Needham Public Schools
Study to Implement
Full-Day Kindergarten
February 2018

Dore Whittier Architects
Newburyport, Massachusetts
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Executive Summary

Purpose and Scope

In October 2017, the Town of Needham, through the Town Manager and its Permanent Public Building Committee, hired Dore & Whittier to provide designer services for the preparation of a Space Study and Cost Estimate to address the School Committee’s objective to provide Full-Day Kindergarten (FDK) within the Needham School District. This study’s key objective was to determine how best to utilize the existing assets within the District to roll out the FDK program without redistricting and causing the least impact on existing educational programs such as Art, Music, STEAM, and Language programs.

Dore & Whittier’s primary scope included the following:

- Review all prior studies and background information for the FDK program.
- Analyze the program needs with the NPS staff and Principals from each elementary school and assess how the kindergarten students could best be accommodated at each school. Identify the size of the existing Kindergarten rooms including bathrooms and storage, and the programmatic needs of the additional Kindergarten rooms.
- Identify the rooms that will be available once KASE moves out and determine how they might be repurposed. Identify other spaces within each school that could be repurposed or reallocated for Kindergarten use and any required upgrades. Determine which programs could be consolidated or relocated within each school to make way for FDK.
- Review the room scheduling to see if there are opportunities to better utilize existing space,
- Identify existing administrative, departmental or other spaces that could be repurposed for classrooms (if any).
- Review enrollment growth projections and trends and analyze how it might impact classroom scheduling, technology implementation, or design, programming and construction phasing,
- Study how redistricting might help solve overcrowding at one school, where capacity may exist at another school. Study if this is a short-term or a required long-term solution.
- Study class size for the FDK programs to determine if the recommended solutions fall within the District’s maximum class size and meet the District’s goals for Special Education at each school.
- Identify budget costs associated with each alternative recommended,
- Prepare feasibility estimates of the various options including both construction and soft costs. The budget estimates should also include escalation and/or phasing costs.
Summary of Findings

- McKibben Demographics revised its projections up from previous years due to higher than anticipated housing stock turn-over and two housing developments in Needham. This revision makes the implementation of full-day kindergarten more challenging.
- Mitchell is deficient in PE and Special Education space and will require Art on a Cart beginning in 2019-2020 without additional space.
- It appears that the District will be able to both implement its full-day kindergarten program and absorb any forecast enrollment increases for the 2019-2020 school year.
- Full-day K and the enrollment increase may require repurposing of some Art, Music, STEAM, World Language, and Technology spaces as general classrooms. FDK and expected enrollment increases may also result in slightly higher than desired class sizes even in 2019-2020.
- Eliot may experience largest enrollment impact & may require modular classrooms beginning in 2023-2024. Should the enrollment forecast provide accurate, Eliot will either need to be a fully 4 section school by 2029-2030 or require redistricting once Mitchell is reconstructed.
- There may be an opportunity to redistrict toward Mitchell at the end of the enrollment forecast as its enrollment declines to defray the enrollment increases at Eliot expected around the same time.
- Other elementary schools better positioned to absorb enrollment increases in their respective catchment areas and accommodate full-day K throughout the enrollment forecast.

The table below summarizes the projected classroom need at each school over the course of the enrollment forecast. There are currently the equivalent of four classroom-sized spaces dedicated to the KASE program that can all be repurposed as grade level classrooms. The remainder of the deficiencies would need to be addressed through a combination options including repurposing of dedicated space for Specials, the installation of modular classrooms, and/or redistricting.

<table>
<thead>
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<td>+1</td>
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* Includes the four modular classrooms already installed. Two are being used for Kindergarten currently.
Dore and Whittier prepared several cost estimates associated with potential work to address space needs. A summary of those costs is below and should be considered a cafeteria menu of options. More detailed information is provided in the respective school sections in the body of the report and in the Appendices.

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Cost</th>
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<tr>
<td>Modular Classrooms at Eliot School</td>
<td>$3.73 M</td>
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<td>Modular Classrooms at Mitchell School</td>
<td>$1.25 M</td>
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<td>Fabric Gymnasium Structure at Mitchell</td>
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<td>Pre-engineered Gymnasium Structure at Mitchell</td>
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<td>Renovation of Storage Space into Art at Mitchell</td>
<td>$1.35 M</td>
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<td>Renovation of KASE Classrooms into Grade Level Classroom at Mitchell</td>
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<td>Conversion of Technology Classroom to Grade Level Classroom at Broadmeadow</td>
<td>$164,500</td>
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<tr>
<td>Conversion of Technology Classroom to Grade Level Classroom at Eliot</td>
<td>$164,500</td>
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</table>

**Additional Factors to Consider**

- Actual enrollment for the next several years and real impact of housing developments on enrollment. McKibben’s enrollment forecast is contingent on several assumptions, including how many new school-aged children result from the construction of the two housing developments, one of which is not even permitted. Actual outcomes from these assumptions may produce more or fewer children than anticipated. Due to the expected timing of completion, the District may have an opportunity to react if it continues to monitor these developments.
- The District capital plan includes the renovation or replacement of the Mitchell school within the next 15 years. Depending on the timing of that major project, the District should weigh the value of sizing a new or renovated Mitchell School to help absorb the expected enrollment increases and to return class sizes across the District to within the District’s class size guidelines.
- Based on the data in this study and the McKibben enrollment forecast, the District may need additional staffing in response to higher than desired class sizes. The District should consider performing a staffing projection to better understand the impact of the enrollment forecast on staffing needs.
Assumptions & Methodologies

In conducting the study, Dore & Whittier made several assumptions based on information provided by the District.

- Kindergarten Enrollment Forecast
  - McKibben Demographic’s forecast did not account for the effect of the Full-Day Kindergarten program. Historic data suggests that about 7.5% more students arrive to the District in 1st grade than in Kindergarten, largely due to the current policy of half-day kindergarten.
  - Dore & Whittier’s calculations have accounted for this phenomenon and are based on McKibben’s projections plus an additional 7.5% for kindergarten in each year of the forecast.

- Class Size Guidelines
  - Kindergarten through 3rd Grade = 18 to 22 Students
  - 4th and 5th Grade = 20 to 24 Students
  - District’s preference is to implement FDK and maintain class sizes within these guidelines but is willing to exceed these guidelines by one student per section if it prevents a need to eliminate a dedicated space for Art, Music, STEAM, and/or World Languages or prevents a need for newly constructed space.

- Number of Sections for Specials
  - Kindergarten students will receive Art, Music, and PE 40 minutes per session, twice per week.
  - 1st and 2nd Grade will receive Art, Music, Spanish, Media, and STEAM 40 minutes per session once per week each and PE 40 minutes per session twice per week.
  - 3rd Grade will receive Art, Music, Media, and STEAM 40 minutes per session, once per week and Spanish and PE 40 minutes per session twice per week.
  - 4th and 5th Grade will receive Art, Music, Media, and STEAM 40 minutes per session, once per week, Spanish and PE 40 minutes per session twice per week, and Chorus 40 minutes per session once every two weeks.

- Conversion of Space
  - Spaces currently dedicated to specials like Art, Music, STEAM, Technology, and World Languages may be considered as targets to be converted into general classrooms.
  - Spaces currently dedicated to Special Education functions may not be considered as targets to be repurposed into general classrooms.

- Priorities for Conversion to Grade Level Classrooms
  - Each school has a different set of dedicated rooms for Specials. Each school, therefore, also has a different set of priorities should it prove necessary to convert some of those dedicated spaces to grade level classrooms. In general
terms, dedicated spaces serving World Languages and STEAM have the lowest priority for dedicated space because they can more easily be accommodated in other spaces, including grade level classrooms. Art and Music have the highest priorities for dedicated space because of the specialty equipment and storage needs associated with those programs.

- Redistricting
  - The goal is to implement FDK without a need to redistrict. However, the study should take a holistic view of the elementary schools to see if redistricting “around the edges” will prevent the need to eliminate dedicated space for specials or eliminate the need for newly constructed space.

Methodology

In order to understand the capacity of each facility and the impact of the enrollment forecast on space, Dore & Whittier performed several calculations. Dore & Whittier’s methodology for performing those calculations is detailed below.

**Elementary Building Capacity**

*Number of Grade Level Classrooms X Maximum Allowable Class Size for Each Grade Level*

\[
4 \text{ Kindergarten} \times 22 \\
+ 4 \text{ 1st Grade} \times 22 \\
+ 4 \text{ 2nd Grade} \times 22 \\
+ 4 \text{ 3rd Grade} \times 22 \\
+ 4 \text{ 4th Grade} \times 24 \\
+ 4 \text{ 5th Grade} \times 24 \\
544 \text{ Student Capacity}
\]

**Theoretical Classroom Count Need**

*Total Forecasted Enrollment by Grade ÷ Maximum Allowable Class Size for Each Grade Level*

\[
100 \text{ Kindergartners} ÷ 22 \text{ Students per Classroom} = 4.55 \text{ Sections} = 5 \text{ Sections Needed}
\]

**Theoretical Classroom Size**

*Total Forecasted Enrollment by Grade ÷ Bounding Number of Sections per Grade*

\[
90 \text{ Kindergartners} ÷ 4 \text{ Sections} = 22.50 \text{ Students per Section} = 22 \text{ in 2 sections, 23 in 2 sections} \\
90 \text{ Kindergartners} ÷ 5 \text{ Sections} = 18.00 \text{ Students per Section}
\]
Broadmeadow School

Overview

- Broadmeadow has 24 general classrooms currently, but no dedicated space to the KASE program.
- Broadmeadow appears to be well positioned to both implement Full-Day Kindergarten and accommodate the enrollment forecast in 2019-2020.
- Broadmeadow will require a combination of four and five sections per grade level to maintain the District’s class size guidelines.
- Enrollment forecast data suggests 3rd grade will require 5 sections per grade level for a span of five years beginning in 2022-2023 and concluding in the year 2026-27.
- The spatial deficiency created by the need for one additional section of 3rd grade for these years can be addressed by re-purposing the existing Spanish classroom as a general classroom and delivering the Spanish program in general classrooms.
- With the exception of dedicated space for Spanish, it appears that each of the existing specials can remain in their dedicated spaces and accommodate both the enrollment forecast and the implementation of full-day kindergarten.
- No renovations, additions, or modulars appear to be needed over the span of the enrollment forecast.
- Should the District chose to convert the Technology Lab to a general classroom, the conceptual cost would be $165,000.
Study To Implement Full Day Kindergarten – Needham Public Schools

Enrollment Forecast

The enrollment chart below represents the K-5 enrollment forecast as prepared by McKibben Demographics with one exception, the Kindergarten forecast has been increased by 7.5% to reflect the likely return of students to Needham Public Schools once its Full Day Kindergarten program goes into effect. Class size calculations and classroom count calculations were based on this adjusted forecast. The McKibben forecast is provided as an appendix. Similarly, the year-by-year and grade level by grade level calculations are provided as another appendix. Please refer to those for more information.

Building Capacity

For elementary schools, the building capacity algorithm is based on the number of grade level classrooms. Broadmeadow has typically been a four section school. As such, it has a typical capacity of 4 sections per grade level or 24 sections total or a capacity of 544 students. This capacity could be increased slightly by converting dedicated spaces for Technology, Spanish, Art, and Music to grade level classrooms. It is important to note, however, that Broadmeadow is incapable of functioning as fully five section per grade level school without additional spaces. Fortunately, Dore & Whittier’s space needs analysis revealed that Broadmeadow had a peak need of 25 total sections in any one year of the forecast.

4 Sections Per Grade Level x 4 Grade Levels x 22 students = 352 Students
+ 4 Sections Per Grade Level x 2 Grade Levels x 24 students = 192 Students
544 Students
Class Size Calculations

The chart below communicates information about class sizes across the enrollment forecast. Reported are the District’s class size guidelines, data for Broadmeadow as a four or five section school, and the minimum, average, and maximum class sizes experienced over the enrollment forecast. A red shading indicates a data point where the District’s class size guidelines are exceeded. The darker the shade of red, the further beyond the guideline. In general, the data suggests that Broadmeadow can function as a predominately 4 section school and keep its class sizes within its guidelines. Third grade is the exception. Over the entire projection, the average class size for third grade is slightly above the guidelines, which is why our space needs analysis indicates a need for five sections for third grade in certain years.

<table>
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<th>Number of Sections</th>
<th>Min</th>
<th>AVG</th>
<th>MAX</th>
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<td>15.91</td>
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<td>22.23</td>
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<td></td>
<td>5</td>
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<td>16.40</td>
<td>17.80</td>
<td>18.40</td>
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</table>
Existing Space Use Floor Plans

The images below depict the current use for each space.
Existing Grade Level Classroom Locations

The shaded areas below depict the current location of grade level classrooms. In total, 24 spaces are occupied by grade level classrooms.
Existing Dedicated Specials, Candidates for Conversion to Grade Level Classrooms

The shaded areas below depict the current location of spaces dedicated to specials like Art, Music, Spanish, and Technology with the potential to be converted to grade level classrooms if the special no longer had dedicated space. In total, 4 spaces demonstrate potential to be converted to grade level classrooms. Should conversion become necessary, the likely sequence of conversion would be:

1st = Spanish, 2nd = Music, 3rd = Technology, and 4th Art

Broadmeadow is one of two schools with dedicated Spanish space. It is the easiest to deliver in a grade level classroom. Music could be delivered in the Performance Center, although that would put pressure on STEAM and professional development. Technology could be delivered on Chrome carts, but may require minor renovation to convert that space. Art would be last because it has the most storage and infrastructure needs of the specials. It is important to note, that the space needs analysis reveals a potential need to convert only one of these dedicated specials to a grade level classroom.
Space Needs Analysis

The graphics below illustrate Broadmeadow’s classroom need over the course of the enrollment forecast assuming maximum class sizes of 23 students per section for grades K through 3rd and 25 for grades 4th and 5th. Each box represents a potential classroom section. Colored boxes represent when a classroom section is needed. The dashed line represents the capacity of the building without re-purposing space. The dedicated specials boxes above the dashed line represent spaces available for potential conversion to grade level classrooms. For Broadmeadow this analysis revealed a need to have five sections of 3rd grade for a span of five years near the middle of the forecast, which could be accommodated by allowing Spanish to be delivered in grade level classrooms and without dedicated space.
In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. The table below examines how many rooms are necessary to deliver each of the specials in the peak enrollment condition. Our analysis reveals that one dedicated space for Art, Music, Spanish and Media are necessary - which currently exist. As discussed previously, Spanish may need to be delivered on cart in order to be converted to a grade level classroom. In addition, the analysis reveals the Chorus and STEAM require less than one dedicated classroom combined, which can be accommodated by the technology space and the Performance Center as is currently the practice. Finally, the analysis reveals a need for two full PE stations, which can be accommodated by the current gymnasium.

### Sections of Specials by Grade Level

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<tr>
<th></th>
<th>ART</th>
<th>MUSIC</th>
<th>CHORUS</th>
<th>SPANISH</th>
<th>MEDIA</th>
<th>STEAM</th>
<th>PE</th>
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<tr>
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<td>1</td>
<td>0.5</td>
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In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. Based on conversations with the school principal and the District’s director of food service, the cafeteria, kitchen, and playgrounds appear to be capable of supporting the implementation of full-day kindergarten and the enrollment forecast.

### Additions/Renovations and Modulars Under Consideration

Broadmeadow is unlikely to require any renovations or modulars to implement full-day kindergarten and absorb the expected enrollment increase. Dore & Whittier has, however, prepared a preliminary cost estimate associated with converting the existing Technology classroom to a grade level classroom. The estimate is shown in total project costs and includes escalation. Additional details about this estimate are provided as an appendix.

Existing Technology Lab Renovations = $165,000
Eliot School

Overview

- Eliot has 17 general classrooms currently, but one dedicated space to the KASE program.
- Eliot appears to be well positioned to both implement Full-Day Kindergarten and accommodate the enrollment forecast in 2019-2020.
- Eliot will require a combination of three and four sections per grade level to maintain the District’s class size guidelines - with several years of all six grades needing four sections without any redistricting.
- Enrollment forecast data suggests Eliot will require four sections of Kindergarten beginning in 2023-2024 and fully 4 section school by 2029-2030 without redistricting.
- The spatial deficiency created by the need for six additional sections, one per grade level, can be partially addressed by re-purposing the existing KASE classroom as a general classroom. The remaining deficiencies would require additional space in the form of modular classrooms or redistricting or both.
- Spatial deficiencies at Eliot may also be addressed by a potential major project at Mitchell depending on the timing of that project and assuming participation by the MSBA.
- A holistic view of the District reveals that there may be a possibility to leverage redistricting toward Mitchell to help address some of these deficiencies, but additional analysis is needed.
- Dore & Whittier has prepared a preliminary cost estimate to place six modulars on the Eliot site.
- Should the District chose to convert the Technology Lab to a general classroom, the conceptual cost would be $165,000.
Enrollment Forecast

The enrollment chart below represents the K-5 enrollment forecast as prepared by McKibben Demographics with one exception, the Kindergarten forecast has been increased by 7.5% to reflect the likely return of students to Needham Public Schools once its Full Day Kindergarten program goes into effect. Class size calculations and classroom count calculations were based on this adjusted forecast. The McKibben forecast is provided as an appendix. Similarly, the year-by-year and grade level by grade level calculations are provided as another appendix. Please refer to those for more information.

![Enrollment Forecast Chart]

Building Capacity

For elementary schools, the building capacity algorithm is based on the number of grade level classrooms. Eliot has typically been a three section school. As such, it has a typical capacity of 3 sections per grade level or 18 sections total or a capacity of 408 students, including the one room currently occupied by KASE. This capacity could be increased slightly by converting dedicated spaces for Technology, Art, and Music to grade level classrooms. It is important to note, however, that Eliot is incapable of functioning as fully four section per grade level school without additional spaces.

3 Sections Per Grade Level x 4 Grade Levels x 22 students = 264 Students
+ 3 Sections Per Grade Level x 2 Grade Levels x 24 students = 144 Students
408 Students
Class Size Calculations

The chart below communicates information about class sizes across the enrollment forecast. Reported are the District’s class size guidelines, data for Eliot as a three or four section school, and the minimum, average, and maximum class sizes experienced over the enrollment forecast. A red shading indicates a data point where the District’s class size guidelines are exceeded. The darker the shade of red, the further beyond the guideline. In general, the data suggests that Eliot cannot function as a predominately 3 section school and keep its class sizes within its guidelines. Four sections are needed at all grade levels at some point in the enrollment forecast. In fact, as a three section school, the average class sizes over the enrollment forecast exceed the District’s guidelines for all grade levels.

<table>
<thead>
<tr>
<th>Class Size Guideline</th>
<th>Number of Sections</th>
<th>Min</th>
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At Or Below Guideline

8 student or more Above Guideline
Existing Space Use Floor Plans

The images below depict the current use for each space.
Existing Grade Level Classroom Locations

The shaded areas below depict the current location of grade level classrooms. In total, 17 spaces are occupied by grade level classrooms.
Existing Dedicated Specials, Candidates for Conversion to Grade Level Classrooms

The shaded areas below depict the current location of spaces dedicated to specials like Art, Music, and Technology with the potential to be converted to grade level classrooms if the special no longer had dedicated space. In total, 4 spaces demonstrate potential to be converted to grade level classrooms. Should conversion become necessary, the likely sequence of conversion would be:

1st = KASE, 2nd = Music, 3rd = Technology, and 4th Art

Eliot is one of three schools with dedicated KASE space. It is the easiest to convert to a grade level classroom because the program would be discontinued. Music could be delivered in the Performance Center, although that would put pressure on STEAM and professional development. Technology could be delivered on Chrome carts, but may require minor renovation to convert that space. Art would be last because it has the most storage and infrastructure needs of the specials. While converting all four of these spaces to grade level classrooms is a potential solution for the expected spatial deficiency, it would leave an entire school without any dedicated space for specials. A more appropriate solution would be to add space via modular classrooms or through redistricting.
Space Needs Analysis

The graphics below illustrate Eliot’s classroom need over the course of the enrollment forecast assuming maximum class sizes of 23 students per section for grades K through 3rd and 25 for grades 4th and 5th. Each box represents a potential classroom section. Colored boxes represent when a classroom section is needed. The dashed line represents the capacity of the building without re-purposing space. The dedicated specials boxes above the dashed line represent spaces available for potential conversion to grade level classrooms. For Eliot, this analysis revealed a need to have four sections of kindergarten beginning in 2023-24 and a need to accommodate four sections per grade level at all grades beginning in 2029-2030.
In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. The table below examines how many rooms are necessary to deliver each of the specials in the peak enrollment condition. Our analysis reveals that one dedicated space for Art, Music, Spanish and Media are necessary - which currently exist for Art and Music. Spanish may need to continue to be delivered on cart. In addition, the analysis reveals the Chorus and STEAM require less than one dedicated classroom combined, which can be accommodated by the technology space and the Performance Center as is currently the practice. Finally, the analysis reveals a need for two full PE stations, which can be accommodated by the current gymnasium.

<table>
<thead>
<tr>
<th>Sections of Specials by Grade Level</th>
<th>ART</th>
<th>MUSIC</th>
<th>CHORUS</th>
<th>SPANISH</th>
<th>MEDIA</th>
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In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. Based on conversations with the school principal and the District’s director of food service, the cafeteria and kitchen appear to be capable of supporting the implementation of full-day kindergarten and the enrollment forecast, but there may be a need to expand the Cafeteria seating area into the Performance Center using the folding partition. Due to an already tight site, there may be challenges related to the playgrounds. The area currently dedicated for younger students may not be capable of supporting two additional sections of kindergarten at the same time.
Additions/Renovations and Modulars Under Consideration

A number of potential solutions exist to address Eliot’s anticipated space needs. Dore & Whittier has prepared preliminary cost estimates associated with converting the existing Technology classroom to a grade level classroom and to place six modular classrooms on the site, assuming redistricting cannot occur. The estimates are shown in total project costs and include escalation. Additional details about these estimates are provided as an appendix.

- Existing Technology Lab Renovations = $165,000
- Six 1200 SF Modular Classrooms = $3.73 M

The site plan below depicts approximately where six modulars, stacked two stories high could go. Additional study is required to confirm this as a viable location and to refine a cost estimate.
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Mitchell School

Overview

- Mitchell has 22 general classrooms currently, but two are housed in temporary modular space.
- Mitchell possesses spatial deficiencies in PE and Special Education would remain and would not be addressed without additional space.
- Other than the deficiencies related to PE and Special Education, Mitchell appears to be well positioned to both implement Full-Day Kindergarten and accommodate the enrollment forecast in 2019-2020, but Art will likely be displaced and without dedicated space beginning in 2019-2020.
- Enrollment forecast data suggests Mitchell will require four sections grade level for the bulk of the enrollment forecast, but appears to transition to a fully three section per grade school beginning in 2030-2031, which may permit some redistricting to occur to address the spatial deficiencies expect at Eliot around the same time.
- Spatial deficiencies at Mitchell may also be addressed by a potential major project at Mitchell depending on the timing of that project and assuming participation by the MSBA.
- A holistic view of the District reveals that there may be a possibility to leverage redistricting toward Mitchell to help address some of these deficiencies, but additional analysis is needed.
- Dore & Whittier has prepared a preliminary cost estimate to address the spatial deficiencies:
  - Place two modulars on the Mitchell site to address the Art and Special Education deficiencies.
  - Place a pre-engineered building to address the PE deficiencies and renovate the existing gym to address the Art and special education deficiencies.
  - Place a sprung structure building to address the PE deficiencies and renovate the existing gym to address the Art and special education deficiencies.
  - Renovate a lower level storage space and place a small elevator/stair addition to address Art deficiencies.
Study To Implement Full Day Kindergarten – Needham Public Schools

Enrollment Forecast

The enrollment chart below represents the K-5 enrollment forecast as prepared by McKibben Demographics with one exception, the Kindergarten forecast has been increased by 7.5% to reflect the likely return of students to Needham Public Schools once its Full Day Kindergarten program goes into effect. Class size calculations and classroom count calculations were based on this adjusted forecast. The McKibben forecast is provided as an appendix. Similarly, the year-by-year and grade level by grade level calculations are provided as another appendix. Please refer to those for more information.

Building Capacity

For elementary schools, the building capacity algorithm is based on the number of grade level classrooms. Mitchell has typically been a four section school. As such, it has a capacity for 22 total sections. Two of those sections are currently in modulars or a capacity of 500 students. This capacity could be increased slightly by converting dedicated spaces for KASE, Art, and Music to grade level classrooms. McKibben’s enrollment forecast suggests that Art will be without dedicated space beginning in 2019-2020, but no other losses of dedicated spaces will be necessary. In fact, a potential existing to regain a dedicated Art space beginning in 2026-2027 and additional dedicated special education space beginning in 2028-2029.

\[
\text{2 Sections Per Grade Level x 1 Grade Levels x 22 students} = 44 \text{ Students} \\
\text{4 Sections Per Grade Level x 3 Grade Levels x 22 students} = 264 \text{ Students} \\
+ \text{4 Sections Per Grade Level x 2 Grade Levels x 24 students} = 192 \text{ Students} \\
\text{500 Students}
\]
Class Size Calculations

The chart below communicates information about class sizes across the enrollment forecast. Reported are the District’s class size guidelines, data for Mitchell as a three or four section school, and the minimum, average, and maximum class sizes experienced over the enrollment forecast. A red shading indicates a data point where the District’s class size guidelines are exceeded. The darker the shade of red, the further beyond the guideline. In general, the data suggests that Mitchell can function as a predominately four section school and keep its class sizes within its guidelines. Due to its declining enrollment forecast, Mitchell may become a fully three section per grade school in 2030-31 making it possible to recapture dedicated space for Art, special education, and with the potential to redistrict from Eliot to address spatial needs there expected about the same time.

### Class Size Calculations

<table>
<thead>
<tr>
<th>Class</th>
<th>Class Guideline</th>
<th>Number of Sections</th>
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<th>AVG</th>
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</table>

At Or Below Guideline  8 student or more Above Guideline
Existing Space Use Floor Plans

The images below depict the current use for each space.
Existing Grade Level Classroom Locations

The shaded areas below depict the current location of grade level classrooms. In total, 22 spaces are occupied by grade level classrooms. Two of which are located in the modular classroom building. Once KASE and Art are repurposed for kindergarten, the building will have 24 spaces dedicated to grade level classrooms.
Existing Dedicated Specials, Candidates for Conversion to Grade Level Classrooms

The shaded areas below depict the current location of spaces dedicated to specials like Art, Music, and KASE with the potential to be converted to grade level classrooms if the special no longer had dedicated space. In total, 3 spaces demonstrate potential to be converted to grade level classrooms. Should conversion become necessary, the likely sequence of conversion would be:

\[1st = \text{KASE}, \ 2nd = \text{Art}, \ 3rd = \text{Music}\]

Unlike some of the other facilities, the fourth section of Kindergarten should be located in the modular building, which would displace Art before music despite it requiring more infrastructure and storage needs.
Space Needs Analysis

The graphics below illustrate Mitchell’s classroom need over the course of the enrollment forecast assuming maximum class sizes of 23 students per section for grades K through 3rd and 25 for grades 4th and 5th. Each box represents a potential classroom section. Colored boxes represent when a classroom section is needed. The dashed line represents the capacity of the building without re-purposing space. The dedicated specials boxes above the dashed line represent spaces available for potential conversion to grade level classrooms. For Mitchell, this analysis revealed a need to have four sections of kindergarten beginning in 2019-2020 but a shift to three sections per grade level at all grades beginning in 2030-2031.
In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. The table below examines how many rooms are necessary to deliver each of the specials in the peak enrollment condition. Our analysis reveals that one dedicated space for Art, Music, Spanish and Media are necessary - which currently exist for Art and Music. Spanish may need to continue to be delivered on cart. In addition, the analysis reveals the Chorus and STEAM require less than one dedicated classroom combined, which can be accommodated by the existing Music space and the Media Center as is currently the practice. Finally, the analysis reveals a need for two full PE stations, which cannot be accommodated by the current gymnasium.

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<th>Sections of Specials by Grade Level</th>
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<td>3rd</td>
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<td>5th</td>
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<tr>
<td>Need</td>
</tr>
<tr>
<td>Existing</td>
</tr>
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</table>

In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials, for special education, and for the capacity of the cafeteria, kitchen, and playgrounds. Based on conversations with the school principal and the District’s director of food service, the cafeteria and kitchen appear to be capable of supporting the implementation of full-day kindergarten and the enrollment forecast. Some special education functions are housed in former student toilet rooms with no direct connection to a circulation path. Special education programs could benefit from additional dedicated space within the main building. Placing two modulars to serve Art and Music respectively may allow the existing Music classroom to be re-purposed to house special education programs.
Additions/Renovations and Modulars Under Consideration

A number of potential solutions exist to address Mitchell’s anticipated space needs. Dore & Whittier has prepared the following preliminary cost estimates to address Mitchell’s spatial deficiencies. The estimates are shown in total project costs and include escalation. Additional details about these estimates are provided as an appendix.

- Fabric Structure Gymnasium and Renovation of Existing Gym into Art and Music = $2.07 M
- Pre-engineered Gymnasium and Renovation of Existing Gym into Art and Music = $2.40 M
- Renovate Storage Space to serve Art and Place an Addition for Elevator and Stair = $1.35M
- Two 1200 SF Modular Classrooms = $1.25 M
- Renovate Existing KASE Classrooms = $125,000

The site plan below depicts approximately where two modulars or a temporary gym could go. Additional study is required to confirm this as a viable location and to refine a cost estimate. The existing KASE space requires renovation during the summer of 2019 to remove the demising wall and convert it to kindergarten use. Also the furniture in the Art Classroom will need to be moved into storage to make way for the fourth Kindergarten.
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Newman School

Overview

- Newman has 30 general classrooms currently and houses the District’s Pre-K program, which is assumed to continue.
- Newman appears to be well positioned to both implement Full-Day Kindergarten and accommodate the enrollment forecast in 2019-2020.
- Enrollment forecast data suggests Newman will require five and six sections grade level for the bulk of the enrollment forecast.
- Spatial deficiencies at Newman may also be addressed by re-purposing existing KASE classrooms, Art, and two additional classroom-sized spaces identified by the school Principal as not needing full sized classroom space.
- No renovations, additions, or modulars appear to be needed over the span of the enrollment forecast.
Enrollment Forecast

The enrollment chart below represents the K-5 enrollment forecast as prepared by McKibben Demographics with one exception, the Kindergarten forecast has been increased by 7.5% to reflect the likely return of students to Needham Public Schools once its Full Day Kindergarten program goes into effect. Class size calculations and classroom count calculations were based on this adjusted forecast. The McKibben forecast is provided as an appendix. Similarly, the year-by-year and grade level by grade level calculations are provided as another appendix. Please refer to those for more information.

Building Capacity

For elementary schools, the building capacity algorithm is based on the number of grade level classrooms. Newman has typically been a five and six section school. As such, it has a capacity for 30 total sections or a capacity of 682 students. This capacity could be increased slightly by converting dedicated spaces for KASE, Art, and and two classroom spaces housing special education function which do not require full sized classrooms to grade level classrooms. McKibben’s enrollment forecast suggests that the two classroom spaces and the two other classroom sized spaces will be necessary beginning in 2020-2021. but no other losses of dedicated spaces will be necessary. In fact, a potential existing to regain a those spaces beginning in 2023-2024.

4 Sections Per Grade Level x 1 Grade Levels x 22 Students = 88 Students
5 Sections Per Grade Level x 3 Grade Levels x 22 Students = 330 Students
6 Sections Per Grade Level x 1 Grade Levels x 24 Students = 144 Students
+ 5 Sections Per Grade Level x 1 Grade Levels x 24 Students = 120 Students
682 Students
Class Size Calculations

The chart below communicates information about class sizes across the enrollment forecast. Reported are the District’s class size guidelines, data for Newman as a five or six section school, and the minimum, average, and maximum class sizes experienced over the enrollment forecast. A red shading indicates a data point where the District’s class size guidelines are exceeded. The darker the shade of red, the further beyond the guideline. In general, the data suggests that Newman can function as a predominately five section school and keep its class sizes within its guidelines.

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At Or Below Guideline

8 student or more Above Guideline
Existing Space Use Floor Plans

The images below depict the current use for each space.
Existing Grade Level Classroom Locations

The shaded areas below depict the current location of grade level classrooms. In total, 30 spaces are occupied by grade level classrooms.
Existing Dedicated Specials, Candidates for Conversion to Grade Level Classrooms

The shaded areas below depict the current location of spaces dedicated to specials like Art, KASE, and two classroom-sized special education spaces with the potential to be converted to grade level classrooms if the special no longer had dedicated space and if the special education functions moved into more size appropriate (smaller) space. In total, 6 spaces demonstrate potential to be converted to grade level classrooms. Should conversion become necessary, the likely sequence of conversion would be:

1st = KASE, 2nd = Special Education, 3rd = Art

Dore & Whittier also explored the possibility of converting the Science Center to Art Classrooms, but deemed there was no location within the District capable of housing the program.
Space Needs Analysis

The graphics below illustrate Newman’s classroom need over the course of the enrollment forecast assuming maximum class sizes of 23 students per section for grades K through 3rd and 25 for grades 4th and 5th. Each box represents a potential classroom section. Colored boxes represent when a classroom section is needed. The dashed line represents the capacity of the building without re-purposing space. The dedicated specials boxes above the dashed line represent spaces available for potential conversion to grade level classrooms. For Newman, this analysis revealed a need to have five sections of kindergarten beginning in 2019-2020 and an occasional need for six sections at some grade levels in some years.
In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. The table below examines how many rooms are necessary to deliver each of the specials in the peak enrollment condition. Our analysis reveals that a little more than one dedicated space for Art, Music, Spanish and Media are necessary - which currently exist for Art and Music. Spanish may need to continue to be delivered on cart. In addition, the analysis reveals the Chorus and STEAM require less than one dedicated classroom each, which can be accommodated by the existing stage space and the Technology Center as is currently the practice. Finally, the analysis reveals a need for slightly more than two full PE stations, which can be accommodated by the current gymnasium.

<table>
<thead>
<tr>
<th>ART</th>
<th>MUSIC</th>
<th>CHORUS</th>
<th>SPANISH</th>
<th>MEDIA</th>
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In addition to analyzing space needs for general classrooms, Dore & Whittier examined the capacity of the cafeteria, kitchen, and playgrounds. Based on conversations with the school principal and the District’s director of food service, the cafeteria and kitchen appear to be capable of supporting the implementation of full-day kindergarten and the enrollment forecast.

**Additions/Renovations and Modulars Under Consideration**

Newman is unlikely to require any renovations or modulars to implement full-day kindergarten and absorb the expected enrollment increase.
Sunita L. Williams School

Overview

- Sunita L. Williams, once completed, will have 24 general classrooms.
- Sunita L. Williams appears to be well positioned to both implement Full-Day Kindergarten and accommodate the enrollment forecast in 2019-2020.
- Enrollment forecast data suggests Sunita L. Williams will require four sections per grade level for the entirety of the enrollment forecast.
- Sunita L. Williams, once completed will have dedicated space for Art, Music, Spanish, and STEAM. Should the District need to redistrict, Spanish and STEAM spaces may be candidates for conversion to grade level classrooms as many other schools do not have dedicated space for those programs.
- No renovations, additions, or modulars appear to be needed over the span of the enrollment forecast.
Study To Implement Full Day Kindergarten – Needham Public Schools

Sunita L. Williams School

Enrollment Forecast

The enrollment chart below represents the K-5 enrollment forecast as prepared by McKibben Demographics with one exception, the Kindergarten forecast has been increased by 7.5% to reflect the likely return of students to Needham Public Schools once its Full Day Kindergarten program goes into effect. Class size calculations and classroom count calculations were based on this adjusted forecast. The McKibben forecast is provided as an appendix. Similarly, the year-by-year and grade level by grade level calculations are provided as another appendix. Please refer to those for more information.

![Enrollment Forecast Graph]

Building Capacity

For elementary schools, the building capacity algorithm is based on the number of grade level classrooms. Sunita L. Williams has typically been a three and four section school. It has, however, been designed as a four section school for all grade levels. As such, it has a capacity for 4 sections per grade level or a capacity of 544 students. This capacity could be increased slightly by converting dedicated spaces for Spanish and STEAM should the District choose to redistrict. Otherwise, the new facility is sized appropriately to accommodate both the implementation of full-day kindergarten and the enrollment forecast.

\[
4 \text{ Sections Per Grade Level} \times 4 \text{ Grade Levels} \times 22 \text{ students} = 352 \text{ Students} \\
+ 4 \text{ Sections Per Grade Level} \times 2 \text{ Grade Levels} \times 24 \text{ students} = 192 \text{ Students} \\
= 544 \text{ Students}
\]
Class Size Calculations

The chart below communicates information about class sizes across the enrollment forecast. Reported are the District’s class size guidelines, data for Sunita L. Williams as a three or four section school, and the minimum, average, and maximum class sizes experienced over the enrollment forecast. A red shading indicates a data point where the District’s class size guidelines are exceeded. The darker the shade of red, the further beyond the guideline. In general, the data suggests that Sunita L. Williams can function as a predominately four section school and keep its class sizes within its guidelines, but could not function as a three section per grade school without severely exceeding the guidelines. The new school is appropriately sized as a four section school.

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<td>22.66</td>
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At Or Below Guideline | 8 student or more Above Guideline
Existing Space Use Floor Plans

The images below depict the planned use for each space. As this facility is currently under construction, these are programmatic floor plans from the design phases of the project. There are no current plans to alter the space use of the facility.
The graphics below illustrate Sunita L. Williams’s classroom need over the course of the enrollment forecast assuming maximum class sizes of 23 students per section for grades K through 3rd and 25 for grades 4th and 5th. Each box represents a potential classroom section. Colored boxes represent when a classroom section is needed. The dashed line represents the capacity of the building without re-purposing space. The dedicated specials boxes above the dashed line represent spaces available for potential conversion to grade level classrooms. For Sunita L. Williams, this analysis revealed a need to have four sections of kindergarten beginning in 2019-2020.
In addition to analyzing space needs for general classrooms, Dore & Whittier examined spatial needs for the specials and for the capacity of the cafeteria, kitchen, and playgrounds. The table below examines how many rooms are necessary to deliver each of the specials in the peak enrollment condition. Our analysis reveals one dedicated space for Art, Music, Spanish and Media are necessary - which will exist once completed. In addition, the analysis reveals the Chorus and STEAM require a little more than one dedicated classroom combined, which can be accommodated by the stage space and the STEAM classroom respectively. Finally, the analysis reveals a need for slightly less than two full PE stations, which can be accommodated by the gymnasium.

### Sections of Specials by Grade Level

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<th></th>
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<th>CHORUS</th>
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In addition to analyzing space needs for general classrooms, Dore & Whittier examined the capacity of the cafeteria, kitchen, and playgrounds. Since Sunita L. Williams was planned to accommodate full-day kindergarten and the anticipated enrollment growth, the capacities of these features are appropriate and do not require modification.

**Additions/Renovations and Modulars Under Consideration**

Sunita L. Williams is unlikely to require any renovations or modulars to implement full-day kindergarten and absorb the expected enrollment increase.
### Enrollment Forecast

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Total K-5: 548

*Includes 7.5% increase over and above the McKibben projection for Kindergarten to account for the planned change to offer full-day kindergarten.

### Capacity Calculations

**4 Sections Per Grade Level**

- 4 Sections x 4 Grade Levels x 22 = 352
- + 4 Sections x 2 Grade Levels x 24 = 192

**Total Capacity:** 544

### Classroom Size Calculations

#### Proposed Sections

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#### Class Size Guidelines

- **Min:** 18-22
- **AVG:** 19.89
- **MAX:** 21.06

### Classroom Count Calculations

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## Capacity Calculations

### 3 Sections Per Grade Level

3 Sections x 4 Grade Levels x 22 = 264  
+ 3 Sections x 2 Grade Levels x 24 = 144  
408

*Includes 7.5% increase over and above the McKibben projection for Kindergarten to account for the planned change to offer full-day kindergarten.

### Classroom Size Calculations

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## Capacity Calculations

### Capacity Calculations

#### 4 Sections x 4 Grade Levels x 22 = 352

#### + 4 Sections x 2 Grade Levels x 24 = 192

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### Enrollment Forecast*

#### Classroom Size Calculations

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### Classroom Count Calculations

#### At Or Below Guideline

#### 2 student or more Above Guideline

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### Capacity and Forecast Elementary School
Capacity Calculations

4 Sections Per Grade Level
2 Sections x 1 Grade Levels x 22 = 44
4 Sections x 3 Grade Levels x 22 = 264
+ 4 Sections x 2 Grade Levels x 24 = 192
500

Enrollment Forecast*

Classroom Size Calculations

Classroom Count Calculations
## Capacity Calculations

### Capacity Calculations

#### 5 Sections Per Grade Level

**4 Sections x 1 Grade Levels x 22 = 88**

**5 Sections x 3 Grade Levels x 22 = 330**

**6 Sections x 1 Grade Levels x 24 = 144**

**6 Sections x 1 Grade Levels x 24 = 144**

*Includes 7.5% increase over and above the McKibben projection for Kindergarten to account for the planned change to offer full-day kindergarten.

### Classroom Size Calculations

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<td>Mitchell Elementary School Modular Classrooms</td>
<td>Two 1200 sf Modular Classrooms</td>
<td>$1,251,000</td>
</tr>
<tr>
<td>Mitchell Basement Art Room</td>
<td>Existing Storage Room Renovation</td>
<td>$1,348,500</td>
</tr>
<tr>
<td>Mitchell Pre-engineered Gymnasium</td>
<td>Temporary Pre-engineered Steel Gymnasium</td>
<td>$2,404,450</td>
</tr>
<tr>
<td>Mitchell Fabric Structure Gymnasium</td>
<td>Temporary Pre-engineered Steel Gymnasium</td>
<td>$2,069,500</td>
</tr>
<tr>
<td>Mitchell Elementary School Renovations Only</td>
<td>Renovate Existing KASE Classrooms</td>
<td>$125,000</td>
</tr>
<tr>
<td>Eliot Elementary School Modular Classrooms</td>
<td>Six 1200 sf Modular Classrooms</td>
<td>$3,728,750</td>
</tr>
<tr>
<td>Broadmeadow Elementary School Renovations</td>
<td>Existing Technology Lab Renovations</td>
<td>$164,500</td>
</tr>
</tbody>
</table>
## Mitchell Elementary School Modular Classrooms

Needham, Massachusetts

### Two 1200 sf Modular Classrooms

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site, Modulars and Renovation Construction Cost</td>
<td>$ 695,000</td>
<td></td>
</tr>
<tr>
<td>(2) Modular Classrooms with toilet rooms</td>
<td>$ 540,000</td>
<td>3600sf @ $150/sf</td>
</tr>
<tr>
<td>Existing KASE Renovations</td>
<td>$ 30,000</td>
<td>1200sf @ $25/sf</td>
</tr>
<tr>
<td>Ramps, Stairs, Canopy</td>
<td>$ 50,000</td>
<td></td>
</tr>
<tr>
<td>Sitework</td>
<td>$ 75,000</td>
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</table>

### Estimated Contingencies and Escalation:

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalation (5%)</td>
<td>$ 34,750</td>
<td>1 year</td>
</tr>
<tr>
<td>Design Contingency (10%)</td>
<td>$ 69,500.0</td>
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</tr>
<tr>
<td>Construction Contingency (10%)</td>
<td>$ 69,500.0</td>
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</tr>
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<td>Owner Contingency (5%)</td>
<td>$ 34,750.0</td>
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</table>

### Estimated Soft Costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>$ 190,000</td>
</tr>
<tr>
<td>Modular Location Study</td>
<td>$ 25,000</td>
</tr>
<tr>
<td>Arch, Site, MEP, Costs, FFE</td>
<td>$ 165,000</td>
</tr>
<tr>
<td>Investigative Work</td>
<td>$ 35,000</td>
</tr>
<tr>
<td>Survey</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$ 10,000</td>
</tr>
<tr>
<td>Permitting</td>
<td>$ 10,000</td>
</tr>
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</table>

### Owner's Direct Costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner's Project Manager</td>
<td>$ 25,000</td>
</tr>
<tr>
<td>Bid Document Printing</td>
<td>$ 2,500</td>
</tr>
<tr>
<td>Construction Testing</td>
<td>$ 10,000</td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>$ 75,000</td>
</tr>
<tr>
<td>Misc Expenses</td>
<td>$ 10,000</td>
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</table>

### Total Estimated Project Costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
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</thead>
<tbody>
<tr>
<td>Total Estimated Project Costs</td>
<td>$ 1,251,000</td>
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Dore Whittier Architects
Newburyport, Massachusetts
<table>
<thead>
<tr>
<th>Proposed Project Schedule</th>
<th>DRAFT</th>
<th>2/1/2018</th>
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<tbody>
<tr>
<td>Mitchell Elementary School Modular Classrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needham, Massachusetts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two 1200 sf Modular Classrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring Town Meeting - Study through Bidding Funding</strong></td>
<td>May-18</td>
<td></td>
</tr>
<tr>
<td>Modular Location Study</td>
<td>5/18 - 6/18</td>
<td></td>
</tr>
<tr>
<td>Schematic Design</td>
<td>7/18 - 8/18</td>
<td></td>
</tr>
<tr>
<td>Construction Documents/Cost Estimate</td>
<td>9/18 - 10/18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall Town Meeting - Construction Funding</strong></td>
<td>Oct-18</td>
<td></td>
</tr>
<tr>
<td>Finalize Construction Bid Documents</td>
<td>10/18 - 11/18</td>
<td></td>
</tr>
<tr>
<td>Bidding</td>
<td>12/18 - 1/19</td>
<td></td>
</tr>
<tr>
<td>Construction Award</td>
<td>Feb-19</td>
<td></td>
</tr>
<tr>
<td>Modular Prefabrication</td>
<td>2/19 - 5/19</td>
<td>Offsite construction</td>
</tr>
<tr>
<td>Site Development, Modular Installation, Renovations</td>
<td>6/19 - 8/19</td>
<td>Summer vacation</td>
</tr>
<tr>
<td>FF&amp;E Installation</td>
<td>Aug-19</td>
<td></td>
</tr>
<tr>
<td><strong>Occupancy</strong></td>
<td>Sep-19</td>
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</table>

Dore Whittier Architects
Newburyport, Massachusetts
## Mitchell Basement Art Room

**Needham, Massachusetts**

### Existing Storage Room Renovation

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convert Exist Basement Storage to and Art Room</td>
<td>$ 700,000</td>
<td></td>
</tr>
<tr>
<td>Renovation</td>
<td>$ 300,000</td>
<td>2,000sf @ $150/sf</td>
</tr>
<tr>
<td>Two Stop Elevator</td>
<td>$ 300,000</td>
<td>900sf @ $50/sf</td>
</tr>
<tr>
<td>Second Egress Stair</td>
<td>$ 100,000</td>
<td></td>
</tr>
<tr>
<td>KASE Classroom Renovation Project Cost</td>
<td>$ 125,000</td>
<td>Reno only costs</td>
</tr>
<tr>
<td><strong>Estimated Contingencies and Escalation:</strong></td>
<td>$ 245,000</td>
<td>Estimated 1 year</td>
</tr>
<tr>
<td>Escalation (5% per annum)</td>
<td>$ 35,000</td>
<td></td>
</tr>
<tr>
<td>Design Contingency (10%)</td>
<td>$ 70,000.0</td>
<td></td>
</tr>
<tr>
<td>Construction Contingency (10%)</td>
<td>$ 70,000.0</td>
<td></td>
</tr>
<tr>
<td>Owner Contingency (10%)</td>
<td>$ 70,000.0</td>
<td></td>
</tr>
<tr>
<td><strong>Estimated Soft Costs:</strong></td>
<td>$ 196,000</td>
<td></td>
</tr>
<tr>
<td>Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arch, Site, MEP, Costs, FFE</td>
<td>$ 161,000</td>
<td></td>
</tr>
<tr>
<td>Investigative Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey</td>
<td>$ 15,000</td>
<td></td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td>Permitting</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td><strong>Owner's Direct Costs:</strong></td>
<td>$ 82,500</td>
<td></td>
</tr>
<tr>
<td>Owner's Project Manager</td>
<td>$ 25,000</td>
<td></td>
</tr>
<tr>
<td>Bid Document Printing</td>
<td>$ 2,500</td>
<td></td>
</tr>
<tr>
<td>Construction Testing</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>$ 35,000</td>
<td></td>
</tr>
<tr>
<td>Misc Expenses</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Estimated Project Costs:</strong></td>
<td>$ 1,348,500</td>
<td></td>
</tr>
</tbody>
</table>
## Project Budget Worksheet

**Mitchell Pre-engineered Gymnasium**
**Needham, Massachusetts**

### Temporary Pre-engineered Steel Gymnasium

<table>
<thead>
<tr>
<th>Temporary Gym and Existing Gym Renovation</th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>$ 700,000</td>
<td>7,000sf @ $100/sf</td>
</tr>
<tr>
<td>Renovate Exist Gym into (2) classrooms</td>
<td>$ 600,000</td>
<td>4,000sf @ $150/sf</td>
</tr>
<tr>
<td>Hoops, curtain, seating, etc</td>
<td>$ 50,000</td>
<td>900sf @ $50/sf</td>
</tr>
<tr>
<td>Site (10%)</td>
<td>$ 70,000</td>
<td></td>
</tr>
<tr>
<td><strong>KASE Classroom Renovation Project Cost</strong></td>
<td>$ 125,000</td>
<td>Reno only costs</td>
</tr>
</tbody>
</table>

### Estimated Contingencies and Escalation:

<table>
<thead>
<tr>
<th></th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalation (5% per annum)</td>
<td>$ 71,000</td>
<td></td>
</tr>
<tr>
<td>Design Contingency (10%)</td>
<td>$ 142,000.0</td>
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</tr>
<tr>
<td>Construction Contingency (10%)</td>
<td>$ 142,000.0</td>
<td></td>
</tr>
<tr>
<td>Owner Contingency (10%)</td>
<td>$ 142,000.0</td>
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</tbody>
</table>

### Estimated Soft Costs:

<table>
<thead>
<tr>
<th></th>
<th>Estimated Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>$ 244,950</td>
</tr>
<tr>
<td>Investigative Work</td>
<td></td>
</tr>
<tr>
<td>Survey</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$ 10,000</td>
</tr>
<tr>
<td>Permitting</td>
<td>$ 10,000</td>
</tr>
</tbody>
</table>

### Owner’s Direct Costs:

<table>
<thead>
<tr>
<th></th>
<th>Estimated Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner’s Project Manager</td>
<td>$ 25,000</td>
</tr>
<tr>
<td>Bid Document Printing</td>
<td>$ 2,500</td>
</tr>
<tr>
<td>Construction Testing</td>
<td>$ 10,000</td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>$ 35,000</td>
</tr>
<tr>
<td>Misc Expenses</td>
<td>$ 10,000</td>
</tr>
</tbody>
</table>

---

*Dore Whittier Architects*

*Newburyport, Massachusetts*
## Project Budget Worksheet

### Mitchell Fabric Structure Gymnasium

Needham, Massachusetts

**Temporary Pre-engineered Steel Gymnasium**

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Gym and Existing Gym Renovation</td>
<td>$ 1,200,000</td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>$ 500,000</td>
<td>5 year lease</td>
</tr>
<tr>
<td>Renovate Exist Gym into (2) classrooms</td>
<td>$ 600,000</td>
<td>4,000sf @ $150/sf</td>
</tr>
<tr>
<td>Hoops, curtain, seating, etc</td>
<td>$ 50,000</td>
<td>900sf @ $50/sf</td>
</tr>
<tr>
<td>Site (10%)</td>
<td>$ 50,000</td>
<td></td>
</tr>
<tr>
<td>KASE Classroom Renovation Project Cost</td>
<td>$ 125,000</td>
<td>Reno only costs</td>
</tr>
<tr>
<td><strong>Estimated Contingencies and Escalation</strong></td>
<td>$ 420,000</td>
<td>Estimated 1 year</td>
</tr>
<tr>
<td>Escalation (5% per annum)</td>
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</tr>
<tr>
<td>Design Contingency (10%)</td>
<td>$ 120,000.0</td>
<td></td>
</tr>
<tr>
<td>Construction Contingency (10%)</td>
<td>$ 120,000.0</td>
<td></td>
</tr>
<tr>
<td>Owner Contingency (10%)</td>
<td>$ 120,000.0</td>
<td></td>
</tr>
<tr>
<td><strong>Estimated Soft Costs:</strong></td>
<td>$ 242,000</td>
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<tr>
<td>Fees</td>
<td>$ 207,000</td>
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</tr>
<tr>
<td>Investigative Work</td>
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<td></td>
</tr>
<tr>
<td>Survey</td>
<td>$ 15,000</td>
<td></td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td>Permitting</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td><strong>Owner's Direct Costs:</strong></td>
<td>$ 82,500</td>
<td></td>
</tr>
<tr>
<td>Owner's Project Manager</td>
<td>$ 25,000</td>
<td></td>
</tr>
<tr>
<td>Bid Document Printing</td>
<td>$ 2,500</td>
<td></td>
</tr>
<tr>
<td>Construction Testing</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>$ 35,000</td>
<td></td>
</tr>
<tr>
<td>Misc Expenses</td>
<td>$ 10,000</td>
<td></td>
</tr>
<tr>
<td><strong>Renovate Existing KASE Classrooms</strong></td>
<td>Estimated Budget</td>
<td>Comments</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Site, Modulars and Renovation Construction Cost</strong></td>
<td>$ 30,000</td>
<td></td>
</tr>
<tr>
<td><strong>Existing KASE Renovations</strong></td>
<td>$ 30,000</td>
<td>1200sf @ $25/sf</td>
</tr>
<tr>
<td><strong>Estimated Contingencies and Escalation:</strong></td>
<td>$ 9,000</td>
<td></td>
</tr>
<tr>
<td>Escalation (5%)</td>
<td>$ 1,500</td>
<td>1 year</td>
</tr>
<tr>
<td>Design Contingency (10%)</td>
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<tr>
<td>Construction Contingency (10%)</td>
<td>$ 3,000.0</td>
<td></td>
</tr>
<tr>
<td>Owner Contingency (5%)</td>
<td>$ 1,500.0</td>
<td></td>
</tr>
</tbody>
</table>

**Estimated Soft Costs:**
- Fees | $ 25,000 |
- Arch, Site, MEP, Costs, FFE | $ 25,000 |

**Owner's Direct Costs:**
- Owner's Project Manager | $ 25,000 |
- Document Printing | $ 1,000 |
- FF&E | $ 30,000 (2) Kindergartens, Art Cart and Storage |
- Misc Expenses | $ 5,000 |

**Total Estimated Project Costs:** $ 125,000
# Eliot Elementary School Modular Classrooms

Needham, Massachusetts

## Six 1200 sf Modular Classrooms

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site, Modulars and Renovation Construction Cost</strong></td>
<td>$1,935,000</td>
</tr>
<tr>
<td>(6) Two Story Modular Classrooms</td>
<td>$1,800,000</td>
</tr>
<tr>
<td>Renovate Existing Technology Lab</td>
<td>$45,000</td>
</tr>
<tr>
<td>Sitework (5%)</td>
<td>$90,000</td>
</tr>
</tbody>
</table>

**Estimated Contingencies and Escalation:**

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalation (5% per annum)</td>
<td>$580,500</td>
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<tr>
<td>Design Contingency (10%)</td>
<td>$193,500.0</td>
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<tr>
<td>Construction Contingency (10%)</td>
<td>$193,500.0</td>
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<tr>
<td>Owner Contingency (10%)</td>
<td>$193,500.0</td>
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**Estimated Soft Costs:**

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees</td>
<td>$320,250</td>
</tr>
<tr>
<td>Modular Location Study</td>
<td>$30,000</td>
</tr>
<tr>
<td>Arch, Site, MEP, Costs, FFE</td>
<td>$290,250</td>
</tr>
<tr>
<td>Investigative Work</td>
<td>$55,000</td>
</tr>
<tr>
<td>Survey</td>
<td>$30,000</td>
</tr>
<tr>
<td>Geotechnical</td>
<td>$10,000</td>
</tr>
<tr>
<td>Permitting</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

**Owner's Direct Costs:**

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner's Project Manager</td>
<td>$50,000</td>
</tr>
<tr>
<td>Bid Document Printing</td>
<td>$2,500</td>
</tr>
<tr>
<td>Construction Testing</td>
<td>$15,000</td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>$180,000</td>
</tr>
<tr>
<td>Misc Expenses</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

**Total Estimated Project Costs:**

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$3,728,750</td>
<td></td>
</tr>
</tbody>
</table>
## Project Budget Worksheet

**Broadmeadow Elementary School Renovations**  
Needham, Massachusetts

### Existing Technology Lab Renovations

<table>
<thead>
<tr>
<th>Estimated Budget</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site, Modulars and Renovation Construction Cost</strong></td>
<td>$45,000</td>
</tr>
<tr>
<td><strong>Renovate Existing Technology Lab</strong></td>
<td>$45,000</td>
</tr>
<tr>
<td><strong>Estimated Contingencies and Escalation:</strong></td>
<td>$27,000</td>
</tr>
<tr>
<td>Escalation (5% per annum)</td>
<td>$13,500</td>
</tr>
<tr>
<td>Design Contingency (10%)</td>
<td>$4,500.0</td>
</tr>
<tr>
<td>Construction Contingency (10%)</td>
<td>$4,500.0</td>
</tr>
<tr>
<td>Owner Contingency (10%)</td>
<td>$4,500.0</td>
</tr>
</tbody>
</table>

### Estimated Soft Costs:

| Owner's Project Manager | $15,000 |
| Bid Document Printing | $2,500 |
| Construction Testing | $5,000 |
| FF&E | $30,000 |
| Misc Expenses | $10,000 |

### Total Estimated Project Costs:

$164,500