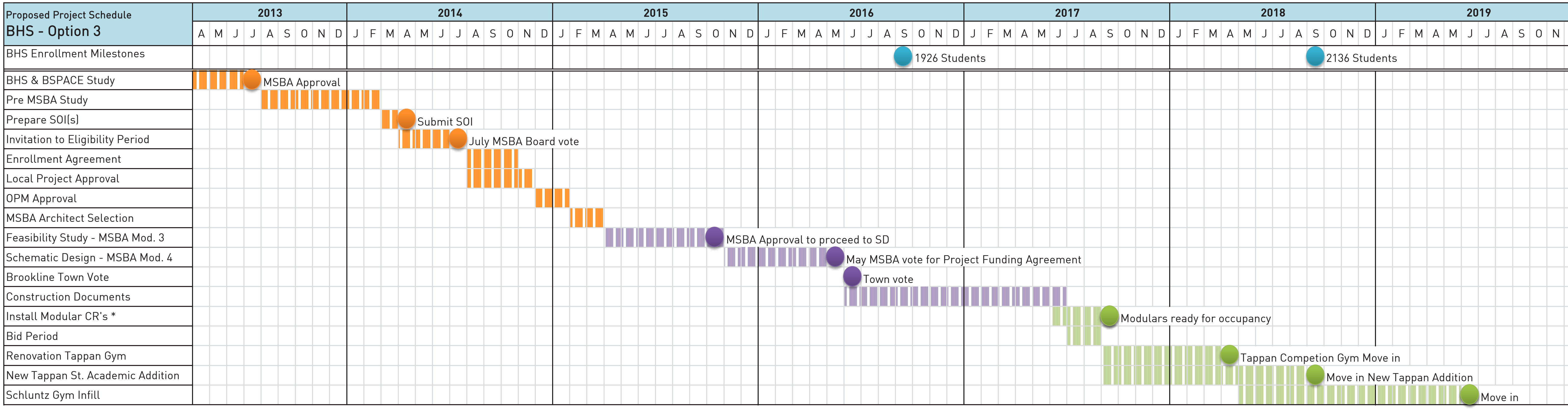
NOTES:
1. Estimated costs based on PM&C cost estimate dated April 26, 2013.
2. All Estimates include a 12% escalation cost with construction beginning in 2017.
* Other professional fees include Testing, Survey, Traffic Consult, HazMat, Clerk of the Work, etc.
** MSBA funding numbers are tentative pending MSBA participation with the project and reimbursement rates



* Modular CR installation required for construction phasing



* Modulars installated as needed to handle additional student capactiy



* Modular CR installation required for construction phasing