ATTACHMENT A
MODULE 3 – PREFERRED SCHEMATIC REPORT REVIEW COMMENTS

District: Town of Wilmington
School: Wildwood Elementary School
Owner's Project Manager: Symmes Maini & McKee Associates, Inc.
Designer Firm: Dore & Whittier Architects, Inc.
Submittal Due Date: October 24, 2024
Submittal Received Date: October 23, 2024
Review Date: October 23, 2024 – November 15, 2024
Reviewed by: U. Gadani, E. Udy, V. Dagkalakou, C. Forde, C. Alles

MSBA REVIEW COMMENTS

The following comments[1] on the Preferred Schematic Report ("PSR") submittal are issued pursuant to a review of the project submittal document for the proposed project presented as a part of the Feasibility Study submission in accordance with the MSBA Module 3 Guidelines.

3.3 PREFERRED SCHEMATIC REPORT

Overview of Preferred Schematic Submittal	Complete	Provided; *Refer to comments following each section*	Not Provided; *Refer to comments following each section*	Receipt of District's Response; *To be filled out by MSBA Staff*
OPM Certification of Completeness and Conformity	☒	☐	☐	☐
Table of Contents	☒	☐	☐	☐
3.3.1 Introduction	☐	☒	☐	☐
3.3.2 Evaluation of Existing Conditions	☐	☒	☐	☐
3.3.3 Final Evaluation of Alternatives	☐	☒	☐	☐
3.3.4 Preferred Solution	☐	☒	☐	☐
3.3.5 Local Actions and Approval Certification	☐	☒	☐	☐

[1] The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local law. The MSBA recommends that each city, town and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state and local law, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

3.3.1 INTRODUCTION

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Overview of the process undertaken since submittal of the Preliminary Design Program that concludes with submittal of the Preferred Schematic Report, including any new information and changes to previously submitted information	☒	☐	☐	☐
2	Summary of updated project schedule, including:				
	a) Projected MSBA Board of Directors Meeting for approval of Project Scope and Budget Agreement	☒	☐	☐	☐
	b) Projected Town/City vote for Project Scope and Budget Agreement	☒	☐	☐	☐
	c) Anticipated start of construction	☒	☐	☐	☐
	d) Target move in date	☒	☐	☐	☐
3	Summary of the final evaluation of existing conditions	☒	☐	☐	☐
4	Summary of final evaluation of alternatives	☒	☐	☐	☐
5	Summary of District's preferred solution	☒	☐	☐	☐
6	A copy of the MSBA Preliminary Design Program project review and corresponding District response	☒	☐	☐	☐

MSBA Review Comments:

No review comments for this section.

3.3.2 EVALUATION OF EXISTING CONDITIONS

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	A narrative of any changes resulting from new information that informs the conclusions of the evaluation of the existing conditions and its impact on the final evaluation of alternatives	☐	☒	☐	☐
2	If changes are substantive, provide an updated Evaluation of Existing Conditions and identify as final. Identify additional testing that is recommended during future phases of the proposed project and indicate when the investigations and analysis will be completed	☐	☒	☐	☐

3	Site vulnerability risk assessment evaluation for each site under consideration, including a description of specific identified site resiliency concerns, design mitigation options, and resulting design decisions by the District	☐	☐	☒	☐

MSBA Review Comments:

1) In response to these review comments, please provide a detailed narrative that describes the potential impact the remaining site investigation may have on the conceptual design.

Response: Site investigation for the North Intermediate School site is priority for the project entering into Schematic Design phase. At the time of these comments, the following site investigations are in progress.

Nitsch Engineering's **site survey** will confirm property title and associated property lines and/or easements as well as identify wetlands and any associated buffers. The topographic survey will also confirm grading with 1-foot contours and information on existing utilities including but not limited to gas, water, sewer telephone and electric record data. Title and easement confirmation is referred to Town council to conduct a title search for confirmation if any adverse easements or encumbrances exist that may impact the project schedule. The survey information, if different from preliminary research, may impact placement of building footprint to accommodate site restrictions identified where feasible.

Geotechnical investigation by LGCI will provide a summary of the subsurface site conditions with borings and test pits. The information will provide preliminary foundation design and construction recommendations including depth of foundations, net allowable bearing capacity, estimated settlement, seismic recommendations in accordance with the Massachusetts State Building Code 10th Edition, under-slab drainage, retaining walls, as well as preliminary recommendations for removal of unsuitable soils, subgrade preparation and backfill, groundwater control and suitability of reusing onsite materials as backfill. Test pits to evaluate stormwater management areas will also be conducted.

Geoenvironmental investigation by PEER Consultants will result in a soil characterization report to detect the presence of any hazardous materials in surficial soils both for the quantification of any remediation and its cost, and to classify soils for off-site disposal if necessary for consideration with the proposed concept.

Nitsch Engineering's **Traffic Impact Study** will use data collection to analyze and evaluate the intersections and roadway sections adjacent to the preferred site for the proposed traffic volume generated by the project.

The above mentioned information will describe existing conditions and provide recommendations for the proposed project to refine the proposed design, schedule and cost impacts.

2) The information provided indicates testing to be performed during the schematic design phase for the North Intermediate School site and includes the following:

- *Site Survey;*
- *Geotechnical;*
- *Phase I Environmental Site Assessment; and,*
- *Traffic Study.*

Based on the limited information provided by the design team to date and the timing associated with the above referenced testing, in response to these review comments, describe how the proposed scope and associated budget will be established at schematic design as this is the phase in which the MSBA will establish a potential grant.

Response: Site investigation for the North Intermediate School site is priority for the project entering into Schematic Design phase. At the time of these comments, the following site investigations are in progress:

- Site Survey;
- Geotechnical;
- Phase I Environmental Site Assessment; and,
- Traffic Study.

The design team anticipates most, if not all, the site investigation to be completed by early December 2024. The information will be incorporated into the submission of the SD documents to the cost estimators in February 2025.

Additionally, the information provided during the Preliminary Design Program ("PDP") submittal indicated that a portion of the North Intermediate School site is occupied by wooded wetland areas and may limit site improvement opportunities. The information provided also indicated that the protected Municipal Open Space status of a large portion of the property may limit site improvement opportunities. Similarly, the Wellhead Protection Area designation may constrain development.

In response to these review comments, please provide the following:

- *A narrative that describes the potential impact that these existing conditions impose on the buildable area and site development associated with preferred building location and the conceptual design;*

Response: A portion of the North Intermediate site is occupied by wooded wetland areas along the edges of the property line and generally did not impact restrictions to buildable areas but may limit site improvement opportunities. The wetland areas were determined to be non-jurisdictional by LEC Environmental Consultants and there is no 100-bufferzone extending from the wetlands on the project site. D+W will provide the final documentation as part of the SD submission.

The Municipal Open Space designation with "Limited Protection" at the North Intermediate site may require a majority municipal vote for any change in status. The Town of Wilmington's Open Space and Recreation Plan (2021) explains the following regarding Open Space protected through Town Ownership (Page 51, Page 54):

- "The next level of open space protection is through ownership by the Town of

> Wilmington… Land under the general control of the Town provides some level of protection. Development by the Town of parcels under its control will, in most instances, require the expenditure of Town funds and be **subject to a majority vote of Town Meeting**. In addition, individuals seeking to acquire Town property must petition the Town to render a decision that the property is surplus to its needs..."

D+W will provide information of the Municipal Open Space requirement as part of its SD submission to the MSBA.

There are additional stormwater quality requirements for groundwater infiltration at the North Intermediate site due to a Wellhead Protection Area designation. The primary impact of this designation is for an on-site septic system, but the site is connected to the municipal sewer. D+W will provide confirmation of Wellhead Protection Area requirements and any impacts to the stormwater design as part of its SD submission.

- *Initial analysis performed by the design team that determined the outcome associated with the requirements of a MEPA review; and,*
- *A workplan and timeline associated with a MEPA review and approval.*

Response: Below is the initial analysis performed associated with the requirements of a MEPA review.

Review thresholds

Land
(ENF and Mandatory EIR)
Direct alteration of 50 or more acres of land: **site is 14 acres.**
Creation of ten or more acres of impervious are: **preliminary area = 6 acres, with 3.5 of new impervious.**

Land
ENF and Other MEPA Review if the Secretary So Requires
Direct alteration of 25 or more acres of land: **site is 14 acres.**
Creation of five or more acres of impervious area: **prelim total area impervious is 6 acres, existing is 2.5 acres (to be removed/redone). There is only 3.5 acres of new impervious.**
Disposition or change in use of land or an interest: I**t's currently a school, no change**
Conversion of land in active agricultural use: **NA**
Release of an interest in land held for conservation: **NA**
Approval in accordance with M.G.L. c. 121A of a New urban redevelopment project: **NA**
approval in accordance with M.G.L. c. 121B of a New urban renewal plan: **NA**

State-listed Species
ENF and Other MEPA Review if the Secretary So Requires: all NA

Wetlands, Waterways and Tidelands
ENF and Mandatory EIR: all NA

Wetlands, Waterways and Tidelands
ENF and Other MEPA Review if the Secretary So Requires: all NA

Water
ENF and Mandatory EIR: all NA

Water
ENF and Other MEPA Review if the Secretary So Requires: all NA

Wastewater
ENF and Mandatory EIR: all NA

Wastewater
ENF and Other MEPA Review if the Secretary So Requires: all NA

Transportation
ENF and Mandatory EIR
construction of a New roadway two or more miles in length, **NA**
widening of an existing roadway, **NA**
New interchange, **NA**
New airport, **NA**
New runway, **NA**
New Rail, **NA**
Generation of 3,000 or more New ADT, very likely **NA** - dependent on traffic study….
Construction of 1,000 or more New parking spaces, **NA**

Transportation
ENF and Other MEPA Review if the Secretary So Requires
New roadway one-quarter or more miles, **NA**
widening of an existing roadway , **NA**
Construction, widening or maintenance of a roadway, **NA**
Expansion of an existing runway, **NA**
Construction of a New taxiway, **NA**
Expansion of an existing terminal, **NA**
New or Expansion of existing air cargo buildings, **NA**
Conversion of a military airport , **NA**
Construction of a New rail, **NA**
Discontinuation of passenger or freight, **NA**
Abandonment of a substantially intact rail , **NA**
Generation of 2,000 or more New add, very likely **NA** - dependent on traffic study….
Generation of 1,000 or more New add, very likely **NA** - dependent on traffic study….
Construction of 300 or more New parking spaces , **NA**

Energy, all NA

Air, all NA

Solid and Hazardous Waste, all NA

Historical and Archaeological Resources, all NA

Areas of Critical Environmental Concern, all NA

Regulations, NA

A workplan and timeline associated with a MEPA review and approval does not appear to be required. The Design team will continue to review further and provide an update as part of its SD submission.

3) A site vulnerability risk assessment was not included in the submittal. Refer to Project Advisory #88, and the updated Module 3 Feasibility Study Guidelines for these requirements and provide this information in the response to this review.

Response: Refer to Attachment for Site Vulnerability Risk Assessment.

No further review comments for this section.

3.3.3 FINAL EVALUATION OF ALTERNATIVES

Include at least three potential alternatives, with at least one renovation and/or addition option. Include the following for each alternative where appropriate:

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	An analysis of each prospective site including:				
	a) Natural site limitations	☐	☒	☐	☐
	b) Building footprint(s)	☐	☒	☐	☐
	c) Athletic fields	☐	☒	☐	☐
	d) Parking areas and drives	☐	☒	☐	☐
	e) Bus and parent drop-off areas	☐	☒	☐	☐
	f) Site access and surrounding site features	☐	☒	☐	☐
2	Evaluation of the potential impact that construction of each option will have on students and measures recommended to mitigate impact	☐	☒	☐	☐
3	Conceptual architectural and site drawings that satisfy the requirements of the education program	☐	☒	☐	☐
4	An outline of the major building structural systems	☐	☒	☐	☐
5	The source, capacities, and method of obtaining all utilities	☐	☒	☐	☐
6	A narrative of the major building systems	☐	☒	☐	☐
7	A proposed total project budget and a construction cost estimate using the Uniformat II Elemental Classification format (to as much detail as the drawings and descriptions permit, but no less than Level 2)	☐	☒	☐	☐
8	Permitting requirements and associated approval schedule	☐	☒	☐	☐
9	Proposed project design and construction schedule including consideration of phasing	☐	☒	☐	☐
10	Completed Table 1 – MSBA Summary of Preliminary Design Pricing spreadsheet	☐	☒	☐	☐

MSBA Review Comments:

As part of the PSR submittal the District explored the following (9) options:

- ***Option PK-K R.1****: Base Repair for grades Kindergarten with an enrollment of 130 students, plus Pre-K at the existing Wildwood Elementary School.*
- ***Option PK-K AR.1****: Addition / Renovation for grades Kindergarten with an enrollment of 130 students, plus Pre-K at the existing Wildwood Elementary School.*

- ***Option PK-K N.1****: New Construction for grades Kindergarten with an enrollment of 130 students, plus Pre-K at the existing Wildwood Elementary School.*
- ***Option PK-3 R.1****: Base Repair for grades K-3 with an enrollment of 510 students, plus pre-K at the existing Woburn Street Elementary School.*
- ***Option PK-3 AR.1****: Addition / Renovation for grades K-3 with an enrollment of 510 students, plus pre-K at the existing Woburn Street Elementary School.*
- ***Option PK-3 N.1****: New Construction for grades K-3 with an enrollment of 510 students, plus pre-K at the existing Woburn Street Elementary School.*
- ***Option PK-5 R.1****: Base Repair for grades K-5 with an enrollment of 755 students, plus pre-K at the existing North Intermediate School.*
- ***Option PK-5 AR.1****: Addition / Renovation for grades K-5 with an enrollment of 755 students, plus pre-K at the existing North Intermediate School.*
- ***Option PK-5 N.1: New Construction for grades K-5 with an enrollment of 755 students, plus pre-K at the existing North Intermediate School site. (District's Preferred Schematic).***

1a-f) The PDP conclusion stated that Options PK-K R.1, PK-K AR.1, PK-3 R.1, PK-3 AR.1, and PK-5 R.1 were to be further evaluated as part of the PSR submittal. The site information associated with these alternatives was not found for these options. Please provide in response to these review comments.

Response: The site information associated with the following options did not change in the PSR phase. Please refer to the Updated Site Analysis Section of the PSR Submission:

- PK-K R.1 – refer to pages 3.3.3-13 – 3.3.3-14
- PK-K AR.1 – refer to page 3.3.3-14
- PK-3 R.1 – refer to pages 3.3.3-14 – 3.3.3-15
- PK-3 AR.1 – refer to pages 3.3.3-15 – 3.3.3-16
- PK-5 R.1 – refer to pages 3.3.3-19

Additionally, the information provided does not clearly illustrate the circulation of the proposed bus and parents drop off and pick up. In response to these review comments, please provide additional information that documents how students will travel and be monitored from the bus drop off and pick up lane to the main entrance. Furthermore, in response to these review comments, please provide diagrams that illustrate/define access to and from the site, including any site limitations, such as wetlands.

Response: The district continues to evaluate how students will travel from the bus drop off and pick up lane to the main entrance. The design strives for flexibility with drop-off and pick-up options. To accommodate early drop off and late pick up scenarios, the design will consider large canopies for shelter at the main entry and outside the cafeteria. Another option under reviewing by the district is staffing of holding areas, such as the cafeteria, during inclement weather.

See Attachment for site circulation diagrams.

2) In the evaluation of Option PK-5 N.1, the narrative indicates that the overall project duration will be 33 months. In comparison, the project schedule as described in the Introduction section, under the Summary of the Final Evaluation of Alternatives, anticipates a construction start of summer 2027 and a completion of summer 2029. Additionally, the timeframe varies throughout the document (see page 590, which states: "Construction commencement in the late fall of 2026, with a move-in date of late summer 2029. The existing school building will then be demolished, and final site work will be completed by late fall 2029/spring 2030").

In response to these review comments please clarify the anticipated construction timeline and update the project schedule as applicable.

Response: If the project is to move forward with CM@Risk, early bid packages would be released in June 2026 with early site work packages beginning in August 2026. Students from grades four and five would be able to take occupancy of the new school in June 2028. Demolition of the old North Intermediate School would then occur to create the surrounding site amenities including parking. The new elementary school including all site furnishings would be completed in April 2029 with the remainer of the students taking occupancy in September 2029. Total project duration would be 33 months.
If the project is to move forward with D/B/B, construction would begin in February 2027 with grades four and five from the North Intermediate school moving in February 2029. Demolition of the old North Intermediate School would then occur to create the surrounding site amenities including parking. The new elementary school including all site furnishings would be completed in October 2029. Total project duration 32 months.
See Attachment for updated schedules.

Additionally, the information provided on page 182 regarding traffic impact seems to refer only to construction impact. In response to these review comments, please provide information on the long-term traffic impact to the neighborhood for each option, beyond the construction time frame.

Response:

The long-term impact to the neighborhoods varies based on location and grade configuration proposed for each option.

- PK-K R.1 – As the grade configuration remains the same, there is no known long-term impact to the neighborhood for this option on the Wildwood site.
- PK-K AR.1 – As the grade configuration remains the same, there is no known long-term impact to the neighborhood for this option on the Wildwood site.
- PK-K N.1 – As the grade configuration remains the same, there is no known long-term impact to the neighborhood for this option on the Wildwood site.
- PK-3 R.1 – As the grade configuration remains the same, there is no known long-term impact to the neighborhood for this option on the Woburn Street site.
- PK-3 AR.1 – As the grade configuration changed to include two additional grades (PreK and K), there is some long-term impact anticipated to the neighborhood for this option on the Woburn Street site. The site circulation provides long queue length for buses, area for loading and unloading PreK and utilizes the existing front entry loop for vehicles. If selected as the preferred schematic, a traffic impact study for this option would identify impacts and recommendations for consideration during Schematic Design.

- PK-5 R.1 – As the grade configuration remains the same, there is no known long-term impact to the neighborhood for this option on the North Intermediate site.
- PK-5 AR.1 – As the grade configuration changed to include five additional grades (PreK - 3), there is long-term impact anticipated to the neighborhood for this option on the North Intermediate site. The site circulation provides longer queue length for buses through the parking lot and utilizes the existing front entry loop for vehicles with area for loading and unloading PreK. If selected as the preferred schematic, a traffic impact study for this option would identify impacts and recommendations for consideration during Schematic Design.
- PK-5 N.1 - As the grade configuration changed to include five additional grades (PreK -3), there is long-term impact anticipated to the neighborhood for this option on the North Intermediate site. The site circulation directs buses north of the proposed building with drop-off point east of the build entry while vehicles approach the building from the south with drop-off point at the southeast corner of the building. PreK utilizes the same south entry for vehicles with a designated area for loading and unloading Pre-K closer to the PreK entry and classroom wing. To absorb more vehicles on site, the pickup routes are switched with vehicles using the access road north of the building for more queue length and busses utilizing the southern approach. A traffic impact study is currently in progress for the preferred schematic option to understand the long-term impact to the neighborhood.

As part of the schematic design documents, provide further detail that clearly describes and illustrates the separation, safety provisions, and possible construction laydown areas that will be applied during construction on the occupied site for the Preferred Schematic. Please acknowledge.

Response D+W will provide as part of its SD submission, a Construction Phasing Site Plan which will illustrate the separation, safety provisions, and possible construction laydown areas.

3) Conceptual architectural and site drawings were not provided as part of the submittal for the following options:

- *Option PK-K R.1*
- *Option PK-K AR.1*
- *Option PK-3 R.1*
- *Option PK-3 AR.1*
- *Option PK-5 R.1*

Additionally, the information provided for these options states: "The options above were included for cost comparison and/or are not included in this section as there were no updates to the floor plan or spatial relationships". In response to these review comments, please provide conceptual architectural and site drawings for each of the options above.

Response:

PK-K R.1 – This option does not meet the requirements of the educational program as no additional area is provided; therefore, drawings were not generated, and the option was based on a capital improvements plan, see attached.

PK-K AR.1 – See Attachment

PK-3 R.1 – This option does not meet the requirements of the educational program as no additional area is provided to accommodate Grades PreK and Kindergarten; therefore, drawings were not generated, and the option was based on a capital improvements plan, see attached.

PK-3 AR.1 – See Attachment

PK-5 R.1 – This option does not meet the requirements of the educational program as no additional area is provided to accommodate Grades PreK -3; therefore, drawings were not generated, and the option was based on a capital improvements plan, see attached.

5) In response to these review comments, provide information that confirms the electrical utility would have the ability to support an all-electric building.

Response D+W will provide as part of its SD submission, information that confirms the electrical utility would have the ability to support an all-electric building.

Also, the information provided on page 253 states:

> *"Due to the increase in imperviousness with the new building footprint and additional pavement, stormwater mitigation needs to be provided by installing best management practices (BMPs) to capture and infiltrate runoff following the MassDEP Stormwater Management Standards, including requirements for discharges to Zone II Wellhead Protection Areas. Additional testing to confirm groundwater depth and soil classification and infiltration rates will be required prior to designing the stormwater system."*

In response to these review comments, please provide the timing associated with the permitting requirements and the additional testing referenced above, describe how the proposed scope and associated budget will be established at schematic design as this is the phase in which the MSBA will establish a potential grant.

Response: Geotechnical investigation, including test pits, is currently in progress with completion in early December. D+W will provide as part of its SD submission to the estimator, the geotechnical report and proposed scope including any impacts to the stormwater management system design. and permitting schedule impacts. MassDEP is scheduled for notification mid-SD phase per page 3.3.3-148. D+W will provide as part of its SD submission, further refinements to permitting schedule based on the information received in SD.

As part of the schematic design documents, please provide an updated project schedule that includes the timeline for all the permitting requirements with the anticipated filing dates and approval dates for the District's Preferred Schematic.

Additionally, the information provided as part of the Fire Protection Systems on page 307 states:

> *"Hydrant flow test shall be performed to confirm street water pressure and flow are adequate. If the street water is not adequate, a fire pump will be required. If a fire pump is deemed required, a 200 sq. ft. dedicated room with exterior access will be needed."*

In response to these review comments, provide the timeline associated with conducting a hydrant flow test, confirm that the test results will inform the scope of work proposed in the schematic design phase, and confirm costs will be accounted for in the District's proposed total project budget.

Response: D+W anticipated a hydrant flow test for the preferred schematic site in Schematic Design. The timing of the updated Schematic Design duration does not align with ideal testing conditions (before Nov 15th or after April 15th per the Wilmington Water Division that issues the permit). If it is not possible to complete a flow test during SD, D+W will include a fire pump and dedicated space as part of its SD submission to the estimator. If a fire pump is not required after completing a flow test, it will be removed from the project scope.

4, 6) The major structural building systems described on page 235 as well as the electrical evaluation (page 272) and the plumbing systems evaluation (page 302) do not include an assessment of options: PK-K R.1, PK-3 R.1 or PK-5 R.1. In response to these review comments, please provide an evaluation and the information that was used to determine cost estimates for these options.

Response: The repair only options (PK-K R.1, PK-3 R.1, Pk-5 R.1) were based on a capital improvements plan provided in PDP Submission. See CIP in Attachments.

Additionally, on page 304 and 306 under fixture count, the information provided indicates that each classroom will include a single sink. Please note and acknowledge that MSBA guidelines recommend two sinks for each classroom. Please refer to the attached memo regarding MSBA's Staff Recommendation for 2018 STE Area Guidelines.

Response: D+W notes and acknowledges that MSBA guidelines recommends two sinks in each classroom. This proposed scope will be further reviewed by the Design Team and owner in Schematic Design.

6) The information provided references a Building Management System ("BMS"). In response to these review comments, confirm that building and District facilities, maintenance, and custodial personnel have been included in discussions regarding the following items:

- *The selection and long-term operational and maintenance costs of the BMS and mechanical systems; and,*
- *A training program will be coordinated with the District's facility, maintenance, and custodial staff and will include sufficient training hours to learn how to operate the proposed BMS before the opening of the proposed project as well as hours post turnover.*

Response: D+W confirms that the Superintendent of Public Buildings, Mr. Dennis Kelley, a member of the School Building Committee, Leadership Working Group and Sustainability Working Group, has been included in discussions regarding BMS, mechanical systems and training programs to date.

The information provided as part of the HVAC systems on page 256 states:

> *"As part of a life cycle cost analysis (LCCA), different HVAC systems shall be compared against a code compliant baseline system to determine the system with the overall greatest savings over a 50-year study period."*

The District is currently evaluating the following (4) HVAC system options:

- *HVAC System Option 1 – Air Source Variable Refrigerant Flow (VRF)*

- *HVAC System Option 2 – Air Source Heat Pump Chiller/Heater with Classroom Displacement Ventilation*
- *HVAC System Option 3 – Ground Water Source Variable Refrigerant Flow (VRF) with Water Source Heat Pump Air Handling Equipment*
- *HVAC System Option 4 – Geothermal Closed Loop Heat Recovery Heat Pump Displacement Ventilation System*

In response to these review comments, please confirm that the District's consultants will provide the life-cycle costs and payback for all the options listed above, including incorporating the Mass Save rebates and the tax credit available to municipalities through the Inflation Reduction Act, as part of the Schematic Design submittal. Also, provide information that demonstrates the variation in mechanical space required to accommodate the various HVAC systems being considered for this project.

Response: D+W confirms that the district's consultants will provide the life-cycle costs and payback for options listed above, including incorporating any incentives/rebates from Reading Municipal Light (Mass Save is not applicable in Wilmington) and the tax credit available to municipalities through the Inflation Reduction Act as part of the Schematic Design submittal. Information that demonstrates the variation in mechanical space required to accommodate the various HVAC systems being considered for this project will be provided as part of the Schematic Design submission.

7) As part of the schematic design documents, please provide the following:

- *Identify estimated cost associated with removal of any existing fuel storage tanks;*
- *Identify estimated costs associated with the removal of existing flooring and ceiling materials containing asbestos;*
- *Complete the "CSI" tab within the MSBA's total project budget spreadsheet; and,*
- *If add/deduct construction alternates are proposed, please complete the "Alternates" tab within the MSBA's total project budget spreadsheet detailing the cost and the rationale associated with each alternate. Please acknowledge.*

Response: As part of the SD document submission, D+W and SMMA will identify costs for removal of any existing underground fuel tanks and/or flooring and ceiling materials containing asbestos and will complete the "CSI" tab within the MSBA's Total Project Budget Spreadsheet and designate and document any proposed Alternates within the "Alternates" tab on the Total Project Budget Spreadsheet.

8) The MSBA notes that a 10th edition of the Massachusetts Building Code based on the 2021 IBC and 2021 IECC (including any MA amendments) is currently scheduled to take effect on January 1, 2025. In response to these review comments, the design team should review the project's anticipated permit date based on the project schedule and verify coordination with the code analysis and all systems basis of design narratives in subsequent phases. Note that all approvals must be obtained prior to construction bidding. Please acknowledge.

Response: D+W confirms the project will be designed after anticipated effective date of January 1, 2025 therefore the project will be designed and permitted based on the 10th edition of the Massachusetts Building Code (780CMR).

Additionally, the information provided on page 445 states the following:

- *"PK-5 N.1: For this alternative, the new loop road and sidewalk encroaches on the 100-ft wetland buffer zone resources areas, and therefore, the project will require the filing of a Notice of Intent with the Town of Wilmington Conservation Commission. As this is a municipal project, it is exempt from the Stormwater Management Permit, provided that the project complies with the applicable standard of the Comprehensive Stormwater Management Regulations and Massachusetts Stormwater Management Standards and Handbook (Section 2.4.12 of the Town of Wilmington Comprehensive Stormwater Management Bylaws)."*
- *"It is anticipated that a Notice of Intent will need to be filed with the Environmental Protection Agency (EPA) because the land disturbance for the Project is anticipated to be greater than one acre."*

As part of the schematic design documents, provide an updated project schedule that includes the timeline for all the permitting requirements with the anticipated filing dates and approval dates for the District's Preferred Schematic. Additionally, please review the project's anticipated permit based on the project schedule and verify coordination with the code analysis and all systems basis of design narratives.

Response: D+W as part of the SD submission, will include an updated project schedule that includes the timeline for all permitting requirements.

Also, in response to these review comments, pleas

e note and acknowledge that all permitting requirements and approvals must be obtained prior to construction bidding.

Response: D+W acknowledges that all permitting requirements and approvals must be obtained prior to construction bidding.

9) In response to these review comments, provide information and/or analysis that demonstrates comparison of the design-bid-build and construction manager-at-risk project delivery methods, variations in the construction schedule and the potential advantages and disadvantages of both methods. The project schedule must include a sufficient timeframe to complete work, punchlist items, move-in, and training, please acknowledge.

Response: SMMA acknowledges that with the potential for the fourth and fifth grade moving in ahead of grades Prek-3, the schedule has sufficient time to complete work, punchlist, move-in, and training. See Attachment for comparison of the design-bid-build and construction manager-at-risk project delivery methods.

10) The information provided indicates the District's Preferred Schematic includes an estimated total construction cost of $143.5 million ($878/sf) and an estimated total project cost of $186.6 million. In response to these review comments, please provide additional information that clearly describes the cost drivers and underlying factors that contribute to an estimated total construction square foot cost of $878/sf and describe opportunities that could adjust the proposed design to maintain, or possibly reduce the estimated per square foot cost during the schematic design phase.

Response: As the MSBA is aware, construction costs in the Massachusetts market have significantly increased in the last few years, initially driven by the pandemic and its fallout in construction material and equipment markets. Additional code requirements—the Energy Code in particular, with increased efficiency and accompanying building envelope requirements—will be noted cost drivers going forward. MEP systems in general are also noted cost drivers in schools.

The design team will do everything possible to meet the Owner's program and design goals with the most educationally appropriate and cost-effective design. We will look for opportunities to simplify construction techniques and assembly sequences, reduce or eliminate detail ambiguities that increase costs, propose value-oriented materials that are still durable and attractive, and stick to established materials and systems that the trades are familiar with.

No further review comments for this section.

3.3.4 PREFERRED SOLUTION

Provide the following Items		Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Educational Program				

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
	a) Summary of key components and how the preferred solution fulfills the educational program	☒	☐	☐	☐
	b) Design responses including desired features and/or layout considerations	☒	☐	☐	☐
	c) Proposed variances to, and benefits of, any changes to the current grade configuration (if any) and a related transition plan	☒	☐	☐	☐
2	Preferred Solution Space Summary				
	a) Updated MSBA Space Summary spreadsheet	☐	☒	☐	☐
	b) Itemization and explanation of variations from the initial space summary (and MSBA review) included in the Preliminary Design Program	☒	☐	☐	☐
3	Preliminary NE-CHPS or LEED-S scorecard	☐	☒	☐	☐
4	Narrative descriptions and diagrams showing sustainable design "best practices"	☐	☐	☒	☐
5	Conceptual floor plans of the preferred solution, in color that are clearly labeled to identify educational spaces	☐	☒	☐	☐
6	Clearly labeled site plans of the preferred solution including, but not limited to:				
	a) Structures and boundaries	☒	☐	☐	☐
	b) Site access and circulation	☐	☒	☐	☐
	c) Parking and paving	☐	☒	☐	☐
	d) Zoning setbacks and limitations	☐	☒	☐	☐
	e) Easements and environmental buffers	☐	☒	☐	☐
	f) Emergency vehicle access	☒	☐	☐	☐
	g) Safety and security features	☐	☒	☐	☐
	h) Utilities	☐	☒	☐	☐
	i) Athletic fields and outdoor educational spaces (existing and proposed)	☐	☒	☐	☐
	j) Site orientation	☒	☐	☐	☐
7	An overview of the Total Project Budget and local funding including the following:				
	a) Estimated total construction cost	☒	☐	☐	☐
	b) Estimated total project cost	☒	☐	☐	☐
	c) Estimated funding capacity	☐	☒	☐	☐
	d) List of other municipal projects currently planned or in progress	☒	☐	☐	☐

Provide the following Items		Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
	e) District's not-to-exceed Total Project Budget	☐	☐	☒	☐
	f) Brief description of the local process for authorization and funding of the proposed project	☒	☐	☐	☐
	g) Estimated impact to local property tax, if applicable	☐	☐	☒	☐
	h) Completed MSBA Budget Statement	☒	☐	☐	☐
8	Updated Project Schedule including the following projected dates:				
	a) Massachusetts Historical Commission Project Notification Form	☐	☒	☐	☐
	b) MSBA Board of Directors meeting for approval to proceed into Schematic Design	☒	☐	☐	☐
	c) MSBA Board of Directors meeting for approval of project scope and budget agreement and project funding agreement	☒	☐	☐	☐
	d) Town/City vote for project scope and budget agreement	☒	☐	☐	☐
	e) Design Development submittal date	☒	☐	☐	☐
	f) MSBA Design Development Submittal Review (include required 21-day duration)	☐	☒	☐	☐
	g) 60% Construction Documents submittal date	☒	☐	☐	☐
	h) MSBA 60% Construction Documents Submittal Review (include required 21-day duration)	☐	☒	☐	☐
	i) 90% Construction Documents submittal date	☒	☐	☐	☐
	j) MSBA 90% Construction Documents Submittal Review (include required 21-day duration)	☐	☒	☐	☐
	k) Anticipated bid date/GMP execution date	☒	☐	☐	☐
	l) Construction start	☒	☐	☐	☐
	m) Move-in date	☒	☐	☐	☐
	n) Substantial completion	☒	☐	☐	☐

MSBA Review Comments:

2a) Please refer to "Attachment B" for detailed review comments.

3) The MSBA notes that although Wilmington is a "Base Code" community, MSBA Project Advisory #81 and the Green School Program requires all Core Program projects to achieve, at a minimum, LEED "Silver", minimum Indoor Air Quality points, and the MA "Stretch" energy code. The submittal appears to meet these minimum requirements. The Designer Acknowledgement of LEED Goals states that the District intends to achieve the 4% additional reimbursement as described in the MSBA Green Schools Program (including three incentive points for energy efficiency and

one incentive point for indoor air quality). Based on the information from the design team, the LEED scorecard submitted does not meet the indoor air quality points to achieve 1% additional reimbursement, and the sustainability narrative does not indicate how the project will meet the Opt-in Specialized Energy Code for an additional 3% reimbursement.

In the response to this review, the Designer should confirm the District's intent and, in the following Schematic Design submittal, the designer and OPM should review the District's sustainability goals with the sustainability consultant and describe in detail how compliance with the Opt-in Specialized Energy Code goals will be met (I.E. describe proposed compliance pathways, coordinate with the systems narratives, etc.). If the District does not meet the requirements of the Green Schools Program, the District will not qualify for some or all of these incentive points, and the MSBA will adjust the reimbursement rate accordingly. Please acknowledge in the response to this review.

Response: D+W confirms the district intends to achieve the 4% additional reimbursement as described in the MSBA Green Schools Program if feasible. D+W and SMMA will review the District's sustainability goals with the sustainability consultant, the Green Engineer, and describe in detail how compliance with the Opt-in Specialized Energy Code goals will be met in the Schematic Design submittal. We acknowledge that if the district does not meet the requirements of the Green Schools Program, the District will not qualify for some or all of these incentive points, and the MSBA will adjust the reimbursement rate accordingly.

4) Narrative descriptions and diagrams showing sustainable design "best practices" were not included in the submittal. Refer to Project Advisory #88, and the updated Module 3 Feasibility Study Guidelines for these requirements and provide this information in the response to this review.

Response: See attachment for Sustainability Narrative.

5) Please provide information that supports the rationale for locating electrical closets and storage spaces that appear to protrude into the corridor space within the classroom wings, including variation to the layout that does not locate these components as protrusions into the corridor.

Response: Electrical closets and storage spaces are located in the corridor space to assist in defining the extended learning areas. After feedback received during the Facilities Assessment Subcommittee meeting, the design team is reviewing this layout to address the location and protrusion of these spaces. An update to the layout will be included in the SD Submission.

6) Also, in response to these review comments, provide interior circulation diagrams that illustrate how students will:

- *transition into the school from the drop off areas;*
- *transition from the classrooms to the cafeteria; and,*
- *exit the school at time of dismissal.*

Response: See attachments for interior transitions. Diagrams indicate that students would use the same path to cafeteria as they would to exit the school at dismissal if the cafeteria is designated as a holding area for students at dismissal. The district is still reviewing the transitions and an update will be provided with the SD Submission.

Also, provide the same information for an individual that is physically challenged as the intent is to

understand how students will be traveling through the building daily.

Response: See attachment for interior transitions.

Additionally, if the proposed building is intended to be used by the community, provide a narrative that describes how:

- *the proposed building will be used by the community;*
- *the proposed building will be secured and monitored; and,*
- *the community will enter and use the proposed*

building.

In addition please provide the following:

- *Confirm that roof access provisions have or are being discussed with the District's facilities personnel and local safety officials to ensure an appropriate level of access and safety will be incorporated into the schematic design documents.*
- *Provide any preliminary details or supplemental information that may be available relevant to proposed roof access.*

6b, f) As part of the District's Schematic Design, please address landscaping at new site access from Arlene Avenue. Also, this roadway should be included in the scheduled traffic study. In response to these review comments, clarify if this roadway will be accessed by emergency services only and, if so, describe how this will be treated in site design to limit or prohibit general school traffic. If there has been any communication with the abutters regarding this access, please provide that information.

6f) In response to these review comments, please confirm that local emergency representatives have been consulted in the planning process and associated requirements have been incorporated into the Preferred Schematic.

Response: D+W confirms local emergency representatives have been consulted in the planning process and associated requirements have been incorporated into the Preferred Schematic. Minutes from the Public Safety Meeting were included in Appendix X.05 of PSR Submission.

6c) On page 171 the information provided indicates that 140 parking spaces are the minimum for the 755+ student option and that 180 spaces are preferred. In response to these review comments, please provide clarification regarding the number of required spaces compared to what is preferred.

Response: The number of parking spaces was established during educational visioning in PDP. To accommodate the staff and visitor parking, 140 spaces is identified as the minimum number of parking spaces. Ideally 180 parking spaces was the target to accommodate events. The Preferred Schematic plan achieves 193 parking spaces currently.

6h, j) The information provided on page 176 regarding access to natural daylight and views states, "All other options scored "3" as there are some areas, mostly small group rooms and some extended learning areas, that have borrowed light and views to other interior spaces." As part of the Schematic Design submission MSBA encourages the District and the design team to investigate ways to improve access to natural daylight and views in more spaces to better respond to this evaluation criteria. Please acknowledge.

Response: D+W acknowledges.

6i) In response to these review comments, please include information that describes the process of including those involved in making decisions associated with incorporating site improvement components such as landscape features, trees, plantings, irrigation, rain gardens, etc. The MSBA encourages the District to include facilities and maintenance personnel responsible for the future care and maintenance of the proposed site components in an effort to fully understand the time, care, and resources required to maintain the intended site features. Please acknowledge.

Response: D+W acknowledges.

Additionally, the information provided on page 177 regarding play area locations states: "Compromises to the play area locations in each option are realized therefore the highest score was a "3" for this criterion." As part of the Schematic Design submission MSBA encourages the design team to investigate layouts that improve play area adjacencies to grade-level classroom areas to better respond to this evaluation criteria. Please acknowledge.

Response: D+W acknowledges.

7c, e, g) The information provided states:

> *"The Town budget for the Fiscal Year 2025 is $137,298,970. The town has consistently funded its capital plan within the operating budget, using reserves and borrowing when needed for significant projects. The Town recently began two capital projects, a new Senior Center and a new Town Hall/School Administration Building, the combined total being $54,147,327. The Town used both reserves and debt to fund these projects. In May 2024 the Town issued $36,505,000 in new debt for these projects, which also included a new water tank in the*

amount of $2,123,000 which will be funded from water rates. The credit rating by S&P Global Ratings upgraded the Town from AA+ to AAA. The Town has significant debt capacity to fund additional projects including a new PK-5 School (~$132,000,000 local share).”

In response to these review comments, please provide the following:

- *The District’s Not-To-Exceed Budget; and*

Response: The District’s Not-To-Exceed Budget is $187,000,000.

- *A narrative that describes how the project team will remain at or below the estimated total project budget through schematic design and beyond.*

Response: The District has discussed the project costs at the SBC meetings, Community Forums, Select Board, Finance Committee and School Committee Meetings. Estimates will be provided at every phase of the project, with an opportunity to review costs to remain in line with the Distict’s Not-To-Exceed Budget.

Also, please note that the MSBA does not calculate a potential grant until the conclusion of schematic design and the District should take caution in communicating as the potential project develops.

Additionally, please note that the MSBA updates district reimbursement rates annually and applies the reimbursement in effect at the time the MSBA Board of Directors approves a district's proposed project scope and budget. Please acknowledge.

Response: D+W acknowledges.

8a) The information provided with the PSR submittal indicated a Project Notification Form ("PNF") would be submitted to the Massachusetts Historical Commission ("MHC") when the project enters the Schematic Design phase. Please note MHC approval is required prior to construction bids. The District should keep the MSBA informed of any decisions and/or proposed actions and should confirm that the proposed project is in conformance with Massachusetts General Law 950, CRM 71.00. In response to these review comments, please provide the timeline associated with filing a PNF with the MHC for review and approval.

Response:

Project Notification Form	MA Historical Commission	Mid-SD Phase: February 2025	April 2025

8 f, h, j) Please note that the schedule associated with Design Development ("DD") and 60% and 90% Construction Documents ("CD") submittals must include 21 days for the MSBA to review each submission. Additionally, the schedule should include 14 calendar days for the project team to respond to MSBA's review comments and incorporate those responses into the project documents prior to the next submission or finalizing project documents to make available to bidders. Please note the minimum duration between each MSBA design submission (DD, 60% CD, and 90% CD) is 35 calendar days. In subsequent submittals, provide a project schedule that includes these minimum review durations. (See also notes related to project schedule above in Section 3.3.3 item 9.) Please acknowledge.

Response: SMMA acknowledges that all future schedules (DD, 60%CD, 90%CD) will include 21 days for MSBA review and 14 days for the project team to respond to MSBA's comments.

No further review comments for this section.

3.3.5 LOCAL ACTIONS AND APPROVALS

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Certified copies of the School Building Committee meeting notes showing specific submittal approval vote language and voting results, and a list of associated School Building Committee meeting dates, agenda, attendees and description of the presentation materials.	☐	☒	☐	☐

2	Signed Local Actions and Approvals Certification(s):				
	a) Submittal approval certificate	☒	☐	☐	☐
	b) Grade reconfiguration and/or redistricting approval certificate (if applicable)	☒	☐	☐	☐
3	Provide the following to document approval and public notification of school configuration changes associated with the proposed project:				
	a) A description of the local process required to authorize a change to the existing grade configuration or redistricting in the district	☒	☐	☐	☐

	b) A list of associated public meeting dates, agenda, attendees and description of the presentation materials	☒	☐	☐	☐
	c) Certified copies of the governing body (e.g. School Building Committee) meeting notes showing specific grade reconfiguration and/or redistricting, vote language, and voting results if required locally	☒	☐	☐	☐
	d) A certification from the Superintendent stating the District's intent to implement a grade configuration or consolidate schools, as applicable. The certification must be signed by the Chief Executive Officer, Superintendent of Schools, and Chair of the School Committee.	☒	☐	☐	☐

MSBA Review Comments:

1) Please provide a certified copy of the approved meeting minutes as soon as they are available. No further review comments for this section.

Response: SMMA submitted a certified copy of the approved meeting minutes to the MSBA on 10/29/24. See attachment.

Additional Comments:

- *The MSBA would like to inform you of MSBA's recent Project Advisory #88, posted on July 1, 2024, and linked here which describes changes to the MSBA submittal documents relating to required state site approvals and site resiliency including a MEPA guideline checklist. We ask you to review this Project Advisory and forward any questions you may have about these requirements to your MSBA Project Coordinator. These documents will assist your client and the MSBA to understand your project's status relating to the various required state site approvals and any design considerations pertaining to resiliency for your selected project site. We ask that all members of your design team use the information indicated in Project Advisory #88 for your project, including the following updated MSBA documents:*
    - *Module 3 Feasibility Study Guidelines*
    - *Module 4 Schematic Design Guidelines*
    - *Module 6 (Design Development, 60%, and 90% Construction Documents)*

  Incomplete submittals or submittals not reviewed by the OPM will not be accepted. This includes the information described in Project Advisory #88.

- *The MSBA offers the following information to assist the District and its OPM in completing the total project budget template that is required as part of its Schematic Design submittal.*
    - *The District must include negotiated costs for OPM and Designer fees for the remainder of the project as part of their Total Project Budget. The fees must be listed separately by the applicable line items that are included in the MSBA's Total Project Budget Template. In response to these review comments, please confirm that*

the District and its consultants will negotiate fees for the remainder of the project that are to be included in the District's schematic design documents to the MSBA.

Response: The district will negotiate fees with the OPM and Designer and submit this information as part of the schematic design submittal.

Regarding Past Projects:

Both the MSBA's enabling legislation, M.G.L. c. 70B, and the MSBA's regulations, 963 CMR 2.00 et seq. specifically address the issue of past projects. MSBA records show a total MSBA payment of $507,504 for the North Intermediate School Accelerated Repair Windows/Doors Project #ID201203420060 completed in September 2014.

Pursuant to these requirements and depending on the School District's ultimate plan for the School, the MSBA may recover a pro-rated portion of the financial assistance that the School District has received for previous renovation grants. The exact amount recovered will be established at the conclusion of the Schematic Design / Total Project Budget phase. Please see the MSBA website to view the MSBA's regulations, statute and closed school bulletin for additional information.

End

ATTACHMENT B
MODULE 3 – PREFERRED SCHEMATIC SPACE SUMMARY REVIEW

District: Town of Wilmington
School: Wildwood Elementary School
Owner's Project Manager: Symmes Maini & McKee Associates, Inc.
Designer Firm: Dore & Whittier Architects, Inc.
Submittal Due Date: October 24, 2024
Submittal Received Date: October 23, 2024
Review Date: October 23, 2024 – November 15, 2024
Reviewed by: U. Gadani, E. Udy, V. Dagkalakou, C. Forde, C. Alles

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The Massachusetts School Building Authority (the "MSBA") has completed its review of the proposed space summary of the preferred alternative as produced by Dore & Whittier Architects, Inc. and its consultants. This review involved evaluating the extent to which the Wildwood Elementary School's proposed space summary conforms to the MSBA guidelines and regulations.

The MSBA considers it critical that the Districts and their Designers aggressively pursue design strategies to achieve compliance with the MSBA guidelines for all proposed projects in the new program and strive to meet the gross square footage allowed per student and the core classroom space standards, as outlined in the guidelines. The MSBA also considers its stance on core classroom space critical to its mission of supporting the construction of successful school projects throughout the Commonwealth that meet current and future educational demands. The MSBA does not want to see this critical component of education suffer at the expense of larger or grander spaces that are not directly involved in the education of students.

The following review is based on the submitted new construction project option with an agreed upon design enrollment of 755 students in kindergarten through grade 5, plus pre-kindergarten.

The MSBA review comments are as follows:

- **Core Academic** – The District is proposing a total of 45,700 net square feet ("nsf") which exceeds the MSBA guidelines by 11,650 nsf. The proposed area in this category has decreased by 1,900 nsf since the Preliminary Design Program ("PDP") submittal. The District is proposing the following spaces:
    - **Kindergarten Classrooms (with Toilet)** – The District is proposing (7) 1,100 nsf Kindergarten Classrooms totaling 7,700 nsf, which meets the MSBA guidelines. In response to these review comments, please review and respond to the following items:
        - As the project becomes further developed, please note and acknowledge that 1,100 nsf is the minimum size for all newly constructed Kindergarten Classrooms.
          Response: D+W acknowledges the 1,100 nsf minimum size for

Kindergarten classrooms.

- Confirm that the proposed project will provide a minimum of two sinks in each Kindergarten Classroom. Please refer to the attached memo regarding MSBA's Staff Recommendation for 2018 STE Area Guidelines.

  Response: D+W acknowledges that the proposed project will provide a minimum of two sinks in each Kindergarten classroom.

- **General Classrooms** – The District is proposing (30) 900 nsf General Classrooms totaling 27,000 nsf, which exceeds the MSBA guidelines by (3) classrooms and 1,350 nsf. Based on the grade configuration and number of classes required for each grade, the MSBA does not object to the proposed number of General Classrooms. In response to these review comments, please review and respond to the following items:

  - Please note and acknowledge that MSBA guidelines are based on 23 students per classroom for grades 1-5.

    Response: D+W acknowledges that MSBA guidelines are based on 23 students per classroom for grades 1-5.

  - As the project becomes further developed, please note and acknowledge that 900 nsf is the minimum size for all newly constructed General Classrooms in an elementary school.

    Response: D+W acknowledges that 900 nsf is the minimum size for all newly constructed General Classrooms in an elementary school.

  - Confirm that the proposed project will provide a minimum of two sinks in each General Classroom for grades 1-5. Please refer to the attached memo regarding MSBA's Staff Recommendation for 2018 STE Area Guidelines.

    Response: D+W acknowledges that the proposed project will provide a minimum of two sinks in each General Classroom for grades 1-5.

- **Science/Technology/Engineering ("STE") Room** – The District is proposing (1) 1,080 nsf STE Room which exceeds the MSBA guidelines. Based on the information provided the MSBA does not object to this variation to guidelines. No further action required.

- **STE Storage Room** – The District is proposing (1) 120 nsf STE Storage Room associated with the STE Room, which exceeds the MSBA guidelines. Based on the information provided the MSBA does not object to this variation to guidelines. No further action required.

- **English Language Learners ("ELL") Classroom** – The District is proposing (2) 450 nsf ELL Classrooms totaling 900 nsf, which exceeds the MSBA guidelines. Based on the information provided the MSBA does not

object to this variation to guidelines. No further action required.

- **Teacher Collaboration**– The District is proposing (6) 450 nsf Teacher Collaboration spaces totaling 2,700 nsf, which exceeds the MSBA guidelines. Based on the information provided, the MSBA does not object to the District including this additional space in the project; however, all square footage in excess of MSBA guidelines will be considered ineligible for reimbursement. Please acknowledge.

  Response: Currently, specialist subjects are scheduled to provide common planning time for grade-level teachers and the opportunity for teachers to collaborate with colleagues. However, this is only successful in buildings that maintain full-time specialist teachers. Woburn Street School has an enrollment that supports the assignment of full-time specialists. The other schools, Wildwood and North Intermediate, share specialists, which significantly limits the scheduling flexibility and does not allow for common planning time. Also there are limited spaces available for teacher collaboration, meetings and preparation at Woburn Street and North Intermediate schools. It is non-existent for Wildwood while displaced between two host schools.

  With a consolidated PK-5 school, the district intends to increase grade-level common planning time through increased specialist offerings and dedicated spaces.

  Comment is acknowledged.

- **Extended Learning Areas (Kindergarten)** – The District is proposing (4) 300 nsf Extended Learning Areas for Kindergarten, totaling 1,200 nsf, which exceeds the MSBA guidelines. Based on the information provided and the proposed size of the Kindergarten Classrooms compared to the square foot range allowed in the MSBA guidelines, the MSBA does not object to this variation to guidelines. No further action required.

- **Extended Learning Areas (Grades 1-5) –** The District is proposing (5) 1,000 nsf Extended Learning Areas for grades 1-5, totaling 5,000 nsf, which exceeds the MSBA guidelines. The information provided indicates that the District is proposing (30) 900 nsf General Classrooms that are each 100 nsf below the MSBA's allowable maximum classroom size. Based on the size and number of the proposed classrooms, the MSBA will participate in 3,000 nsf associated with the Extended Learning Areas for grades 1-5 and the remaining 2,000 nsf will be considered ineligible for reimbursement. Please acknowledge.

  Response: Comment is acknowledged.

- **Special Education** – The District is proposing a total of 19,010 nsf which exceeds the MSBA guidelines by 9,950 nsf. The proposed area in this category

has decreased by 250 since the PDP submittal. Please note that the Special Education program is subject to approval by the Department of Elementary and Secondary Education ("DESE"). The District should provide this information for this submittal with the Schematic Design Submittal. Formal approval of the District's proposed Special Education program by the DESE is a prerequisite for executing a Project Funding Agreement with the MSBA. Please acknowledge.

Response: Comment is acknowledged.

In response to these review comments, please provide information regarding the grouped Pre-kindergarten/Kindergarten Strides Classrooms and confirm if these classrooms will be serving only Pre-Kindergarten students. If yes, please relocate these classrooms to the Other category, and provide an updated space summary.

Response: The Strides classrooms accommodate both Pre-kindergarten and Kindergarten students.

- **Art & Music** – The District is proposing a total of 4,040 nsf which is below the MSBA guidelines by 1,035 nsf. The proposed area in this category has decreased by 1,035 nsf since the PDP submittal. In response to these review comments, please confirm that the size of the proposed music, art, and flex space, , will be adequate to address the District's educational program needs.

  Response: In an effort towards efficiency, the district proposed a flex space to combine two programs, art and music, in the PSR submission. In continued discussions during user group meetings and listening to concerns around a shared flex space servicing both music and art programs, the district is considering the need for a second dedicated space for art and music programs. Ideally, having the two dedicated spaces for each would allow for the overflow of art and STEM to be in the 2nd art room and the overflow of music to be in the second music room. This would give flexibility to the other music programs as well. A final determination will be confirmed by the district during Schematic Design phase.

- **Health & Physical Education** – The District is proposing a total of 12,300 nsf which exceeds the MSBA guidelines by 6,000 nsf. The proposed area in this category has not changed since the PDP submittal. Please note that square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement. Please acknowledge.

  Response: Comment is acknowledged.

  Additionally, please refer to the attached memo regarding the MSBA's policy on physical education square footage more than the MSBA guidelines. Note the District may choose to build a gymnasium and related spaces more than MSBA guidelines, but in no event shall the gymnasium exceed 12,000 nsf. The MSBA will participate in a gymnasium of up to 6,000 nsf unless adjusted by the MSBA to increase teaching stations for enrollment and/or the educational plan. Additionally, areas in excess of the MSBA guidelines will be at the sole expense of the district; and the MSBA will exclude from its grant the cost of the total gross square feet ("gsf") in excess of the guidelines for these areas.

- **Media Center** – The District is proposing a total of 4,068 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PDP submittal. No further action required.

- **Dining & Food Service** – The District is proposing a total of 9,458 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PDP submittal. However, the proposed cafeteria appears to be 1,051 nsf below the MSBA guidelines. The MSBA strongly encourages the District to reconsider proposing a cafeteria resulting in square footage below the MSBA guidelines. In response to these review comments, please describe the advantages and disadvantages of providing a smaller cafeteria and how the proposed cafeteria will accommodate fluctuations in future enrollments.

  Response: As articulated in the Educational Program Narrative, the District directed the Design Team to size the dining room to accommodate all 130 kindergarteners in one seating to provide the greatest long-term flexibility possible although they intend to offer three seatings of lunch, operationally. In addition, the number of students participating in lunch (and, therefore, going through the serving lines) has significantly increased over time. Specific data is provided in the educational program narrative. As a result, the District has directed the Design Team to allocate more NSF within this category to the kitchen and serving lines. DISTRICT to confirm.

  Additionally, the information provided in the PSR submittal on page 513 states:

  > "A school that accommodates children from Pre-K to Grade 5 will have a population of approximately 755 students plus Pre-K students. The recommendation would be to have at least three lunch periods, and the cafetorium would need to be able to accommodate seating for 300 students. Serving this number of students would require at least three separate serving lines with at least three POS stations to adequately service the children. The number of serving lines and POS stations would ultimately be determined by the amount of time allotted for each lunch period."

  Please also note and acknowledge that MSBA guidelines are based on 2 lunch seatings.

  Response: Comment is acknowledged.

- **Medical** – The District is proposing a total of 710 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PDP submittal. No further action required.

- **Administration & Guidance** – The District is proposing a total of 5,308 nsf which exceeds the MSBA guidelines by 2,418 nsf. The proposed area in this category has not changed since the PDP submittal. Please note that square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement. Please acknowledge.

  Response: Comment is acknowledged. The district kindly requests that the eligibility for reimbursement is reconsidered for Reading specialists (1,200 NSF)

and Math Tutors (800 NSF). The area dedicated for Reading specialists and math tutors accounts for 2,000 NSF of the overage in the Administration and Guidance category. The district employs a formalized Multi-Tiered System of Support (MTSS) model for academics, which includes intervention support for reading and mathematics. Universal screening and data meetings occur several times yearly for each grade level to identify students needing intervention. Reading and math interventionists provide small group sessions typically 3-5 times a week with students in grades K-5. Reading intervention is provided by reading specialists, and math tutors provide math intervention.

- **Custodial & Maintenance** – The District is proposing a total of 2,355 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PDP submittal. No further action required.

- **Other** – The District is proposing a total of 6,100 nsf which exceeds the MSBA guidelines. The proposed area in this category has increased by 300 nsf since the PDP submittal. The District is proposing the following spaces:

    - **Pre-Kindergarten Classrooms** – The District is proposing (3) 1,100 nsf Pre-kindergarten Classrooms totaling 3,300 nsf which exceeds the MSBA guidelines. Based on the information provided the MSBA does not object to the proposed number of Pre-Kindergarten Classrooms and accepts this variation to guidelines.
        - Additionally, in response to these review comments, please acknowledge that 1,100 nsf is the minimum size for all newly constructed Pre-Kindergarten Classrooms.

        Response: Comment is acknowledged.

    - **Extended Learning Areas (Pre-Kindergarten)**– The District is proposing (1) 1,000 nsf Pre-Kindergarten extended learning area totaling 1000 nsf which exceeds the MSBA guidelines. Please note and acknowledge that square footage exceeding MSBA guidelines will be considered ineligible for reimbursement.

        Response: Comment is acknowledged.

    - **Teacher Wellness Rooms** – The District is proposing (6) 100 nsf Teacher Wellness Rooms totaling 600 nsf, which exceeds the MSBA guidelines. Please note and acknowledge that square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement.

        Response: Comment is acknowledged. The district kindly requests reconsideration of eligibility for reimbursement for Teacher Wellness Rooms. The primary purpose of these spaces is to provide a private place to pump breast milk while at work as required by the Fair Labor Standards Act (FLSA). Requirements include a place that is shielded from view, free from intrusion and not a bathroom. The location of the space should be a practical distance from the employee's work area to take breaks to pump. A consolidated PK-5 school anticipates upwards of 130 personnel. When not in use for pumping, the space can be used for

confidential phone calls or other needs that require a level of privacy.

- **CARES Program Coordinator Office** – The District is proposing (1) 150 nsf CARES Program Coordinator Office which exceeds the MSBA guidelines. Please note and acknowledge that square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement.

  Response: Comment is acknowledged.

- **CARES Site Coordinator Office** – The District is proposing 150 nsf CARES Site Coordinator Office, which exceeds the MSBA guidelines. Please note and acknowledge that square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement.

  Response: Comment is acknowledged.

- **Health Classroom** – The District is proposing (1) 900 nsf Health Classroom, which exceeds the MSBA guidelines. Based on the information provided, the MSBA accepts this variation to the guidelines. No further action required.

- **Total Building Net Floor Area** – The District is proposing to provide a total of 109,049 nsf which exceeds the MSBA guidelines by 35,084 nsf. The proposed area has decreased by 2,885 nsf since the PDP submittal. Please address the comments provided in the categories above as part of the District's response to these comments in order for the MSBA to estimate an allowable net square footage.

- **Total Building Gross Floor Area** – The District is proposing to provide a total of 163,573 gross square feet ("gsf") which exceeds the MSBA guidelines by 52,625 gsf. The proposed area has decreased by 4,327 gsf since the PDP submittal. Please address the comments provided in the categories above as part of the District's response to these comments in order for the MSBA to estimate an allowable gross square footage.

Please note that upon moving forward into subsequent phases of the proposed project, the Designer will be required to provide, with each submission, a signed, updated space summary that reflects the design and demonstrates that the design remains, except as agreed to in writing by the MSBA, in accordance with the guidelines, rules, regulations and policies of the MSBA. Should the updated space summary demonstrate changes to the previous space summary include a narrative description of the change(s) and the reason for the proposed changes to the project.

EVALUATION OF EXISTING SITE CONDITIONS

Near the conclusion of the Preliminary Design Program phase of the project, the School Building Committee made the determination that the design team would not continue to study any of the alternatives on the Town Hall site, due to the limitations for future development in a centrally located town site, potential schedule impact of redeveloping that site associated with Article 97, and concerns with additional traffic on major arteries in the center of Town.

During the PSR phase, the design team focused on further evaluation of the three existing school sites.

Site Circulation

As part of the PSR process the Design Team continued to evaluate the existing conditions of the sites and to gather additional information. Our continued work with the district resulted in a change in the proposed site circulation between the PDP and this submission for some of the options:

In the PDP submission for the PK-5 N.1 option, the Design Team had proposed buses might enter the site from Salem Street with other vehicles. After further discussions and review, this plan has been adjusted to separate vehicle and bus circulation completely during drop-off and pick-up. The current plan shows the buses entering and exiting onto Ballardvale Street with a bus turnaround at the rear of the site. Additionally, parent pick-up might utilize this rear access road and turnaround to provide additional queue length if necessary. The vehicle loading and unloading zone and traffic circle on the south side of the main entrance is also sized for buses to accommodate this adjustment. Emergency access from Arlene Street is provided after discussion with municipal personal. Additionally, Prekindergarten and specialized district vehicle parking is shifted from the west side of the building to the south side of the building further separate vehicles and buses.

In the PK-5 AR.1 option, the Design Team proposes reorienting the parking area closer to fields to align with the emergency access road from Arlene Street.

In the PK-3 N.1 option, additional hardscape is proposed between the classroom wings for egress and emergency access.

In the PK-K N.1 option, the site circulation revisions are in direct response to a revised layout for the building. All traffic may enter at the northern curb cut on Wildwood Street. Buses and emergency vehicles traverse north around the building and exit at the south curb cut onto Wildwood Street. Prekindergarten and specialized district vehicles may enter at the northern curb cut on Wildwood Street to parking spaces on the northwest side of the building and may continue to exit utilizing the same north curb cut. All other vehicles will immediately turn right upon entry onto the site and following circulation path along the east side of the building for loading and unloading students before exiting the same north curb cut. Deliveries may occur at the southwest area of the site to limit access around the building.

Circulation drawings are included in Section 3.3.3.

Parking

The parking minimums and targets were established based on the Educational Program. Appropriate number of faculty and staff parking is located near the academic areas of the building and capable of doubling as event parking near public areas of the building (gym & cafeteria).

- 60 spaces minimum (100 spaces preferred) for PreK-K enrollment
- 120 spaces minimum (150 spaces preferred) for PreK-3rd enrollment
- 140 spaces minimum (180 spaces preferred) for PreK-5th enrollment

Site Survey

A detailed site survey is scheduled to start in mid-October for the preferred site.

Geo-technical Explorations

Geotechnical and soils explorations are scheduled to start at the end of October for the preferred site.

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment is scheduled to start at the end of October in conjunction with geotechnical explorations for the preferred site.

Traffic Study

A traffic study is scheduled to start at the end of October for the preferred site.

Future Use

Future use of any potentially vacated existing school buildings has been discussed throughout the PSR phase. The Town of Wilmington will seek to establish a building reuse committee established by the Town Selectboard in the event that the school district turns over existing buildings to the Town as surplus. Several opinions were shared by community members during the PSR phase outreach that the Town should consider leaving existing sites as much needed open space in Town or a potential future site of another municipal building.

Historical Significance

The Designer plans to submit the Project Notification Form during the first month of the Schematic Design phase of the project and expects to receive notification of a decision from the MHC prior to submission of the SD package to the MSBA.

Zoning and Permitting

All proposed options meet or exceed the zoning requirements for setbacks and coverage. All PK-K and PK-3 options conform to the maximum height allowed under the Zoning Ordinance. Proposed PK-5 options will need to seek planning board approvals as they exceed the allowable height.

As per MSBA Project Advisory 88, a State Site Permit Tracking Worksheet is included in Section 3.3.3.

Site Risk Assessment & Evaluation for Environmental Hazards

Near the conclusion of the Preliminary Design Program phase of the project, the School Building Committee made the determination that the design team would not continue to study any of the alternatives on the Town Hall site, due to the limitations for future development in a centrally located town site, potential schedule impact of redeveloping that site associated with Article 97, and concerns with additional traffic on major arteries in the center of Town. During the PSR phase, the design team focused on further evaluation of the three existing school sites.

Summary of Site Risk Assessments & Evaluations of Environmental Hazards

Separate Site Risk Assessments & Evaluations of Environmental Hazards were completed for each of the three potential sites (see attachments). The Assessments relied on various sources to evaluate the potential for environmental events that could cause damage, degradation and/or occupant injury. Because the three sites are all in the same community and climatic region, the majority of the potential risks & hazard exposure for the sites is the same. However, there were some subtle but noteworthy differences between the three sites.

The three sites are at high risk from Extreme Precipitation – Urban Flooding due an increase in impervious surfaces and the potential for tree removal on each site. (It is assumed that significant development and/or new construction on each of the occupied sites will require tree removal to accommodate site operations). Since the North site is the largest, it is the most advantageous location for successful on-site storm water management; limited site are at both the Woburn and Wildwood sites may require more complicated and/or expensive storm water management solutions.

The North site and Woburn site were both determined to be at *low risk* from Extreme Precipitation – Riverine Flooding. However, the Wildwood site was determined to be at *moderate risk* from Riverine Flooding due to the proximity to and elevation above Maple Brook Meadow. Due to this risk, additional consideration should be given to occupied floor and critical equipment elevation locations for a proposed project.

All three sites are generally well suited to development, and the relative risks of hazards is comparable across all three sites. However, the North site offers a slight advantage over the other two sites due to additional site area available for storm water management while the Wildwood site requires consideration of additional risks to riverine flooding due to its proximity to a surface water way.

Early in PSR, the design team met with Wilmington Public Safety officials to introduce the project and review alternatives. The group did not identify the potential school project as a designated emergency shelter. The group did discuss the potential of a 100’ x 100’ clear light zone for emergency medical landing zone if possible. Refer to Appendix X.05. This notion will be further discussed in Schematic Design based on the preferred option.

SITE RISK ASSESSMENT & EVALUATION OF ENVIRONMENTAL HAZARDS

DORE + WHITTIER

Project: Wilmington Elementary School

Subject Site: North Intermediate School
320 Salem St. Wilmington, MA 01887

Applicable Options: PreK-5 R.1; PreK-5 AR.1; PreK-5 N.1

Summary

This Site Risk Assessment & Evaluation of Environmental Hazards (the Assessment) was performed on the subject project to provide the District with information related to specific risks and/or hazards that may influence the suitability of the site or developmental considerations should the subject site be selected. This Assessment is specific to the subject site and options being considered for the project. A summary of Assessments for all sites under consideration will be incorporated into the MSBA Preferred Schematic Report.

Vulnerabilities Assessments

Flooding & Storm Surges

Floodplain Information was obtained from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), see Appendix X.10. All proposed sites are within a Zone X, which is identified as an area outside of the 0.2% chance (500-year) annual floodplain. Therefore, any redevelopment or new construction would not trigger a permit with respect to floodplain.

Using the Resilient Mass Action Team (RMAT) Climate Resilience Design Standards Tool (refer to attached report), the site is at *low risk* from flooding due to Sea Level Rise/Storm Surge and Extreme Precipitation – Riverine Flooding as it is not in an exposed location. The site was found to be at *high risk* for Extreme Precipitation – Urban Flooding if the selected option increases the site impervious area.

Wilmington's annual average rainfall is 44.4 inches per year; rainfall amounts for all sites are comparable as these events are regional phenomena.

High Winds

The basic wind speed (*V*) for Risk Category III Buildings (Educational Group with more than 250 occupants) is 126 mph in accordance with Table 1604.11 of the 10th Edition of the Massachusetts State Building Code 780 CMR. A Surface Roughness Category B prevails in all directions surrounding the site for more than 2600 feet establishing the site as Exposure B. The building is not situated in a Hurricane Prone Region or a Wind-Borne Debris Region as defined by the Code.

The FEMA National Risk Index tool (refer to attached report) assesses risks associated with three types of wind events: hurricanes, tornadoes, and strong winds. These risks are aggregated for all of Middlesex County and are not specific to the Town of Wilmington or the subject site. The Risk Index tool is focused primarily on assessing the potential for financial loss across a region and has limited use for a site-specific risk assessment. Still, some useful contextual data can be gleaned from the Risk Index report.

Middlesex county has experienced 30 hurricane events over the 171-year record-keeping period, resulting in an average annual frequency of 0.175 hurricanes per year, or about one hurricane event every 5.7 years. Because of Wilmington's relative inland location, it is at lower risk of the most severe hurricane impacts, which is reflected in the Building Code wind speed determination above. The County has also experienced 10 tornados since 1950 for an average of one tornado every 7.4 years. Most of the tornadoes have been relatively mild (EF2 or lower) and none of these tornadoes passed through Wilmington. However, the most severe tornado on record, a category EF3 event, crossed Tewksbury in 1974. The FEMA tool also documents 32 Strong Wind Events (classified as wind speeds over 58 mph) since 1986, or approximately one per year. While this data is not predictive, it is useful to the extent that it indicates the potential for experiencing high-wind storms or events with some regularity during the building's functional life span.

Extreme Temperatures

A cold wave is defined as a rapid drop in temperature over 24 hours and extreme cold temperatures for an extended period, typically affecting a large area. To determine the potential for cold waves, we can rely on the FEMA Risk Tool report for Middlesex County which indicates that the region experiences a cold wave approximately every 4 years and assigned a Risk Index Rating of Relatively Moderate for the region. The RMAT tool did not indicate any site-specific risk associated with extreme cold conditions.

Similarly, heat waves are periods of abnormally and uncomfortably hot and humid weather for a region. The FEMA Risk Tool reports a frequency of one heat wave every 1.33 years – or three times the frequency of cold waves noted above. The resulting Risk Index Rating associated with heat waves for the county is also Relatively Moderate. However, the RMAT tool determined that the subject site was at High Risk for extreme heat related events. The RMAT results cite increased impervious area and the removal of trees resulting in potentially less than 10% of the site under canopy cover as site-specific factors associated with this determination.

Winter Weather

The winter weather annualized frequency as determined by the FEMA Risk Tool represents the average number of Winter Weather Hazard events for the region. Winter Weather Hazards are storms where the main types of precipitation are freezing rain, sleet, and/or snow. The Risk Tool reports an average of 6.7 winter storm events per year, making it one of the most frequent climate events affecting the site. Because the events are relatively common and the community is well positioned to manage such events, the FEMA Risk Tool reported a Risk Index Rating associated with Winter Storms as Relatively Low.

Wilmington's annual average snow fall is 53.9 inches per year; snowfall amounts for all sites are comparable as these events are regional phenomena. The capacity for each site to effectively manage snow accumulation on site can be a differentiating factor for the sites. Because the North School site is the largest of the three sites being considered, it has more potential for effective on-site snow storage and management in the event of high snow accumulation storm events.

Ice storms are freezing rain events (rain that freezes on contact) with significant ice accumulations of 0.25 inches or greater. The FEMA Risk Tool reports an average of 2.7 freezing rain events per year, resulting in a Risk Index Rating of Relatively High. Ice storms often have increased potential to damage buildings, property, and agriculture as well as regional power distribution. Similar to snowfall averages, the potential for ice storm events is the same for all sites under consideration.

Power Outages

80% of power outages are attributable to weather events. In particular, high wind events, ice storms, heavy snow, and combination events such as blizzards all contribute to the majority of outages. Given the regional risk factors for winter storm events noted above, the subject site will experience power outages from time to time. Massachusetts electrical utility customers experience on average 8.7 hours of power outage per year. All of the sites under consideration have the same relative risk for power outages.

Developmental Considerations

General Site Suitability

With respect to climate hazards and site resiliency assets, the site is generally well suited for development. Within the context of sites available for development in the Town of Wilmington, the subject site does not assume additional risk or vulnerability due to its specific location, exposure, or any immediate adjacencies.

Building Massing & Orientation

The building mass should leverage a relatively compact form with a low surface area to volume ratio in order to reduce shedding heat through the thermal envelope during cold weather events when power outages are more likely. In particular, minimizing roof exposure with multi-story configurations where possible will maximize the building volume for a given surface area exposure. A more compact building mass will also reduce the site impervious area, which is an important consideration for a site at elevated risk due to Extreme Precipitation – Urban Flooding.

Building orientation will have relatively little impact on resiliency strategies for the site. While specific fenestration orientation will have advantages with respect to day lighting and glare control, these considerations are not specific to site resiliency considerations.

Floor Elevations of Occupied Areas and Critical Equipment

The subject site is not at risk for coastal flooding, storm surges, or riverine flooding. Therefore, there is no critical elevation to maintain for occupied floors or critical equipment. Given the sites risk associated with urban flooding, the lowest floor elevation should be situated above finish grade with the surrounding grade sloping away from the building as a passive flood mitigation strategy.

Stormwater Management

As was noted in the Vulnerability Assessment section, the subject site was found to be at *high risk* for Extreme Precipitation – Urban Flooding, particularly since the options proposed for this site will likely increase the impervious area. The ResilientMass Map & Data center project a 10.8% increase in total precipitation and a 14.8% increase in the 99th percentile storm rainfall for the target year 2070. Site-specific stormwater management design should consider both current and projected increases in rainfall event volume.

Building Materials

Site-specific consideration of building materials can generally be addressed in three categories.

- Superstructure: Because of the site's inland location well away from coastal brackish waters or salt spray, protection from corrosion is not a particular concern for the site. Exterior exposed structural steel members can be protected with conventional hot-dipped galvanized finish. Building foundations should be designed assuming freeze-thaw exposure category F2.
- Exterior Materials: High resilience to freeze-thaw cycling and UV degradation are the primary considerations for the selection of exterior building materials. Materials close to the ground should be highly durable with few or no open ventilation joints that would allow snow or ice to accumulate within wall cavities. Exterior concrete paving of pedestrian walks and near building entries should assume freeze-thaw exposure category F-3.
- Interior Materials: Finish floor surfaces in building entries, adjacent primary corridors, and high-traffic assembly areas should be selected to be highly durable when exposed to water, ice, snow, and de-icing chemicals.

Building Systems Selection

Mechanical (HVAC) systems that are all-electric will eliminate dependence on fossil fuel burning equipment for facility. However, all-electric systems are also dependent on a reliable and durable power grid for long-term viability. The resiliency and continued development of the regional power grid is outside of the control of the building owners. However, the FEMA Risk Tool indicates that Middlesex County has a Social Vulnerability rating of *Relatively Low* and a Community Resilience rating of *Relatively High*. These social categorizations suggest that the region is well suited to

continue to prioritize and invest in socially beneficial environmental improvements, such as maintenance and improvement of the regional power grid. It would be reasonable to expect that, in this region all-electric building systems will be highly resilient over the anticipated building life span. Where feasible, simplicity of operations and maintenance of the mechanical and electrical systems will improve the overall resilience of the system design.

Emergency Back-Up Systems

The building will be required to be designed with a generator to power emergency back-up systems. Diesel generators functional time is limited by the fuel tank size. However, given that the average electrical customer experiences only 8.7 hours of power outage per year, conventional fuel tank sizes that anticipate 48 to 72 hours of operation should be more than adequate to deal with occasional intermittent outages. Natural gas generators are connected to the local gas utility and will not be subject to the same fuel tank size time limitations; in this regard, a natural gas generator is better suited for extreme long-term power outages (more than 48 hours).

If the project intends to incorporate on-site renewable energy systems (electrical PV array – either roof-top or on-site), then energy storage systems should be considered to further reduce dependence on fossil fuels and to provide alternative back-up power options. Alternative power sources will improve the overall facility resilience.

Emergency Event Design Considerations

The facility will not be designed or designated as an emergency shelter. Emergency event planning will be developed by the Owner considering primarily maintaining operations as a school facility.

North Site

Climate Resilience Design Standards Tool Project Report

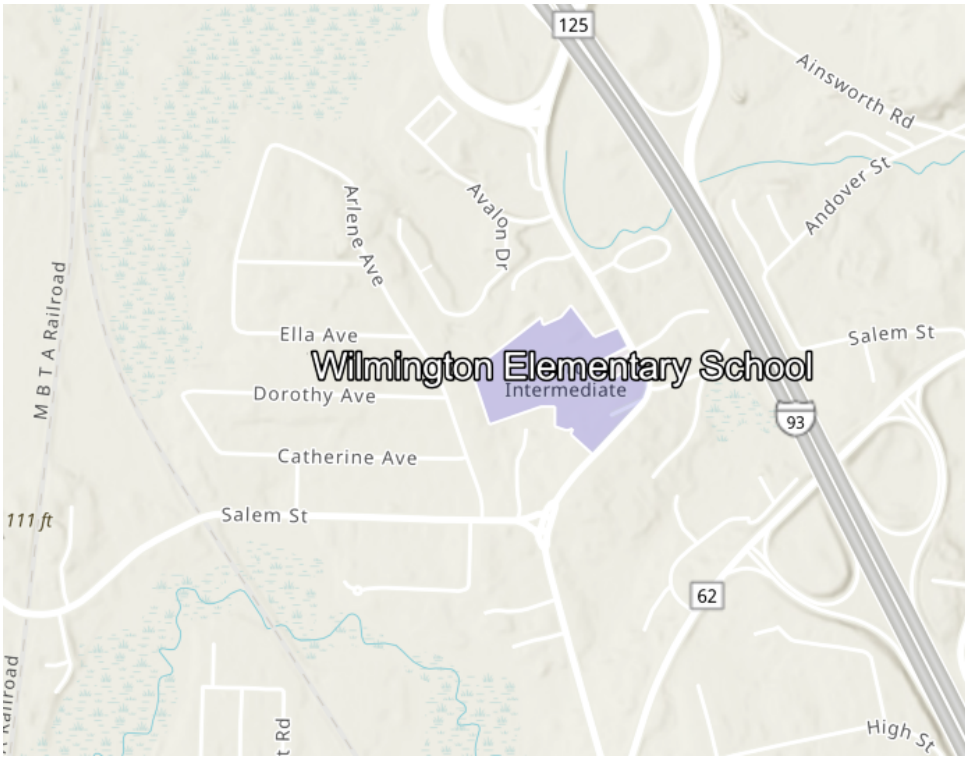
Wilmington Elementary School
Date Created: 11/23/2024 8:40:46 AM
Created By: dmentzer@doreandwhittier.com
Date Report Generated: 11/23/2024 2:04:14 PM
Tool Version: Version 1.2
Project Contact Information: David Mentzer (dmentzer@doreandwhittier.com)

Project Summary

Link to Project

Estimated Capital Cost: $183999998.00
End of Useful Life Year: 2076
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Moderate
Exposure	**Scores**
Sea Level Rise/Storm Surge	Not Exposed
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	Not Exposed
Extreme Heat	High Exposure



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Elementary School	Low Risk	High Risk	Low Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Elementary School					
Extreme Precipitation					
Elementary School	2070			50-yr (2%)	Tier 3
Extreme Heat					
Elementary School	2070		90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "Not Exposed" because of the following:

- Not located within the predicted mean high water shoreline by 2030
- No historic coastal flooding at project site
- Not located within the Massachusetts Coast Flood Risk Model (MC-FRM)

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Increased impervious area
- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- No historic flooding at project site
- Existing impervious area of the project site is between 10% and 50%

Extreme Precipitation - Riverine Flooding

This project received a "Not Exposed" because of the following:

- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is more than 500ft from a waterbody
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Less than 10% of the existing project site has canopy cover
- Located within 100 ft of existing water body

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Elementary School
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Less than 10,000 people would be directly affected by the loss/inoperability of the asset
- Few alternative programs and/or services are available to support the community
- Cost to replace is greater than $100 million
- There are no hazardous materials in the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Elementary School — Building/Facility

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Elementary School	2070	50-Year (2%)	9.8	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Project Inputs

Core Project Information

Name:	Wilmington Elementary School
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2076
Location of Project:	Wilmington
Estimated Capital Cost:	$183,999,998
Who is the Submitting Entity?	Private Other Dore + Whittier Archtiects David Mentzer (dmentzer@doreandwhittier.com)
Is this project being submitted as part of a state grant application?	Yes
What stage are you in your project lifecycle?	Design
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	Construction of new PK-5 school.
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project protects public water supply
- ✓ Project promotes decarbonization
- ✓ Project recharges groundwater
- ✓ Project filters stormwater using green infrastructure
- ✓ Project remediates existing sources of pollution
- ✓ Project provides recreation
- ✓ Project improves air quality
- ✓ Project prevents pollution
- ✓ Project provides cultural resources/education

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection
- ✓ Incorporate nature-based solutions that may reduce storm damage
- ✓ Incorporate nature-based solutions that improve water quality
- ✓ Incorporate nature-based solutions that sequester carbon carbon
- ✓ Increase biodiversity, protect critical habitat for species, manage invasive populations, and/or provide connectivity to other habitats
- ✓ Preserve, enhance, and/or restore coastal shellfish habitats
- ✓ Incorporate vegetation that provides pollinator habitat
- ✓ Increase plants, trees, and/or other vegetation to provide oxygen production

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	No
Reduces storm damage	No
Recharges groundwater	Yes
Protects public water supply	Yes
Filters stormwater using green infrastructure	Yes
Improves water quality	No
Promotes decarbonization	Yes
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	Yes
Prevents pollution	Yes
Remediates existing sources of pollution	Yes
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	Yes
Provides cultural resources/education	Yes

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	No
Does the project site have a history of riverine flooding?	No

Does the project result in a net increase in impervious area of the site?	Yes
Are existing trees being removed as part of the proposed project?	Yes

Project Assets

Asset: Elementary School
Asset Type: Typically Occupied
Asset Sub-Type: School (primary, secondary, high, vocational, etc.)
Construction Type: New Construction
Construction Year: 2026
Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Building may be inaccessible/inoperable for more than a day, but less than a week after natural hazards events without consequences

Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.
Impacts would be limited to local area and/or municipality

Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.
Less than 10,000 people

Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The building/facility does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

If the building/facility became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the building/facility would not be expected to result in injuries

If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?
There are no hazardous materials in the building/facility

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Greater than or equal to $100 million

Is this a recreational facility which can be vacated during a natural hazard event?
No

If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?
Few alternative programs and/or services are available to support the community

If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?
Loss of building is not expected to reduce the ability to maintain government services.

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?
Loss of confidence in government agency

Report Comments

N/A

SITE RISK ASSESSMENT & EVALUATION OF ENVIRONMENTAL HAZARDS

DORE + WHITTIER

Project: Wilmington Elementary School

Subject Site: Wildwood Early Childhood Center
182 Wildwood St. Wilmington, MA 01887

Applicable Options: PreK-K R.1; PreK-K AR.1; PreK-K N.1

Summary

This Site Risk Assessment & Evaluation of Environmental Hazards (the Assessment) was performed on the subject project to provide the District with information related to specific risks and/or hazards that may influence the suitability of the site or developmental considerations should the subject site be selected. This Assessment is specific to the subject site and options being considered for the project. A summary of Assessments for all sites under consideration will be incorporated into the MSBA Preferred Schematic Report.

Vulnerabilities Assessments

Flooding & Storm Surges

Floodplain Information was obtained from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), see Appendix X.10. All proposed sites are within a Zone X, which is identified as an area outside of the 0.2% chance (500-year) annual floodplain. Therefore, any redevelopment or new construction would not trigger a permit with respect to floodplain.

Using the Resilient Mass Action Team (RMAT) Climate Resilience Design Standards Tool (refer to attached report), the site is at *low risk* from flooding due to Sea Level Rise/Storm Surge as it is not in an exposed location. There is *moderate risk* from flooding due to Extreme Precipitation – Riverine Flooding given the proximity to Maple Meadow Brook to the north of the site. The site was found to be at *high risk* for Extreme Precipitation – Urban Flooding if the selected option increases the site impervious area.

Wilmington's annual average rainfall is 44.4 inches per year; rainfall amounts for all sites are comparable as these events are regional phenomena.

High Winds

The basic wind speed (*V*) for Risk Category III Buildings (Educational Group with more than 250 occupants) is 126 mph in accordance with Table 1604.11 of the 10th Edition of the Massachusetts State Building Code 780 CMR. A Surface Roughness Category B prevails in all directions surrounding the site for more than 2600 feet establishing the site as Exposure B. The building is not situated in a Hurricane Prone Region or a Wind-Borne Debris Region as defined by the Code.

The FEMA National Risk Index tool (refer to attached report) assesses risks associated with three types of wind events: hurricanes, tornadoes, and strong winds. These risks are aggregated for all of Middlesex County and are not specific to the Town of Wilmington or the subject site. The Risk Index tool is focused primarily on assessing the potential for financial loss across a region and has limited use for a site-specific risk assessment. Still, some useful contextual data can be gleaned from the Risk Index report.

Middlesex county has experienced 30 hurricane events over the 171-year record-keeping period, resulting in an average annual frequency of 0.175 hurricanes per year, or about one hurricane event every 5.7 years. Because of Wilmington's relative inland location, it is at lower risk of the most severe hurricane impacts, which is reflected in the Building Code wind speed determination above. The County has also experienced 10 tornados since 1950 for an average of one tornado every 7.4 years. Most of the tornadoes have been relatively mild (EF2 or lower) and none of these tornadoes passed through Wilmington. However, the most severe tornado on record, a category EF3 event, crossed Tewksbury in 1974. The FEMA tool also documents 32 Strong Wind Events (classified as wind speeds over 58 mph) since 1986, or approximately one per year. While this data is not predictive, it is useful to the extent that it indicates the potential for experiencing high-wind storms or events with some regularity during the building's functional life span.

Extreme Temperatures

A cold wave is defined as a rapid drop in temperature over 24 hours and extreme cold temperatures for an extended period, typically affecting a large area. To determine the potential for cold waves, we can rely on the FEMA Risk Tool report for Middlesex County which indicates that the region experiences a cold wave approximately every 4 years and assigned a Risk Index Rating of Relatively Moderate for the region. The RMAT tool did not indicate any site-specific risk associated with extreme cold conditions.

Similarly, heat waves are periods of abnormally and uncomfortably hot and humid weather for a region. The FEMA Risk Tool reports a frequency of one heat wave every 1.33 years – or three times the frequency of cold waves noted above. The resulting Risk Index Rating associated with heat waves for the county is also Relatively Moderate. However, the RMAT tool determined that the subject site was at High Risk for extreme heat related events. The RMAT results cite increased impervious area and the removal of trees resulting in potentially less than 10% of the site under canopy cover as site-specific factors associated with this determination.

Winter Weather

The winter weather annualized frequency as determined by the FEMA Risk Tool represents the average number of Winter Weather Hazard events for the region. Winter Weather Hazards are storms where the main types of precipitation are freezing rain, sleet, and/or snow. The Risk Tool reports an average of 6.7 winter storm events per year, making it one of the most frequent climate events affecting the site. Because the events are relatively common and the community is well positioned to manage such events, the FEMA Risk Tool reported a Risk Index Rating associated with Winter Storms as Relatively Low.

Wilmington's annual average snow fall is 53.9 inches per year; snowfall amounts for all sites are comparable as these events are regional phenomena. The capacity for each site to effectively manage snow accumulation on site can be a differentiating factor for the sites. Because the North School site is the largest of the three sites being considered, it has more potential for effective on-site snow storage and management in the event of high snow accumulation storm events.

Ice storms are freezing rain events (rain that freezes on contact) with significant ice accumulations of 0.25 inches or greater. The FEMA Risk Tool reports an average of 2.7 freezing rain events per year, resulting in a Risk Index Rating of Relatively High. Ice storms often have increased potential to damage buildings, property, and agriculture as well as regional power distribution. Similar to snowfall averages, the potential for ice storm events is the same for all sites under consideration.

Power Outages

80% of power outages are attributable to weather events. In particular, high wind events, ice storms, heavy snow, and combination events such as blizzards all contribute to the majority of outages. Given the regional risk factors for winter storm events noted above, the subject site will experience power outages from time to time. Massachusetts electrical utility customers experience on average 8.7 hours of power outage per year. All of the sites under consideration have the same relative risk for power outages.

Developmental Considerations

General Site Suitability

With respect to climate hazards and site resiliency assets, the site is generally well suited for development. Within the context of sites available for development in the Town of Wilmington, the subject site does not assume additional risk or vulnerability due to its specific location, exposure, or any immediate adjacencies.

Building Massing & Orientation

The building mass should leverage a relatively compact form with a low surface area to volume ratio in order to reduce shedding heat through the thermal envelope during cold weather events when power outages are more likely. In particular, minimizing roof exposure with multi-story configurations where possible will maximize the building volume for a given surface area exposure. A more compact building mass will also reduce the site impervious area, which is an important consideration for a site at elevated risk due to Extreme Precipitation – Urban Flooding.

Building orientation will have relatively little impact on resiliency strategies for the site. While specific fenestration orientation will have advantages with respect to day lighting and glare control, these considerations are not specific to site resiliency considerations.

Floor Elevations of Occupied Areas and Critical Equipment

The subject site is not at risk for coastal flooding, or storm surges, but there is moderate risk of riverine flooding. The lowest floor of occupied area should be situated as high as possible on the site, ideally more than 20 feet above the adjacent Maple Meadow Brook bank. Critical equipment would ideally be located on the second floor above finished grade or, where not feasible, located with an elevated floor above grade with exposure-side waterproofing installed on enclosing walls.

Stormwater Management

As was noted in the Vulnerability Assessment section, the subject site was found to be at *high risk* for Extreme Precipitation – Urban Flooding, particularly since the options proposed for this site will likely increase the impervious area. The ResilientMass Map & Data center project a 10.8% increase in total precipitation and a 14.8% increase in the 99th percentile storm rainfall for the target year 2070. Site-specific stormwater management design should consider both current and projected increases in rainfall event volume.

Given the relatively small area of the site with respect to the potential developed area, and the continued operation of the existing school that is anticipated during construction, special consideration to alternative means of stormwater infiltration or sub-surface detention may need to be considered.

Building Materials

Site-specific consideration of building materials can generally be addressed in three categories.

- Superstructure: Because of the site's inland location well away from coastal brackish waters or salt spray, protection from corrosion is not a particular concern for the site. Exterior exposed structural steel members can be protected with conventional hot-dipped galvanized finish. Building foundations should be designed assuming freeze-thaw exposure category F2.
- Exterior Materials: High resilience to freeze-thaw cycling and UV degradation are the primary considerations for the selection of exterior building materials. Materials close to the ground should be highly durable with few or no open ventilation joints that would allow snow or ice to accumulate within wall cavities. Exterior concrete paving of pedestrian walks and near building entries should assume freeze-thaw exposure category F-3.
- Interior Materials: Finish floor surfaces in building entries, adjacent primary corridors, and high-traffic assembly areas should be selected to be highly durable when exposed to water, ice, snow, and de-icing chemicals.

Building Systems Selection

Mechanical (HVAC) systems that are all-electric will eliminate dependence on fossil fuel burning equipment for facility. However, all-electric systems are also dependent on a reliable and durable power grid for long-term viability. The resiliency and continued development of the regional power grid is outside of the control of the building owners. However, the FEMA Risk Tool indicates that Middlesex County has a Social Vulnerability rating of *Relatively Low* and a Community Resilience rating of *Relatively High*. These social categorizations suggest that the region is well suited to continue to prioritize and invest in socially beneficial environmental improvements, such as maintenance and improvement of the regional power grid. It would be reasonable to expect that, in this region all-electric building systems will be highly resilient over the anticipated building life span. Where feasible, simplicity of operations and maintenance of the mechanical and electrical systems will improve the overall resilience of the system design.

Emergency Back-Up Systems

The building will be required to be designed with a generator to power emergency back-up systems. Diesel generators functional time is limited by the fuel tank size. However, given that the average electrical customer experiences only 8.7 hours of power outage per year, conventional fuel tank sizes that anticipate 48 to 72 hours of operation should be more than adequate to deal with occasional intermittent outages. Natural gas generators are connected to the local gas utility and will not be subject to the same fuel tank size time limitations; in this regard, a natural gas generator is better suited for extreme long-term power outages (more than 48 hours).

If the project intends to incorporate on-site renewable energy systems (electrical PV array – either roof-top or on-site), then energy storage systems should be considered to further reduce dependence on fossil fuels and to provide alternative back-up power options. Alternative power sources will improve the overall facility resilience.

Emergency Event Design Considerations

The facility will not be designed or designated as an emergency shelter. Emergency event planning will be developed by the Owner considering primarily maintaining operations as a school facility.

Wildwood Site

Climate Resilience Design Standards Tool Project Report

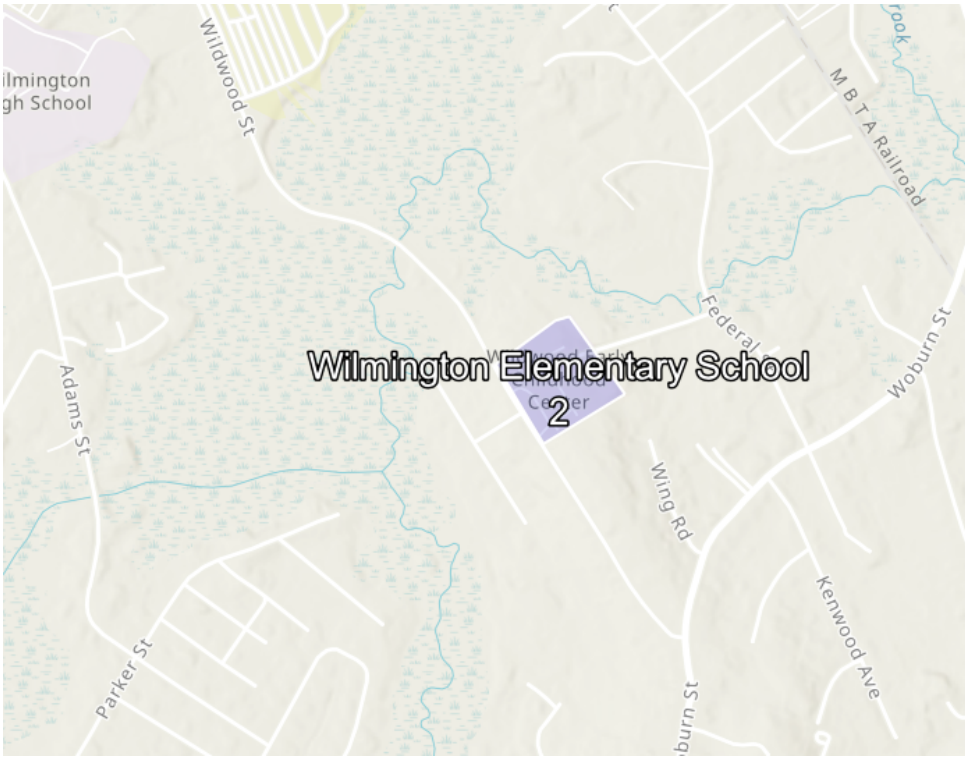
Wilmington Elementary School 2
Date Created: 12/2/2024 6:38:12 AM
Created By: dmentzer@doreandwhittier.com
Date Report Generated: 12/2/2024 12:07:07 PM
Tool Version: Version 1.2
Project Contact Information: David Mentzer (dmentzer@doreandwhittier.com)

Project Summary

Link to Project

Estimated Capital Cost: $92000000.00
End of Useful Life Year: 2076
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Moderate
Exposure	**Scores**
Sea Level Rise/Storm Surge	Not Exposed
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	Moderate Exposure
Extreme Heat	High Exposure



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Pre-K & K Building	Low Risk	High Risk	Moderate Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Pre-K & K Building					
Extreme Precipitation					
Pre-K & K Building	2070			25-yr (4%)	Tier 3
Extreme Heat					
Pre-K & K Building	2070		90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "Not Exposed" because of the following:

- Not located within the predicted mean high water shoreline by 2030
- No historic coastal flooding at project site
- Not located within the Massachusetts Coast Flood Risk Model (MC-FRM)

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Increased impervious area
- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- No historic flooding at project site
- Existing impervious area of the project site is between 10% and 50%

Extreme Precipitation - Riverine Flooding

This project received a "Moderate Exposure" because of the following:

- Part of the project is within 500ft of a waterbody and less than 20ft above the waterbody
- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Not located within 100 ft of existing water body
- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Existing impervious area of the project site is between 10% and 50%

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Pre-K & K Building
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Less than 10,000 people would be directly affected by the loss/inoperability of the asset
- Few alternative programs and/or services are available to support the community
- Cost to replace is between $30 million and $100 million
- There are no hazardous materials in the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Pre-K & K Building — Building/Facility

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 25-yr (4%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Pre-K & K Building	2070	25-Year (4%)	8.7	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Extreme Heat High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Project Inputs

Core Project Information

Name:	Wilmington Elementary School 2
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2076
Location of Project:	Wilmington
Estimated Capital Cost:	$92,000,000
Who is the Submitting Entity?	Private Other Dore + Whitter Architects, Inc. David Mentzer (dmentzer@doreandwhittier.com)
Is this project being submitted as part of a state grant application?	Yes
What stage are you in your project lifecycle?	Design
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	Construction of new Pre-K & Kindergarten School
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project protects public water supply
- ✓ Project promotes decarbonization
- ✓ Project recharges groundwater
- ✓ Project filters stormwater using green infrastructure
- ✓ Project remediates existing sources of pollution
- ✓ Project provides recreation
- ✓ Project improves air quality
- ✓ Project prevents pollution
- ✓ Project provides cultural resources/education

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection
- ✓ Incorporate nature-based solutions that may reduce storm damage
- ✓ Incorporate nature-based solutions that improve water quality
- ✓ Incorporate nature-based solutions that sequester carbon carbon
- ✓ Increase biodiversity, protect critical habitat for species, manage invasive populations, and/or provide connectivity to other habitats
- ✓ Preserve, enhance, and/or restore coastal shellfish habitats
- ✓ Incorporate vegetation that provides pollinator habitat
- ✓ Increase plants, trees, and/or other vegetation to provide oxygen production

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	No
Reduces storm damage	No
Recharges groundwater	Yes
Protects public water supply	Yes
Filters stormwater using green infrastructure	Yes
Improves water quality	No
Promotes decarbonization	Yes
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	Yes
Prevents pollution	Yes
Remediates existing sources of pollution	Yes
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	Yes
Provides cultural resources/education	Yes

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	No
Does the project site have a history of riverine flooding?	No

Does the project result in a net increase in impervious area of the site?	Yes
Are existing trees being removed as part of the proposed project?	Yes

Project Assets

Asset: Pre-K & K Building
Asset Type: Typically Occupied
Asset Sub-Type: School (primary, secondary, high, vocational, etc.)
Construction Type: New Construction
Construction Year: 2026
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Building may be inaccessible/inoperable for more than a day, but less than a week after natural hazards events without consequences
Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.
Less than 10,000 people
Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The building/facility does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
If the building/facility became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the building/facility would not be expected to result in injuries
If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?
There are no hazardous materials in the building/facility
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Between $30 million and $100 million
Is this a recreational facility which can be vacated during a natural hazard event?
No
If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?
Few alternative programs and/or services are available to support the community
If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?
Loss of building is not expected to reduce the ability to maintain government services.
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?
Loss of confidence in government agency

Report Comments

N/A

SITE RISK ASSESSMENT & EVALUATION OF ENVIRONMENTAL HAZARDS

DORE + WHITTIER

Project: Wilmington Elementary School

Subject Site: Woburn Street School
227 Woburn St. Wilmington, MA 01887

Applicable Options: PreK-3 R.1; PreK-3 AR.1; PreK-3 N.1

Summary

This Site Risk Assessment & Evaluation of Environmental Hazards (the Assessment) was performed on the subject project to provide the District with information related to specific risks and/or hazards that may influence the suitability of the site or developmental considerations should the subject site be selected. This Assessment is specific to the subject site and options being considered for the project. A summary of Assessments for all sites under consideration will be incorporated into the MSBA Preferred Schematic Report.

Vulnerabilities Assessments

Flooding & Storm Surges

Floodplain Information was obtained from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), see Appendix X.10. All proposed sites are within a Zone X, which is identified as an area outside of the 0.2% chance (500-year) annual floodplain. Therefore, any redevelopment or new construction would not trigger a permit with respect to floodplain.

Using the Resilient Mass Action Team (RMAT) Climate Resilience Design Standards Tool (refer to attached report), the site is at *low risk* from flooding due to Sea Level Rise/Storm Surge and Extreme Precipitation – Riverine Flooding as it is not in an exposed location. The site was found to be at *high risk* for Extreme Precipitation – Urban Flooding if the selected option increases the site impervious area.

Wilmington's annual average rainfall is 44.4 inches per year; rainfall amounts for all sites are comparable as these events are regional phenomena.

High Winds

The basic wind speed (*V*) for Risk Category III Buildings (Educational Group with more than 250 occupants) is 126 mph in accordance with Table 1604.11 of the 10th Edition of the Massachusetts State Building Code 780 CMR. A Surface Roughness Category B prevails in all directions surrounding the site for more than 2600 feet establishing the site as Exposure B. The building is not situated in a Hurricane Prone Region or a Wind-Borne Debris Region as defined by the Code.

The FEMA National Risk Index tool (refer to attached report) assesses risks associated with three types of wind events: hurricanes, tornadoes, and strong winds. These risks are aggregated for all of Middlesex County and are not specific to the Town of Wilmington or the subject site. The Risk Index tool is focused primarily on assessing the potential for financial loss across a region and has limited use for a site-specific risk assessment. Still, some useful contextual data can be gleaned from the Risk Index report.

Middlesex county has experienced 30 hurricane events over the 171-year record-keeping period, resulting in an average annual frequency of 0.175 hurricanes per year, or about one hurricane event every 5.7 years. Because of Wilmington's relative inland location, it is at lower risk of the most severe hurricane impacts, which is reflected in the Building Code wind speed determination above. The County has also experienced 10 tornados since 1950 for an average of one tornado every 7.4 years. Most of the tornadoes have been relatively mild (EF2 or lower) and none of these tornadoes passed through Wilmington. However, the most severe tornado on record, a category EF3 event, crossed Tewksbury in 1974. The FEMA tool also documents 32 Strong Wind Events (classified as wind speeds over 58 mph) since 1986, or approximately one per year. While this data is not predictive, it is useful to the extent that it indicates the potential for experiencing high-wind storms or events with some regularity during the building's functional life span.

Extreme Temperatures

A cold wave is defined as a rapid drop in temperature over 24 hours and extreme cold temperatures for an extended period, typically affecting a large area. To determine the potential for cold waves, we can rely on the FEMA Risk Tool report for Middlesex County which indicates that the region experiences a cold wave approximately every 4 years and assigned a Risk Index Rating of Relatively Moderate for the region. The RMAT tool did not indicate any site-specific risk associated with extreme cold conditions.

Similarly, heat waves are periods of abnormally and uncomfortably hot and humid weather for a region. The FEMA Risk Tool reports a frequency of one heat wave every 1.33 years – or three times the frequency of cold waves noted above. The resulting Risk Index Rating associated with heat waves for the county is also Relatively Moderate. However, the RMAT tool determined that the subject site was at High Risk for extreme heat related events. The RMAT results cite increased impervious area and the removal of trees resulting in potentially less than 10% of the site under canopy cover as site-specific factors associated with this determination.

Winter Weather

The winter weather annualized frequency as determined by the FEMA Risk Tool represents the average number of Winter Weather Hazard events for the region. Winter Weather Hazards are storms where the main types of precipitation are freezing rain, sleet, and/or snow. The Risk Tool reports an average of 6.7 winter storm events per year, making it one of the most frequent climate events affecting the site. Because the events are relatively common and the community is well positioned to manage such events, the FEMA Risk Tool reported a Risk Index Rating associated with Winter Storms as Relatively Low.

Wilmington's annual average snow fall is 53.9 inches per year; snowfall amounts for all sites are comparable as these events are regional phenomena. The capacity for each site to effectively manage snow accumulation on site can be a differentiating factor for the sites. Because the North School site is the largest of the three sites being considered, it has more potential for effective on-site snow storage and management in the event of high snow accumulation storm events.

Ice storms are freezing rain events (rain that freezes on contact) with significant ice accumulations of 0.25 inches or greater. The FEMA Risk Tool reports an average of 2.7 freezing rain events per year, resulting in a Risk Index Rating of Relatively High. Ice storms often have increased potential to damage buildings, property, and agriculture as well as regional power distribution. Similar to snowfall averages, the potential for ice storm events is the same for all sites under consideration.

Power Outages

80% of power outages are attributable to weather events. In particular, high wind events, ice storms, heavy snow, and combination events such as blizzards all contribute to the majority of outages. Given the regional risk factors for winter storm events noted above, the subject site will experience power outages from time to time. Massachusetts electrical utility customers experience on average 8.7 hours of power outage per year. All of the sites under consideration have the same relative risk for power outages.

Developmental Considerations

General Site Suitability

With respect to climate hazards and site resiliency assets, the site is generally well suited for development. Within the context of sites available for development in the Town of Wilmington, the subject site does not assume additional risk or vulnerability due to its specific location, exposure, or any immediate adjacencies.

Building Massing & Orientation

The building mass should leverage a relatively compact form with a low surface area to volume ratio in order to reduce shedding heat through the thermal envelope during cold weather events when power outages are more likely. In particular, minimizing roof exposure with multi-story configurations where possible will maximize the building volume for a given surface area exposure. A more compact building mass will also reduce the site impervious area, which is an important consideration for a site at elevated risk due to Extreme Precipitation – Urban Flooding.

Building orientation will have relatively little impact on resiliency strategies for the site. While specific fenestration orientation will have advantages with respect to day lighting and glare control, these considerations are not specific to site resiliency considerations.

Floor Elevations of Occupied Areas and Critical Equipment

The subject site is not at risk for coastal flooding, storm surges, or riverine flooding. Therefore, there is no critical elevation to maintain for occupied floors or critical equipment. Given the sites risk associated with urban flooding, the lowest floor elevation should be situated above finish grade with the surrounding grade sloping away from the building as a passive flood mitigation strategy.

Stormwater Management

As was noted in the Vulnerability Assessment section, the subject site was found to be at *high risk* for Extreme Precipitation – Urban Flooding, particularly since the options proposed for this site will likely increase the impervious area. The ResilientMass Map & Data center project a 10.8% increase in total precipitation and a 14.8% increase in the 99th percentile storm rainfall for the target year 2070. Site-specific stormwater management design should consider both current and projected increases in rainfall event volume.

Given the relatively small area of the site with respect to the potential developed area, and the continued operation of the existing school that is anticipated during construction, special consideration to alternative means of stormwater infiltration or sub-surface detention may need to be considered.

Building Materials

Site-specific consideration of building materials can generally be addressed in three categories.

- Superstructure: Because of the site's inland location well away from coastal brackish waters or salt spray, protection from corrosion is not a particular concern for the site. Exterior exposed structural steel members can be protected with conventional hot-dipped galvanized finish. Building foundations should be designed assuming freeze-thaw exposure category F2.
- Exterior Materials: High resilience to freeze-thaw cycling and UV degradation are the primary considerations for the selection of exterior building materials. Materials close to the ground should be highly durable with few or no open ventilation joints that would allow snow or ice to accumulate within wall cavities. Exterior concrete paving of pedestrian walks and near building entries should assume freeze-thaw exposure category F-3.
- Interior Materials: Finish floor surfaces in building entries, adjacent primary corridors, and high-traffic assembly areas should be selected to be highly durable when exposed to water, ice, snow, and de-icing chemicals.

Building Systems Selection

Mechanical (HVAC) systems that are all-electric will eliminate dependence on fossil fuel burning equipment for facility. However, all-electric systems are also dependent on a reliable and durable power grid for long-term viability. The resiliency and continued development of the regional power grid is outside of the control of the building owners. However, the FEMA Risk Tool indicates that Middlesex County has a Social Vulnerability rating of *Relatively Low* and a Community Resilience rating of *Relatively High*. These social categorizations suggest that the region is well suited to continue to prioritize and invest in socially beneficial environmental improvements, such as maintenance and improvement of the regional power grid. It would be reasonable to expect that, in this region all-electric building systems will be highly resilient over the anticipated building life span. Where feasible, simplicity of operations and maintenance of the mechanical and electrical systems will improve the overall resilience of the system design.

Emergency Back-Up Systems

The building will be required to be designed with a generator to power emergency back-up systems. Diesel generators functional time is limited by the fuel tank size. However, given that the average electrical customer experiences only 8.7 hours of power outage per year, conventional fuel tank sizes that anticipate 48 to 72 hours of operation should be more than adequate to deal with occasional intermittent outages. Natural gas generators are connected to the local gas utility and will not be subject to the same fuel tank size time limitations; in this regard, a natural gas generator is better suited for extreme long-term power outages (more than 48 hours).

If the project intends to incorporate on-site renewable energy systems (electrical PV array – either roof-top or on-site), then energy storage systems should be considered to further reduce dependence on fossil fuels and to provide alternative back-up power options. Alternative power sources will improve the overall facility resilience.

Emergency Event Design Considerations

The facility will not be designed or designated as an emergency shelter. Emergency event planning will be developed by the Owner considering primarily maintaining operations as a school facility.

Woburn Site

Climate Resilience Design Standards Tool Project Report

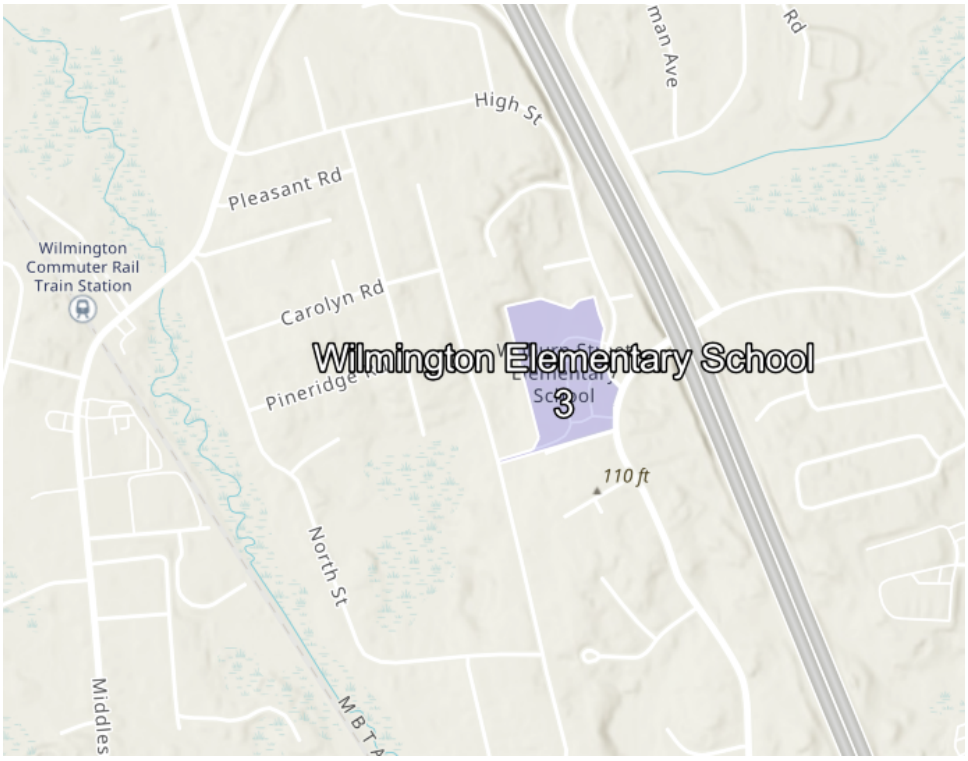
Wilmington Elementary School 3
Date Created: 12/2/2024 7:08:31 AM
Created By: dmentzer@doreandwhittier.com
Date Report Generated: 12/2/2024 12:18:53 PM
Tool Version: Version 1.2
Project Contact Information: David Mentzer (dmentzer@doreandwhittier.com)

Project Summary

Link to Project

Estimated Capital Cost: $150000000.00
End of Useful Life Year: 2076
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Moderate
Exposure	**Scores**
Sea Level Rise/Storm Surge	Not Exposed
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	Not Exposed
Extreme Heat	High Exposure



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Elementary School	Low Risk	High Risk	Low Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Elementary School					
Extreme Precipitation					
Elementary School	2070			50-yr (2%)	Tier 3
Extreme Heat					
Elementary School	2070		90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "Not Exposed" because of the following:

- Not located within the predicted mean high water shoreline by 2030
- No historic coastal flooding at project site
- Not located within the Massachusetts Coast Flood Risk Model (MC-FRM)

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Increased impervious area
- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- No historic flooding at project site
- Existing impervious area of the project site is between 10% and 50%

Extreme Precipitation - Riverine Flooding

This project received a "Not Exposed" because of the following:

- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is more than 500ft from a waterbody
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Not located within 100 ft of existing water body
- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Existing impervious area of the project site is between 10% and 50%

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Elementary School
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Less than 10,000 people would be directly affected by the loss/inoperability of the asset
- Few alternative programs and/or services are available to support the community
- Cost to replace is greater than $100 million
- There are no hazardous materials in the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Elementary School — Building/Facility

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Elementary School	2070	50-Year (2%)	9.8	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Project Inputs

Core Project Information

Name:	Wilmington Elementary School 3
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2076
Location of Project:	Wilmington
Estimated Capital Cost:	$150,000,000
Who is the Submitting Entity?	Private Other Dore + Whittier Architects David Mentzer (dmentzer@doreandwhittier.com)
Is this project being submitted as part of a state grant application?	No
Which grant program?	
What stage are you in your project lifecycle?	Design
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	Construct new Pre-K - 5 school building.
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project protects public water supply
- ✓ Project promotes decarbonization
- ✓ Project recharges groundwater
- ✓ Project filters stormwater using green infrastructure
- ✓ Project provides pollinator habitat
- ✓ Project remediates existing sources of pollution
- ✓ Project provides recreation
- ✓ Project improves air quality
- ✓ Project prevents pollution
- ✓ Project provides cultural resources/education

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection
- ✓ Incorporate nature-based solutions that may reduce storm damage
- ✓ Incorporate nature-based solutions that improve water quality
- ✓ Incorporate nature-based solutions that sequester carbon carbon
- ✓ Increase biodiversity, protect critical habitat for species, manage invasive populations, and/or provide connectivity to other habitats
- ✓ Preserve, enhance, and/or restore coastal shellfish habitats
- ✓ Increase plants, trees, and/or other vegetation to provide oxygen production

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	No
Reduces storm damage	No
Recharges groundwater	Yes
Protects public water supply	Yes
Filters stormwater using green infrastructure	Yes
Improves water quality	No
Promotes decarbonization	Yes
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	Yes
Prevents pollution	Yes
Remediates existing sources of pollution	Yes
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollinator habitat	Yes
Provides recreation	Yes
Provides cultural resources/education	Yes

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	No

Does the project site have a history of riverine flooding?	No
Does the project result in a net increase in impervious area of the site?	Yes
Are existing trees being removed as part of the proposed project?	Yes

Project Assets

Asset: Elementary School
Asset Type: Typically Occupied
Asset Sub-Type: School (primary, secondary, high, vocational, etc.)
Construction Type: New Construction
Construction Year: 2026
Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Building may be inaccessible/inoperable for more than a day, but less than a week after natural hazards events without consequences

Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.
Impacts would be limited to local area and/or municipality

Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.
Less than 10,000 people

Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The building/facility does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

If the building/facility became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the building/facility would not be expected to result in injuries

If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?
There are no hazardous materials in the building/facility

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Greater than or equal to $100 million

Is this a recreational facility which can be vacated during a natural hazard event?
No

If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?
Few alternative programs and/or services are available to support the community

If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?
Loss of building is not expected to reduce the ability to maintain government services.

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?
Loss of confidence in government agency

Report Comments

N/A

National Risk Index

December 01, 2024

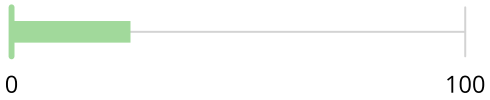
Middlesex County, Massachusetts

Summary

Risk Index is **Relatively High** Score **96.1**

Expected Annual Loss is **Relatively High** Score **96.7**

Social Vulnerability is **Relatively Low** Score **26.8**



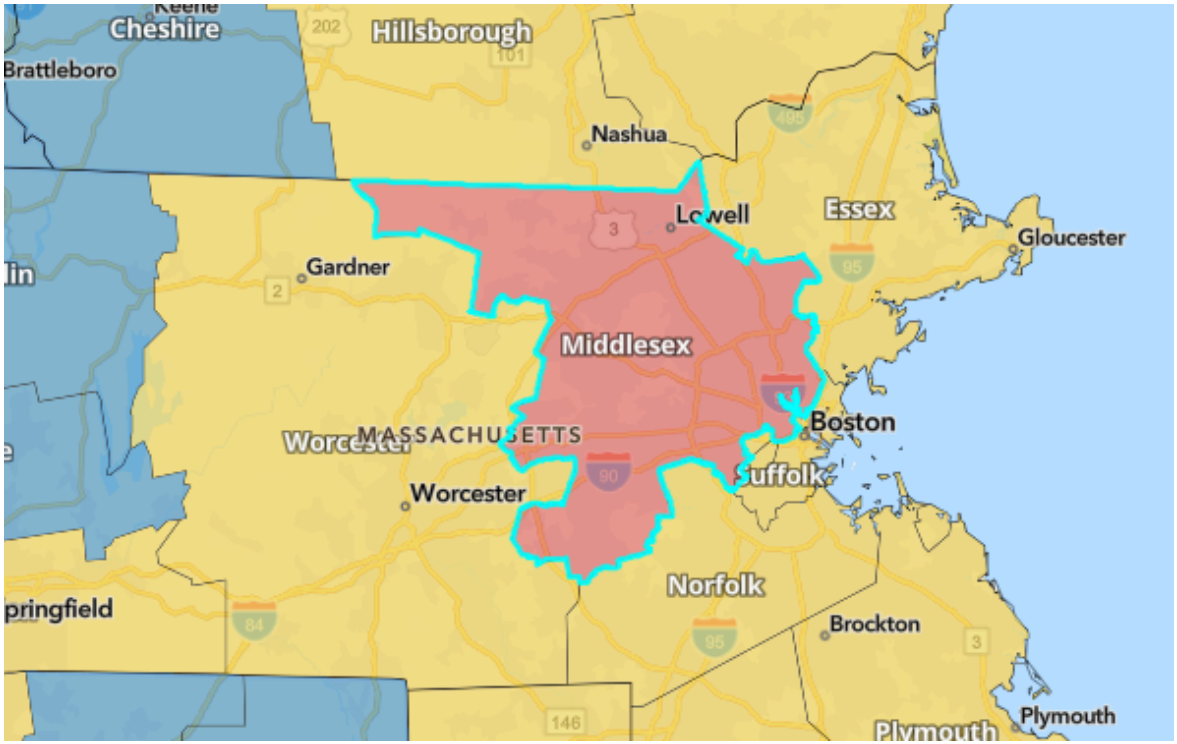
Community Resilience is **Very High** Score **91.3**

While reviewing this report, keep in mind that low risk is driven by lower loss due to natural hazards, lower social vulnerability, and higher community resilience.

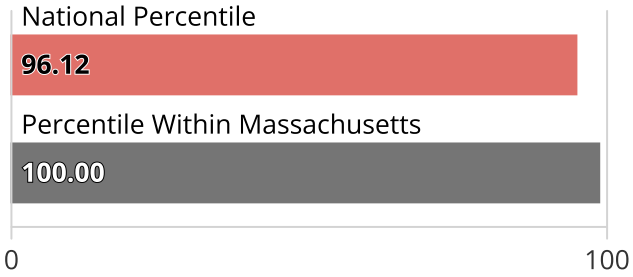
For more information about the National Risk Index, its data, and how to interpret the information it provides, please review the **About the National Risk Index** and **How to Take Action** sections at the end of this report. Or, visit the National Risk Index website at hazards.fema.gov/nri/learn-more to access supporting documentation and links.

Risk Index

The Risk Index rating is **Relatively High** for **Middlesex County, MA** when compared to the rest of the U.S.



Score	96.12



96% of U.S. counties have a lower Risk Index

100% of counties in Massachusetts have a lower Risk Index

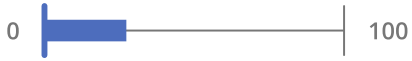
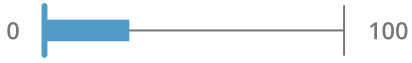
Risk Index Legend

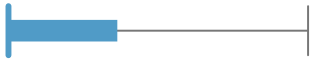
Very High | Relatively High | Relatively Moderate | Relatively Low | Very Low

No Rating | Not Applicable | Insufficient Data

Hazard Type Risk Index

Hazard type Risk Index scores are calculated using data for only a single hazard type, and reflect a community's Expected Annual Loss value, community risk factors, and the adjustment factor used to calculate the risk value.

Hazard Type	Risk Index Rating	Risk Index Score	National Percentile
Avalanche	Not Applicable	--	
Coastal Flooding	Relatively Low	59.2	
Cold Wave	Relatively Moderate	69.6	
Drought	Relatively Moderate	96.9	
Earthquake	Relatively Moderate	94.1	
Hail	Very Low	27.7	
Heat Wave	Relatively Moderate	88.5	
Hurricane	Relatively High	97.4	
Ice Storm	Relatively High	91.6	
Landslide	Relatively Moderate	86.1	
Lightning	Relatively High	98.6	
Riverine Flooding	Relatively High	97.2	
Strong Wind	Relatively Low	29	

Hazard Type	Risk Index Rating	Risk Index Score	National Percentile
Tornado	Relatively Moderate	90.6	0  100
Tsunami	Insufficient Data	--	
Volcanic Activity	Not Applicable	--	
Wildfire	Relatively Low	78.9	0  100
Winter Weather	Relatively Low	36.2	0  100

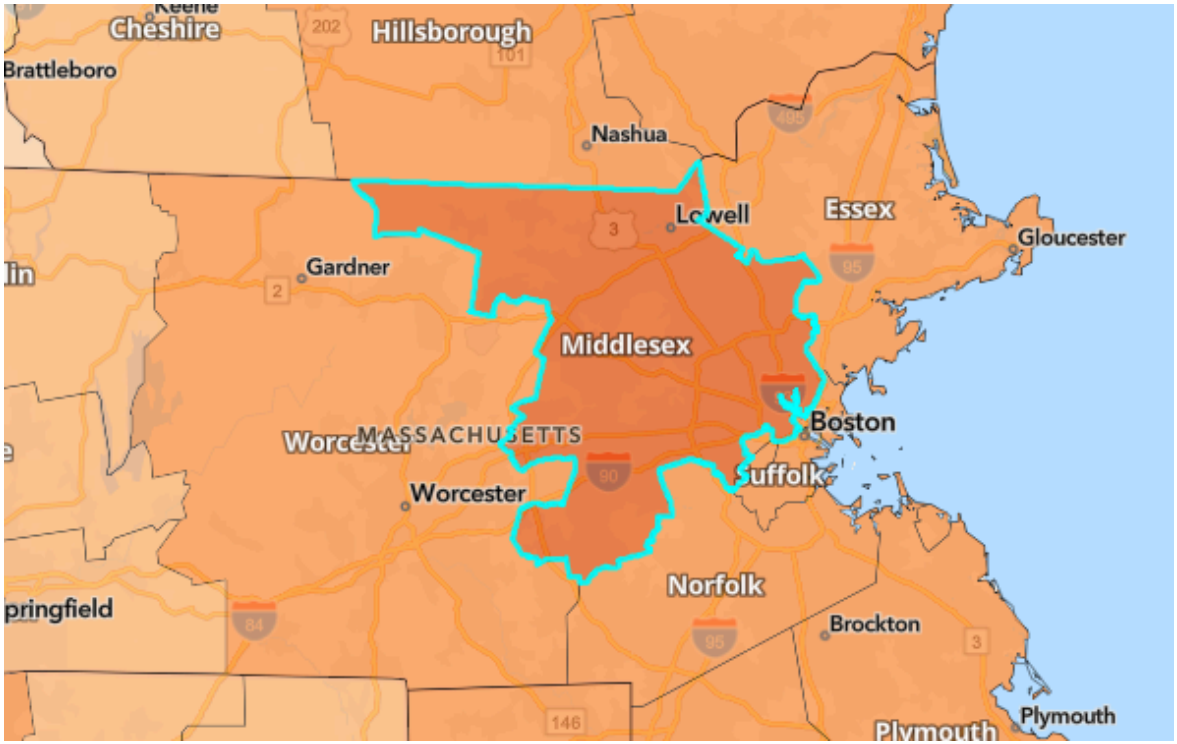
Risk Factor Breakdown

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
Hurricane	$96,835,677	Relatively Low	Very High	0.95	$91,721,122	97.4
Riverine Flooding	$12,926,359	Relatively Low	Very High	0.95	$12,523,153	97.2
Earthquake	$7,857,000	Relatively Low	Very High	0.95	$7,533,286	94.1
Tornado	$7,919,352	Relatively Low	Very High	0.95	$7,509,666	90.6
Lightning	$2,454,697	Relatively Low	Very High	0.95	$2,402,237	98.6
Drought	$2,035,716	Relatively Low	Very High	0.95	$1,671,156	96.9
Heat Wave	$996,428	Relatively Low	Very High	0.95	$979,210	88.5
Ice Storm	$776,817	Relatively Low	Very High	0.95	$752,033	91.6
Wildfire	$586,631	Relatively Low	Very High	0.95	$455,553	78.9
Coastal Flooding	$244,506	Relatively Low	Very High	0.95	$269,073	59.2
Cold Wave	$220,633	Relatively Low	Very High	0.95	$215,463	69.6
Strong Wind	$186,312	Relatively Low	Very High	0.95	$180,449	29
Landslide	$152,400	Relatively Low	Very High	0.95	$143,163	86.1
Hail	$38,497	Relatively Low	Very High	0.95	$37,291	27.7

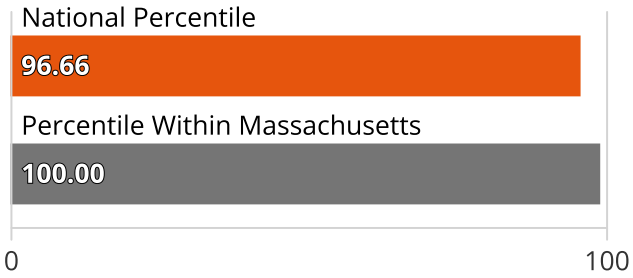
Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
Winter Weather	$35,074	Relatively Low	Very High	0.95	$34,034	36.2
Avalanche	--	Relatively Low	Very High	0.95	--	--
Tsunami	--	Relatively Low	Very High	0.95	--	--
Volcanic Activity	--	Relatively Low	Very High	0.95	--	--

Expected Annual Loss

In **Middlesex County, MA**, expected loss each year due to natural hazards is **Relatively High** when compared to the rest of the U.S.



Score	96.66



97% of U.S. counties have a lower Expected Annual Loss

100% of counties in Massachusetts have a lower Expected Annual Loss

Expected Annual Loss Legend

Very High | Relatively High | Relatively Moderate | Relatively Low | Very Low

No Expected Annual Losses | Not Applicable | Insufficient Data

Composite Expected Annual Loss	**$133,266,097.94**

Composite Expected Annual Loss Rate National Percentile	**22.8**

Building EAL	**$112,281,812.69**	Population EAL	**1.59** fatalities
Building EAL Rate	**$1 per $2.72K of building value**	Population EAL Rate	**1 per 1.02M people**
Agriculture EAL	**$2,502,548.75**	Population Equivalence EAL	**$18,481,736.49**
Agriculture EAL Rate	**$1 per $29.03 of agriculture value**		

Expected Annual Loss for Hazard Types

Expected Annual Loss scores for hazard types are calculated using data for only a single hazard type, and reflect a community's relative expected annual loss for only that hazard type.

15 of 18 hazard types contribute to the expected annual loss for **Middlesex County, MA**.

Hazard Type	Expected Annual Loss Rating	EAL Value	Score
Hurricane	Relatively High	$96,835,677	97.8
Riverine Flooding	Relatively High	$12,926,359	97.6
Tornado	Relatively High	$7,919,352	92.7
Earthquake	Relatively Moderate	$7,857,000	94.2
Lightning	Very High	$2,454,697	98.8
Drought	Relatively Moderate	$2,035,716	97.9

Hazard Type	Expected Annual Loss Rating	EAL Value	Score
Heat Wave	Relatively Moderate	$996,428	90.5
Ice Storm	Relatively High	$776,817	92.9
Wildfire	Relatively Low	$586,631	83.2
Coastal Flooding	Relatively Low	$244,506	60.3
Cold Wave	Relatively Moderate	$220,633	73.0
Strong Wind	Relatively Low	$186,312	35.4
Landslide	Relatively Moderate	$152,400	89.9
Hail	Very Low	$38,497	33.7
Winter Weather	Relatively Low	$35,074	42.9
Avalanche	Not Applicable	--	--
Tsunami	Insufficient Data	--	--
Volcanic Activity	Not Applicable	--	--

Expected Annual Loss Values

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Avalanche	--	--	--	--	--
Coastal Flooding	$244,506	$240,830	$3,676	0.00	n/a

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Cold Wave	$220,633	$4,708	$212,762	0.02	$3,162
Drought	$2,035,716	n/a	n/a	n/a	$2,035,716
Earthquake	$7,857,000	$6,565,661	$1,291,339	0.11	n/a
Hail	$38,497	$9,426	$28,209	0.00	$862
Heat Wave	$996,428	$4	$991,377	0.09	$5,047
Hurricane	$96,835,677	$94,611,547	$2,031,672	0.18	$192,459
Ice Storm	$776,817	$214,013	$562,803	0.05	n/a
Landslide	$152,400	$135,000	$17,400	0.00	n/a
Lightning	$2,454,697	$244,744	$2,209,954	0.19	n/a
Riverine Flooding	$12,926,359	$2,743,852	$9,918,718	0.86	$263,790
Strong Wind	$186,312	$55,433	$130,302	0.01	$577
Tornado	$7,919,352	$6,901,178	$1,017,296	0.09	$878
Tsunami	n/a	n/a	n/a	n/a	n/a
Volcanic Activity	--	--	--	--	--
Wildfire	$586,631	$544,530	$42,077	0.00	$23
Winter Weather	$35,074	$10,886	$24,153	0.00	$35

Exposure Values

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Avalanche	--	--	--	--	--
Coastal Flooding	$235,773,189,912	$3,696,704,325	$232,076,485,587	20,006.59	n/a
Cold Wave	$19,211,929,393,780	$305,517,282,052	$18,906,339,451,613	1,629,856.85	$72,660,115
Drought	$62,370,398	n/a	n/a	n/a	$62,370,398
Earthquake	$19,236,736,489,000	$305,513,289,000	$18,931,223,200,000	1,632,002.00	n/a
Hail	$19,211,931,152,653	$305,517,292,538	$18,906,341,200,000	1,629,857.00	$72,660,115
Heat Wave	$19,211,929,393,780	$305,517,282,052	$18,906,339,451,613	1,629,856.85	$72,660,115
Hurricane	$19,206,493,890,237	$305,468,766,101	$18,900,952,464,021	1,629,392.45	$72,660,115
Ice Storm	$19,130,142,187,706	$304,516,073,322	$18,825,626,114,384	1,622,898.80	n/a
Landslide	$7,393,617,604,943	$122,698,473,540	$7,270,919,131,403	626,803.37	n/a
Lightning	$19,211,858,492,538	$305,517,292,538	$18,906,341,200,000	1,629,857.00	n/a
Riverine Flooding	$345,879,505,528	$6,314,430,889	$339,548,498,810	29,271.42	$16,575,829
Strong Wind	$19,211,931,152,653	$305,517,292,538	$18,906,341,200,000	1,629,857.00	$72,660,115
Tornado	$19,211,931,152,653	$305,517,292,538	$18,906,341,200,000	1,629,857.00	$72,660,115
Tsunami	n/a	n/a	n/a	n/a	n/a

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Volcanic Activity	--	--	--	--	--
Wildfire	$518,612,627,728	$9,464,482,501	$509,142,886,061	43,891.63	$5,259,166
Winter Weather	$19,211,929,393,780	$305,517,282,052	$18,906,339,451,613	1,629,856.85	$72,660,115

Annualized Frequency Values

Hazard Type	Annualized Frequency	Events on Record	Period of Record
Avalanche	--	--	--
Coastal Flooding	6.2 events per year	n/a	Various (see documentation)
Cold Wave	0.2 events per year	4	2005-2021 (16 years)
Drought	6.3 events per year	168	2000-2021 (22 years)
Earthquake	0.073% chance per year	n/a	2021 dataset
Hail	2.5 events per year	84	1986-2021 (34 years)
Heat Wave	0.7 events per year	12	2005-2021 (16 years)
Hurricane	0.2 events per year	30	East 1851-2021 (171 years) / West 1949-2021 (73 years)
Ice Storm	2.7 events per year	182	1946-2014 (67 years)
Landslide	0 events per year	0	2010-2021 (12 years)
Lightning	14.6 events per year	321	1991-2012 (22 years)

Hazard Type	Annualized Frequency	Events on Record	Period of Record
Riverine Flooding	4.1 events per year	98	1996-2019 (24 years)
Strong Wind	0.9 events per year	32	1986-2021 (34 years)
Tornado	0.1 events per year	10	1950-2021 (72 years)
Tsunami	n/a	n/a	1800-2021 (222 years)
Volcanic Activity	--	--	--
Wildfire	0.018% chance per year	n/a	2021 dataset
Winter Weather	6.7 events per year	109	2005-2021 (16 years)

Historic Loss Ratios

Hazard Type	Overall Rating
Avalanche	--
Coastal Flooding	Very Low
Cold Wave	Very Low
Drought	Relatively High
Earthquake	Relatively Low
Hail	Very Low
Heat Wave	Very Low

Hazard Type	Overall Rating
Hurricane	Relatively Moderate
Ice Storm	Very Low
Landslide	Very Low
Lightning	Relatively Moderate
Riverine Flooding	Very Low
Strong Wind	Very Low
Tornado	Very Low
Tsunami	Insufficient Data
Volcanic Activity	--
Wildfire	Relatively Low
Winter Weather	Very Low

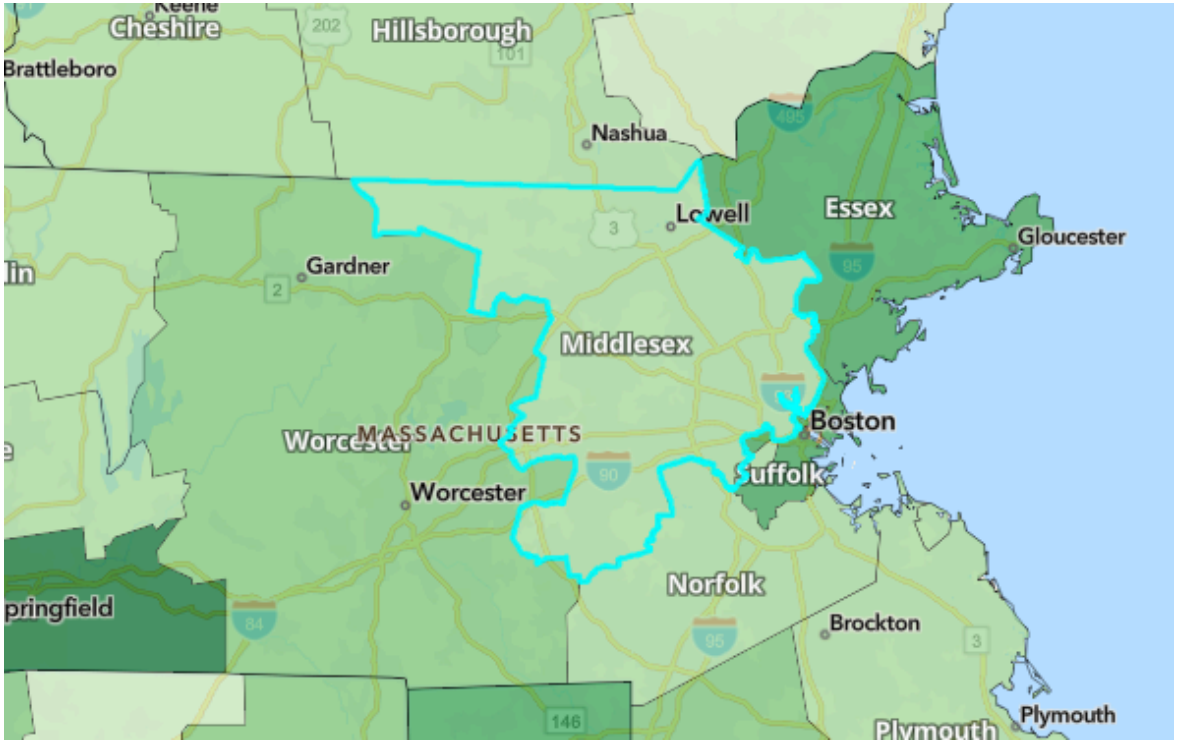
Expected Annual Loss Rate

Hazard Type	Building EAL Rate (per building value)	Population EAL Rate (per population)	Agriculture EAL Rate (per agriculture value)
Avalanche	--	--	--
Coastal Flooding	$1 per $1.27M	1 per 5.14B	--

Hazard Type	Building EAL Rate (per building value)	Population EAL Rate (per population)	Agriculture EAL Rate (per agriculture value)
Cold Wave	$1 per $64.89M	1 per 88.86M	$1 per $22.98K
Drought	--	--	$1 per $35.69
Earthquake	$1 per $46.53K	1 per 14.64M	--
Hail	$1 per $32.41M	1 per 670.23M	$1 per $84.30K
Heat Wave	$1 per $80.54B	1 per 19.07M	$1 per $14.40K
Hurricane	$1 per $3.23K	1 per 9.31M	$1 per $377.54
Ice Storm	$1 per $1.43M	1 per 33.59M	--
Landslide	$1 per $2.26M	1 per 1.09B	--
Lightning	$1 per $1.25M	1 per 8.56M	--
Riverine Flooding	$1 per $111.35K	1 per 1.91M	$1 per $275.45
Strong Wind	$1 per $5.51M	1 per 145.10M	$1 per $126.01K
Tornado	$1 per $44.27K	1 per 18.58M	$1 per $82.74K
Tsunami	--	--	--
Volcanic Activity	--	--	--
Wildfire	$1 per $561.07K	1 per 449.32M	$1 per $3.12M
Winter Weather	$1 per $28.07M	1 per 782.78M	$1 per $2.06M

Social Vulnerability

Social groups in **Middlesex County, MA** have a **Relatively Low** susceptibility to the adverse impacts of natural hazards when compared to the rest of the U.S.



Score	26.77

National Percentile

26.77

Percentile Within Massachusetts

35.70

0 100

27% of U.S. counties have a lower Social Vulnerability

36% of counties in Massachusetts have a lower Social Vulnerability

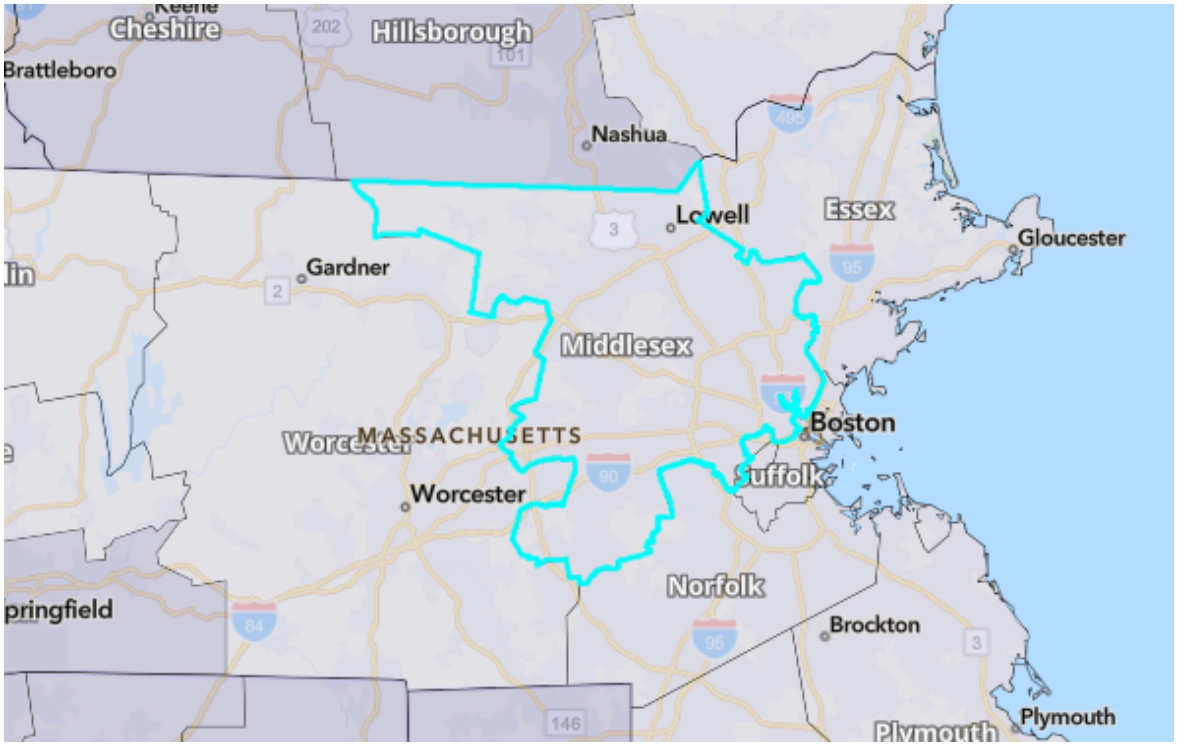
Social Vulnerability Legend

Very High | Relatively High | Relatively Moderate | Relatively Low | Very Low

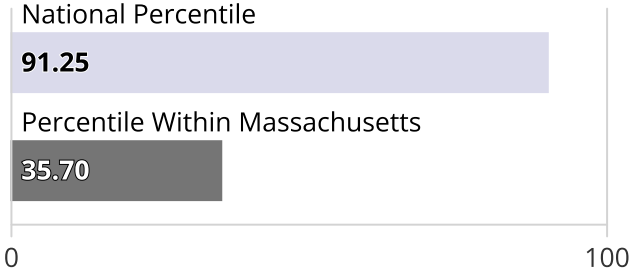
Data Unavailable

Community Resilience

Communities in **Middlesex County, MA** have a **Very High** ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.



Score	91.25



9% of U.S. counties have a higher Community Resilience

64% of counties in Massachusetts have a higher Community Resilience

Community Resilience Legend

Very High | Relatively High | Relatively Moderate | Relatively Low | Very Low | Data Unavailable

About the National Risk Index

The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, and Winter Weather.

The National Risk Index leverages available source data for Expected Annual Loss due to these 18 hazard types, Social Vulnerability, and Community Resilience to develop a baseline relative risk measurement for each United States county and Census tract. These measurements are calculated using average past conditions, but they cannot be used to predict future outcomes for a community. The National Risk Index is intended to fill gaps in available data and analyses to better inform federal, state, local, tribal, and territorial decision makers as they develop risk reduction strategies.

Explore the National Risk Index Map at **hazards.fema.gov/nri/map**.

Visit the National Risk Index website at **hazards.fema.gov/nri/learn-more** to access supporting documentation and links.

Calculating the Risk Index

Risk Index values are calculated using an equation* that combines values for Expected Annual Loss (EAL) due to natural hazards, with the Community Risk Factor (CRF), which is a function of Social Vulnerability and Community Resilience:

$$\text{Risk Index} = \text{Expected Annual Loss} \times \text{Community Risk Factor}$$

$$\text{where Community Risk Factor} = f\left(\frac{\text{Social Vulnerability}}{\text{Community Resilience}}\right)$$

*County-level risk values are derived by summing the risk values of all census tracts within that county.

Risk is presented as a composite value and score for all 18 hazard types, as well as individual values and scores for each hazard type.

For more information, visit **hazards.fema.gov/nri/determining-risk**.

Calculating Expected Annual Loss

Expected Annual Loss values are calculated using an equation* that combines values for exposure, annualized frequency, and historic loss ratios for 18 hazard types:

$$\text{Expected Annual Loss} = \text{Exposure} \times \text{Annualized Frequency} \times \text{Historic Loss Ratio}$$

*Excluding Avalanche, Drought, Earthquake, and Tornado, EAL values for each hazard are calculated at the Census block level and summed together to determine Census tract and county-level hazard type EAL values.

Expected Annual Loss is presented as a composite value and score for all 18 hazard types, as well as individual values and scores for each hazard type.

For more information, visit **hazards.fema.gov/nri/expected-annual-loss**.

Calculating Social Vulnerability

Social Vulnerability is measured using the Social Vulnerability Index (SVI) published by the Centers for Disease Control and Prevention (CDC).

For more information, visit **hazards.fema.gov/nri/social-vulnerability**.

Calculating Community Resilience

Community Resilience is measured at the County level using the Baseline Resilience Indicators for Communities (HVRI BRIC) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).

For more information, visit **hazards.fema.gov/nri/community-resilience**.

Values, Scores, and Ratings

The National Risk Index provides three different types of results for Risk and each component used to derive Risk: EAL, Social Vulnerability, and Community Resilience:

Values. Values for Risk and EAL are in units of dollars, representing the community's average economic loss from natural hazards each year. For Social Vulnerability and Community Resilience, values are the index values for the community provided by the source data sets.

Scores. Scores represent the national percentile ranking of the community's component value compared to all other communities at the same level (county or Census tract).

Ratings. Ratings refer to the qualitative terms that describe the relative risk of an area within the same geographic level. These rating categories range from “Very Low” to “Very High”. Ratings for Social Vulnerability and Community Resilience are based on quintiles of those components’ scores, while Risk and EAL ratings are based on more advanced statistical calculations on values . As a result, there is no fixed range of scores or values that correspond to the rating categories.

How to Take Action

There are many ways to reduce natural hazard risk through mitigation. Communities with high National Risk Index scores can take action to reduce risk by decreasing Expected Annual Loss due to natural hazards, decreasing Social Vulnerability, and increasing Community Resilience.

For information about how to take action and reduce your risk, visit **hazards.fema.gov/nri/take-action**.

Disclaimer

The National Risk Index (the Risk Index or the Index) and its associated data are meant for planning purposes only. This tool was created for broad nationwide comparisons and is not a substitute for localized risk assessment analysis. Nationwide datasets used as inputs for the National Risk Index are, in many cases, not as accurate as available local data. Users with access to local data for each National Risk Index risk factor should consider substituting the Risk Index data with local data to recalculate a more accurate risk index. If you decide to download the National Risk Index data and substitute it with local data, you assume responsibility for the accuracy of the data and any resulting data index. Please visit the **Contact Us** page if you would like to discuss this process further.

The methodology used by the National Risk Index has been reviewed by subject matter experts in the fields of natural hazard risk research, risk analysis, mitigation planning, and emergency management. The processing methods used to create the National Risk Index have produced results similar to those from other natural hazard risk analyses conducted on a smaller scale. The breadth and combination of geographic information systems (GIS) and data processing techniques leveraged by the National Risk Index enable it to incorporate multiple hazard types and risk factors, manage its nationwide scope, and capture what might have been missed using other methods.

The National Risk Index does not consider the intricate economic and physical interdependencies that exist across geographic regions. Keep in mind that hazard impacts in surrounding counties or Census tracts can cause indirect losses in your community regardless of your community's risk profile.

Nationwide data available for some risk factors are rudimentary at this time. The risk profiles for the vast majority of hazard types are based on historical frequency and loss data. They represent risk and expected annual loss based on average past conditions, not future predictions; therefore, they may not fully consider the potential impacts of recent changes to the environment, including anthropomorphic landscape changes, or climate change. The National Risk Index will be continuously updated as new data become available and improved methodologies are identified.

For comprehensive details about how the Risk Index can help you and its limitations, see the **National Risk Index Technical Documentation**

Assumption of Risk

In view of the identified limitations of the National Risk Index associated data, by using the data, you acknowledge and agree that FEMA makes no representations or warranties about the accuracy, completeness, or fitness for any particular purpose of the data; that the data is provided “as is” without warranty of any kind; that you assume full responsibility for any consequences that may arise, including financial losses, legal disputes, or other adverse outcomes; and that you release FEMA and the federal government from any liability that may arise to the extent allowable by law.

Attribution, No Endorsement

Please attribute your use of the National Risk Index and its associated data to the Federal Emergency Management Agency.

However, you acknowledge and agree that nothing herein constitutes and endorsement of you or your work by FEMA or the federal government, and you shall not imply through use of the National Risk Index or its associated data or through providing attribution, that FEMA or the federal government endorses you.

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Zuzak, C., E. Goodenough, C. Stanton, M. Mowrer, A. Sheehan, B. Roberts, P. McGuire, and J. Rozelle. 2023. National Risk Index Technical Documentation. Federal Emergency Management Agency, Washington, DC.

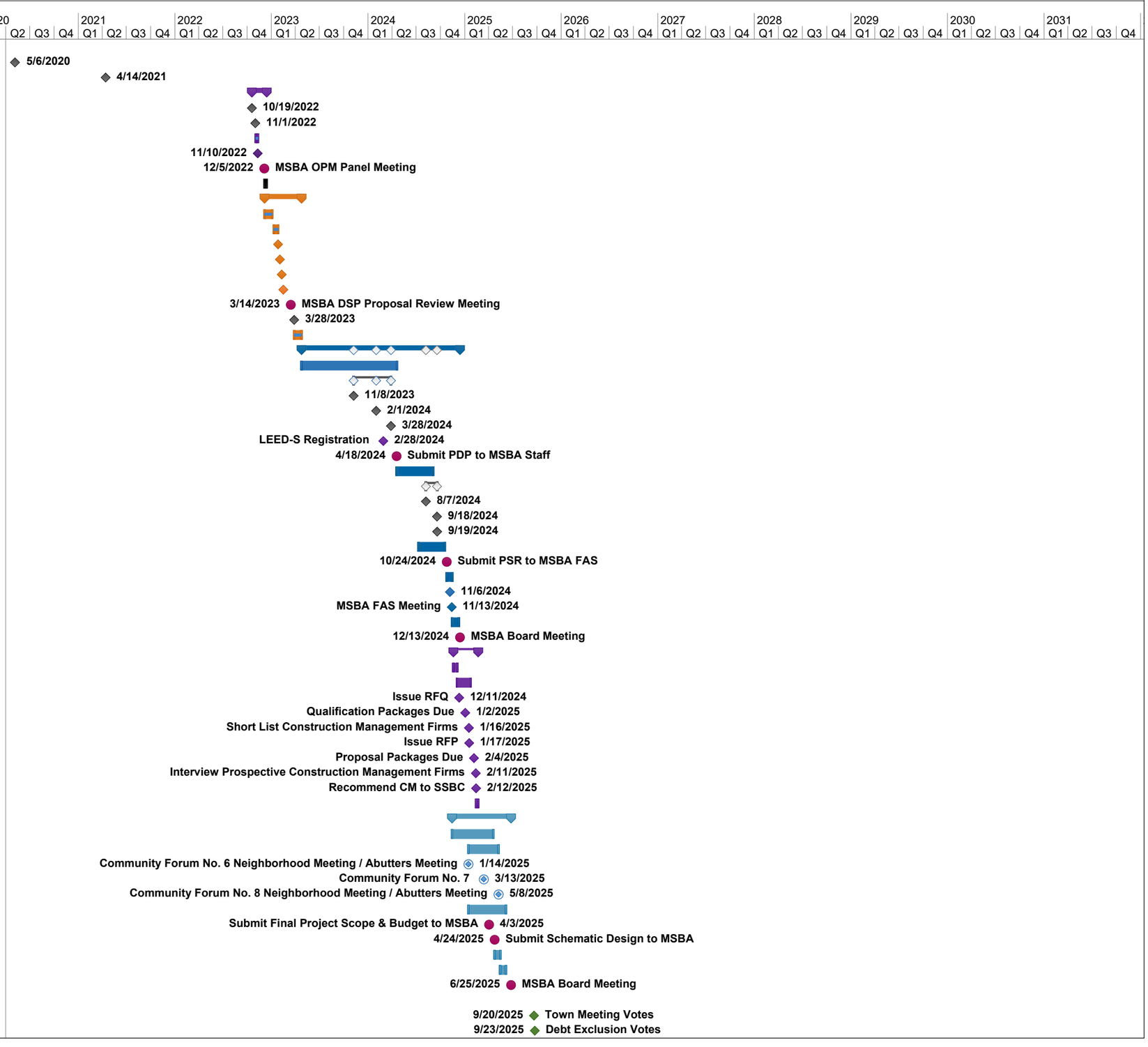
The National Risk Index Contact Us page is available at **hazards.fema.gov/nri/contact-us**.

November 4, 2022
Updated: December 1, 2024

Town of Wilmington
Wildwood School Project
Feasibility Study Preliminary Project Schedule
Construction Management at Risk Construction Delivery Method

smma

ID	Task Name	Duration	Start	Finish
1	**MSBA PREREQUISITES**	**241 days**	**5/6/2020**	**4/14/2021**
2	Statement of Interest	0 days	5/6/2020	5/6/2020
3	MSBA Invite into Feasibility	0 days	4/14/2021	4/14/2021
4	**RETAIN OPM**	**39 days**	**10/19/2022**	**12/13/2022**
5	Submit OPM Proposals	0 days	10/19/2022	10/19/2022
6	OPM Interview	0 days	11/1/2022	11/1/2022
7	Negotiate OPM Contract	6 days	11/3/2022	11/10/2022
8	Submit Documents to MSBA OPM Panel	0 days	11/10/2022	11/10/2022
9	**MSBA OPM Panel Meeting**	**0 days**	**12/5/2022**	**12/5/2022**
10	Execution of OPM Agreement	6 days	12/6/2022	12/13/2022
11	**RETAIN DESIGNER**	**100 days**	**12/6/2022**	**4/24/2023**
12	Draft Designer RFS and Submit to MSBA	21 days	12/6/2022	1/3/2023
13	MSBA Approve Draft RFS	11 days	1/11/2023	1/25/2023
14	Submit to Central Register	0 days	1/26/2023	1/26/2023
15	Notice in Central Register	0 days	2/1/2023	2/1/2023
16	Briefing Session	0 days	2/8/2023	2/8/2023
17	Submit Designer Proposals	0 days	2/14/2023	2/14/2023
18	**MSBA DSP Proposal Review Meeting**	**0 days**	**3/14/2023**	**3/14/2023**
19	**MSBA DSP Interview Meeting**	**0 days**	**3/28/2023**	**3/28/2023**
20	Negotiate Designer Contract	20 days	3/28/2023	4/24/2023
21	**FEASIBILITY STUDY (FS)**	**417 days**	**4/25/2023**	**12/13/2024**
22	Develop Preliminary Design Program	253 days	4/25/2023	4/19/2024
23	**Community Presentations**	**97 days**	**11/8/2023**	**3/28/2024**
24	Community Forum No. 1	0 days	11/8/2023	11/8/2023
25	Community Forum No. 2	0 days	2/1/2024	2/1/2024
26	Community Forum No. 3	0 days	3/28/2024	3/28/2024
27	LEED-S Registration	0 days	2/28/2024	2/28/2024
28	**Submit PDP to MSBA Staff**	**0 days**	**4/18/2024**	**4/18/2024**
29	Develop Preferred Schematic Report (PSR)	95 days	4/18/2024	9/3/2024
30	**Community Presentations**	**30 days**	**8/7/2024**	**9/19/2024**
31	Community Forum No. 4	0 days	8/7/2024	8/7/2024
32	Community Forum No. 5	0 days	9/18/2024	9/18/2024
33	Senior Center Informational Session	0 days	9/19/2024	9/19/2024
34	Select Board, Town Meeting & School Committee Presentations	70 days	7/10/2024	10/17/2024
35	**Submit PSR to MSBA FAS**	**0 days**	**10/24/2024**	**10/24/2024**
36	MSBA Comments	15 days	10/25/2024	11/14/2024
37	**MSBA FAS Meeting**	**0 days**	**11/6/2024**	**11/6/2024**
38	**MSBA FAS Meeting**	**0 days**	**11/13/2024**	**11/13/2024**
39	Respond to MSBA Comments	17 days	11/14/2024	12/9/2024
40	**MSBA Board Meeting**	**0 days**	**12/13/2024**	**12/13/2024**
41	**CONSTRUCTION MANAGER (CM)**	**63 days**	**11/19/2024**	**2/20/2025**
42	Develop and Submit Inspector General (IG) Application	10 days	11/19/2024	12/3/2024
43	IG Application and Approval	34 days	12/3/2024	1/22/2025
44	Issue RFQ	0 days	12/11/2024	12/11/2024
45	Qualification Packages Due	0 days	1/2/2025	1/2/2025
46	Short List Construction Management Firms	0 days	1/16/2025	1/16/2025
47	Issue RFP	0 days	1/17/2025	1/17/2025
48	Proposal Packages Due	0 days	2/4/2025	2/4/2025
49	Interview Prospective Construction Management Firms	0 days	2/11/2025	2/11/2025
50	Recommend CM to SSBC	0 days	2/12/2025	2/12/2025
51	Negotiate CM Contract	5 days	2/13/2025	2/20/2025
52	**SCHEMATIC DESIGN (SD)**	**152 days**	**11/14/2024**	**6/25/2025**
53	Develop Schematic Design	107 days	11/14/2024	4/18/2025
54	**Community Presentations**	80 days	1/14/2025	5/8/2025
55	Community Forum No. 6 Neighborhood Meeting / Abutters Meeting	0 days	1/14/2025	1/14/2025
56	Community Forum No. 7	0 days	3/13/2025	3/13/2025
57	Community Forum No. 8 Neighborhood Meeting / Abutters Meeting	0 days	5/8/2025	5/8/2025
58	Select Board, Town Meeting & School Committee Presentations	99 days	1/15/2025	6/5/2025
59	**Submit Final Project Scope & Budget to MSBA**	**0 days**	**4/3/2025**	**4/3/2025**
60	**Submit Schematic Design to MSBA**	**0 days**	**4/24/2025**	**4/24/2025**
61	MSBA Comments	16 days	4/24/2025	5/15/2025
62	Respond to MSBA Comments	15 days	5/15/2025	6/5/2025
63	**MSBA Board Meeting**	**0 days**	**6/25/2025**	**6/25/2025**
64	**LOCAL APPROPRIATION**	**2.5 days**	**9/20/2025**	**9/23/2025**
65	Town Meeting Votes	0 days	9/20/2025	9/20/2025
66	Debt Exclusion Votes	0 days	9/23/2025	9/23/2025

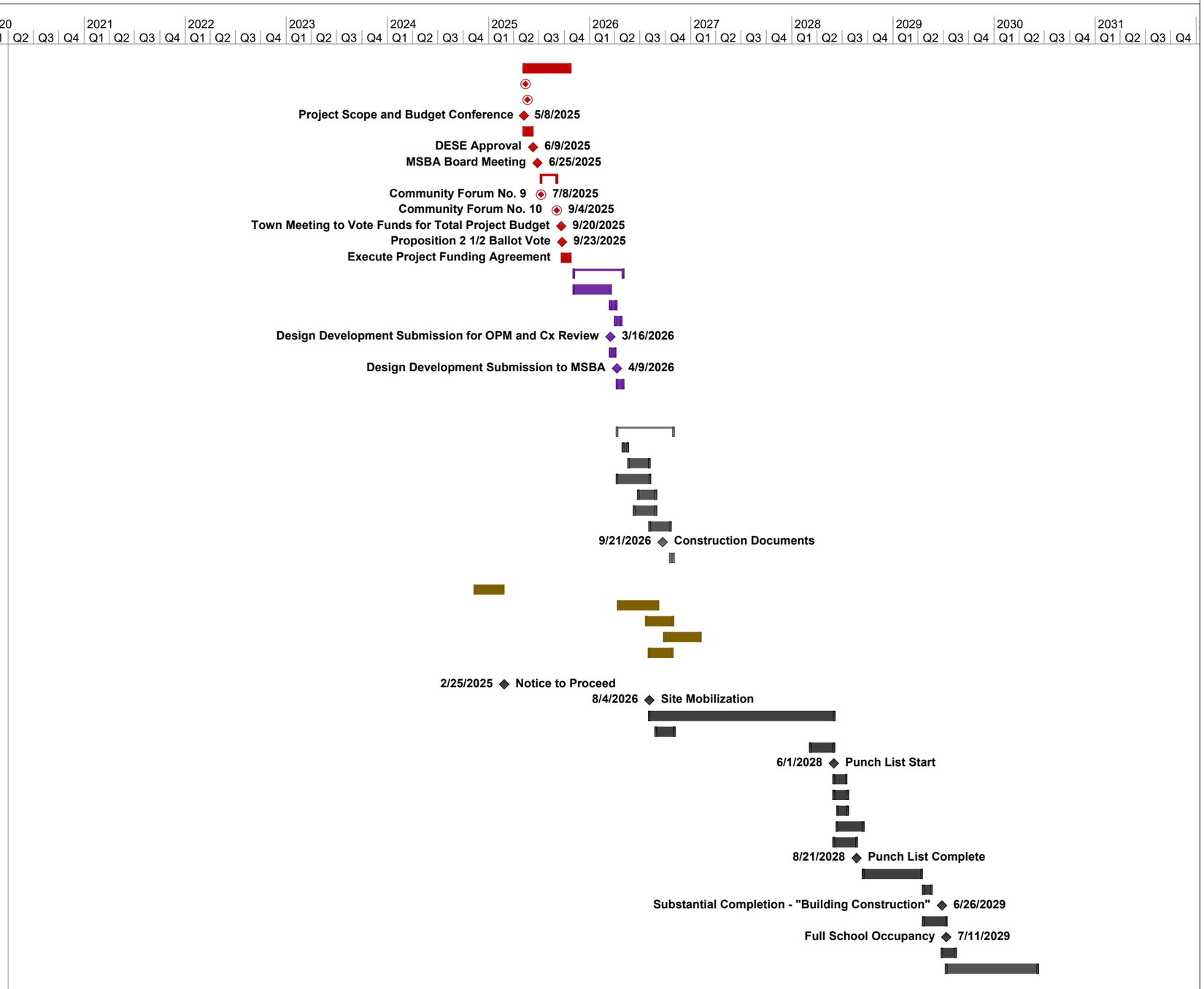


November 4, 2022
Updated: December 1, 2024

Town of Wilmington
Wildwood School Project
Feasibility Study Preliminary Project Schedule
Construction Management at Risk Construction Delivery Method

smma

ID	Task Name	Duration	Start	Finish
67	**DESIGN AND CONSTRUCTION**			
70	**PROJECT SCOPE AND BUDGET**			
71	MSBA FAS Meeting (if needed)	0 days	5/14/2025	5/14/2025
72	MSBA FAS Meeting (if needed)	0 days	5/21/2025	5/21/2025
73	Project Scope and Budget Conference	0 days	5/8/2025	5/8/2025
74	Execute Scope and Budget Agreement	21 days	5/8/2025	6/6/2025
75	DESE Approval	0 days	6/9/2025	6/9/2025
76	**MSBA Board Meeting**	**0 days**	**6/25/2025**	**6/25/2025**
77	**Community Presentations**	**40 days**	**7/8/2025**	**9/4/2025**
78	Community Forum No. 9	0 days	7/8/2025	7/8/2025
79	Community Forum No. 10	0 days	9/4/2025	9/4/2025
80	Town Meeting to Vote Funds for Total Project Budget	0 days	9/20/2025	9/20/2025
81	Proposition 2 1/2 Ballot Vote	0 days	9/23/2025	9/23/2025
82	Execute Project Funding Agreement	21 days	9/23/2025	10/22/2025
83	**DESIGN DEVELOPMENT**			
84	Develop Design Development Documents	90 days	11/4/2025	3/17/2026
85	Design Development Cost Estimate	15 days	3/16/2026	4/6/2026
86	Value Engineering	15 days	4/3/2026	4/24/2026
87	Design Development Submission for OPM and Cx Review	0 days	3/16/2026	3/16/2026
88	OPM and Cx Review	13 days	3/16/2026	4/2/2026
89	**Design Development Submission to MSBA**	**0 days**	**4/9/2026**	**4/9/2026**
90	MSBA Comments	16 days	4/9/2026	5/1/2026
91	**SITE PERMITTING**			
147	**BUILDING PERMITTING**			
152	**CONSTRUCTION DOCUMENTS**			
153	Incorporate MSBA DD Comments	11 days	5/1/2026	5/18/2026
154	**Early Site Enabling and Preparation Package**	**51 days**	**5/21/2026**	**8/4/2026**
157	**60% Construction Documents**	**83 days**	**4/9/2026**	**8/6/2026**
163	**90% Construction Documents**	**45 days**	**6/25/2026**	**8/27/2026**
165	**Early Foundation and Structural Package**	**55 days**	**6/10/2026**	**8/27/2026**
168	**90% Construction Documents**	**51 days**	**8/5/2026**	**10/19/2026**
173	**Construction Documents**	**0 days**	**9/21/2026**	**9/21/2026**
175	LEED-S Design Submission	9 days	10/19/2026	10/30/2026
176	**PROCUREMENT**			
177	**CM Selection**	**73 days**	**11/8/2024**	**2/25/2025**
178	**Prequalification - Package No. 2 Trade Contractors**	**101 days**	**4/14/2026**	**9/4/2026**
186	**Prequalification - Package No. 3 Trade Contractors**	**66 days**	**7/24/2026**	**10/28/2026**
194	**100% Construction Documents - Package No. 3**	**88 days**	**9/28/2026**	**2/4/2027**
202	**EARLY PACKAGES PROCUREMENT**			
216	**CONSTRUCTION**			
217	Notice to Proceed	0 days	2/25/2025	2/25/2025
218	Site Mobilization	0 days	8/4/2026	8/4/2026
219	Construction of Building	464 days	8/4/2026	6/2/2028
220	**Substantial Completion - Phase 1 "Enabling Work"**	**45 days**	**8/27/2026**	**11/2/2026**
221	FFE/Technology Installation: Grades 4 and 5	60 days	3/8/2028	5/31/2028
222	Punch List Start	0 days	6/1/2028	6/1/2028
223	Teacher/Staff Move-In: Grades 4 and 5	30 days	6/1/2028	7/14/2028
224	FFE/Technology Installation: Grades PreK, K, 1, 2 and 3	34 days	6/1/2028	7/20/2028
225	50% DCAMM Evaluation	24 days	6/14/2028	7/20/2028
226	Demolish Existing North Intermediate School	66 days	6/12/2028	9/14/2028
227	**Phase 1 Occupancy of Building: Grades 4 and 5**	**56 days**	**6/1/2028**	**8/21/2028**
228	Punch List Complete	0 days	8/21/2028	8/21/2028
229	Site Amenities Construction Including Parking Lot & Playfields	145 days	9/15/2028	4/13/2029
230	Teacher/Staff Move-In: PreK, K, 1, 2 and 3	21 days	4/20/2029	5/18/2029
231	**Substantial Completion - "Building Construction"**	**0 days**	**6/26/2029**	**6/26/2029**
232	**Phase 2 Occupancy of Building: Grades PreK, K, 1, 2 and 3**	**56 days**	**4/20/2029**	**7/11/2029**
233	**Full School Occupancy**	**0 days**	**7/11/2029**	**7/11/2029**
234	Final Completion, Closeout and Commissioning	34 days	6/26/2029	8/14/2029
235	**Closeout**	**228.5 days**	**7/12/2029**	**6/7/2030**
246	**MOVE-IN MANAGEMENT**			



DBB
vs.
CM@Risk

DESIGN-BID-BUILD (M.G.L. Ch. 149) / PROS AND CONS

Advantages

- Competitive Bidding
- Single phase and pricing based on a complete design absent allowances and assumptions.
- Risk for the cost of completing the work included in the Design entirely on the General Contractor.
- Simplified management of the project as scope and schedule are narrowly defined.

Disadvantages

- General Contractor does not participate in design.
- Cannot support OPM, Designer, and Owner in identifying constructability issues or omissions.
- Potentially greater change orders during construction as a result.
- Potential for increased claims and schedule extensions.
- Qualified does not necessarily imply best fit.
- Construction costs are not fully realized until after design is complete.
- Risk of receiving bids above estimate/budget requiring re-design/re-bid.
- No early procurement for long lead items.

CONSTRUCTION MANAGER AT RISK (M.G.L. Ch. 149a) / PROS AND CONS

Advantages

- Qualifications based procurement.
- Construction Manager participates during design.
- Potential to identify constructability issues and omissions.
- Assists with identifying phasing/sequencing concerns on logistically challenging sites.
- More time with drawings allows for the development of improved sequencing and potentially shorter construction duration.
- Budget set prior to MSBA PFA
- Allows for Early Release Packages (ERP) which fast tracks the construction schedule.
- Reduced likelihood of claims or schedule extensions.
- Early procurement for long lead items.

Disadvantages

- Cost of Construction Manager Pre-Construction (Design Phase) services.
- Construction Manager is reimbursed for the Cost of Work and paid a fee as compensation.
- Subcontractor procurement can prolong GMP execution creating risk to the Owner that would not be realized in a competitive bid.
- Risk involved in early procurement which may be impacted in the final design of the project.

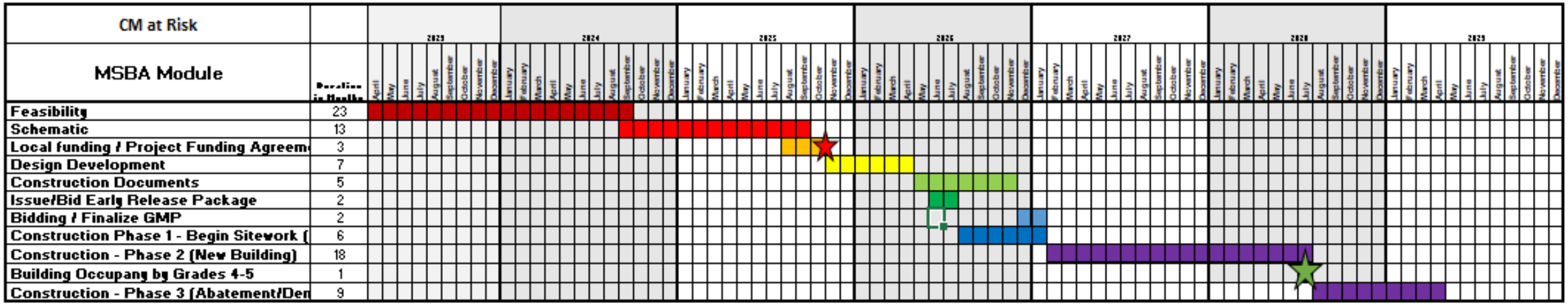
DESIGN-BID-BUILD vs. CONSTRUCTION MANAGEMENT AT RISK / CONCLUSIONS

- DESIGN-BID-BUILD is the process that is best suited to projects with straight forward Designs.
- CONSTRUCTION MANAGEMENT AT RISK is the contracting process that is best suited to projects with complicated Designs, challenging sites, and/or strict schedule limitations.
- Given the significant fixed price cost liability for subcontract work, a GMP for a CMR Contract under GL c. 149A will not typically be set until the entire Design is completed.

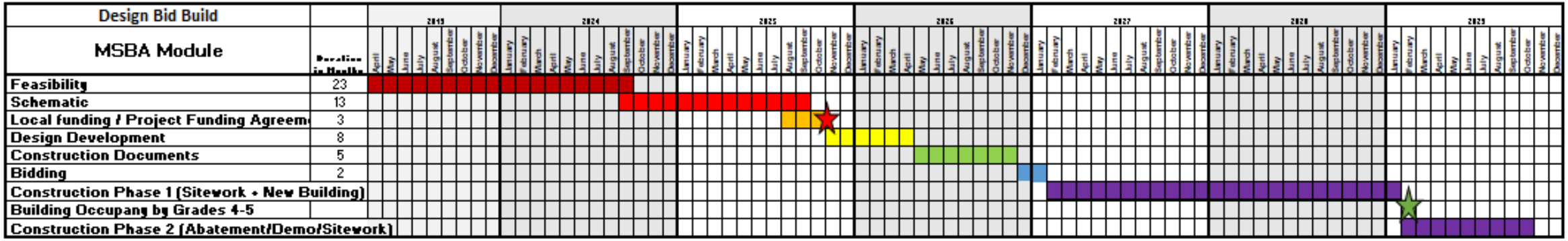
DESIGN BID BUILD vs. CONSTRUCTION MANAGEMENT AT RISK / CONCLUSIONS

	DBB	CM-R
Fast track scheduling available		✓
Lowest theoretical cost	✓	
Flexibility to deal with unforeseen conditions		✓
Flexibility in occupied, multi-phased renovations		✓
Flexibility in Schedule driven, non-negotiable occupancy		✓
Builder selected on cost only	✓	
Builder selected on qualifications and cost		✓
Traditional, simple procurement	✓	
Requires no State pre-approval	✓	

DESIGN-BID-BUILD VS CONSTRUCTION MANAGEMENT AT RISK / WILDWOOD SCHEDULE COMPARISON



Schedule assumptions:
Project team does not continue design while awaiting local funding
CM joins team January 2025
Total Project Budget for Project Funding Agreement developed with CM involvement (Phasing, logistics, Schedule, etc.,)
Construction Phase 1 - Early release package to enable work starting summer 2026
Construction Phase 2 start February 2027 complete July 2028
Building Occupancy by Grades 4-5 Summer 2028
Construction Phase 3 start August 2028 complete April 2029
Construction duration simply an estimate that will likely change as design progresses and swing space ideas are vetted.

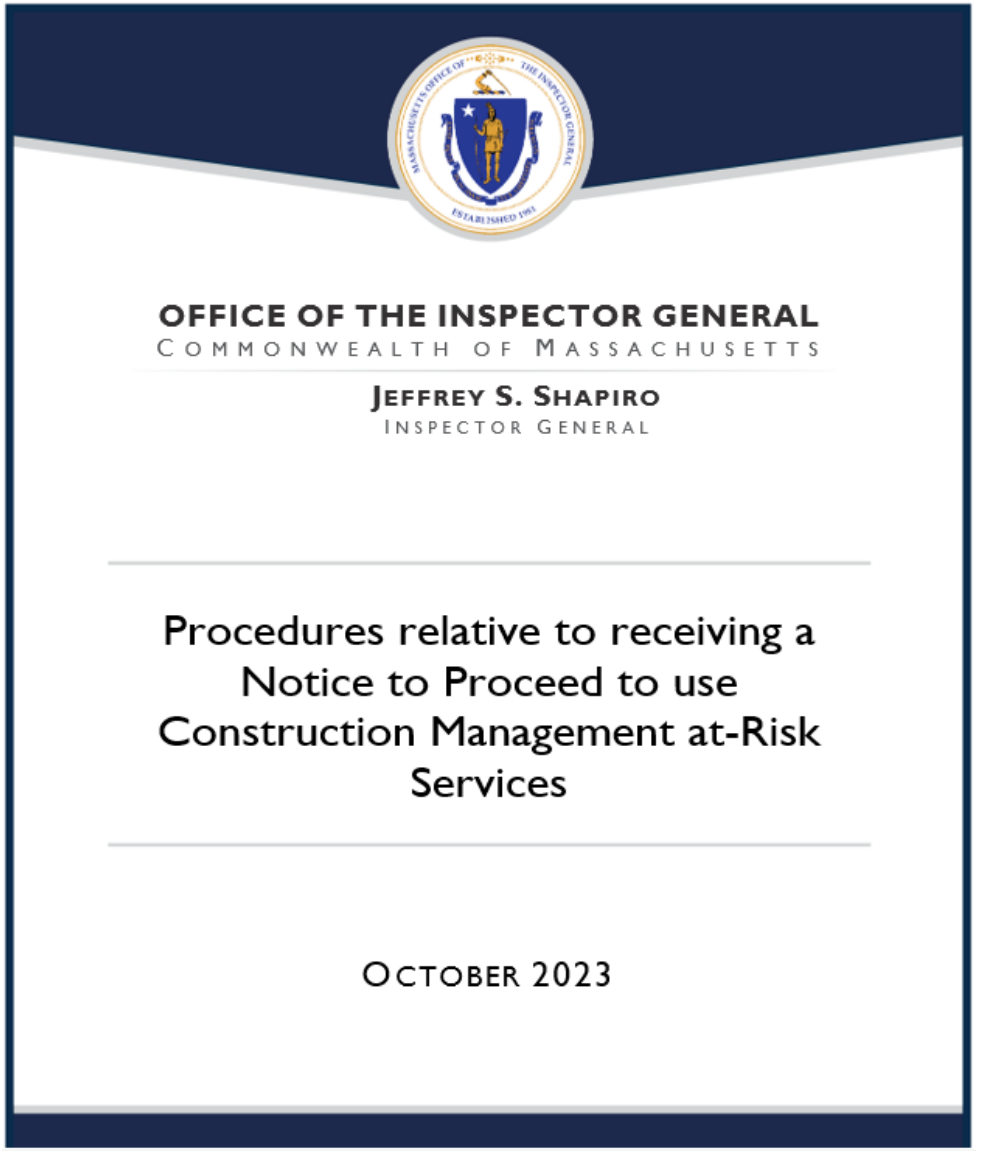


Schedule assumptions:
Project team does not continue design while awaiting local funding
Lump sum bidding December 2026-January 2027
Construction Phase 1 start February 2027 complete July 2028
Building Occupancy by Grades 4-5 February 2029
Construction Phase 2 start February 2029 complete October 2029
Construction duration simply an estimate that will likely change as design progresses and swing space ideas are vetted.

SBC votes for CMR — November 19, 2024

Inspector General Application to Proceed with Construction Management at Risk Construction Delivery Method

- **SMMA completes the Inspector General (IG) Application Form**
  November 25, 2024
- **Submit CM@R Application to IG** — December 2, 2024
  - *Maximum of 60 Day IG Application Review Period (45 to 60 day maximum)*
- **Inspector General Formal Approval to proceed with the CM @ Risk Delivery Method** — February 2, 2025



OFFICE OF THE INSPECTOR GENERAL
COMMONWEALTH OF MASSACHUSETTS

JEFFREY S. SHAPIRO
INSPECTOR GENERAL

Procedures relative to receiving a Notice to Proceed to use Construction Management at-Risk Services

OCTOBER 2023

CM@R Request For Qualifications (RFQ)

- **Develop Draft CM@R Request For Qualifications (RFQ)**	November 20, 2024 – December 4, 2024
- **Distribute Draft CM@R Prequalification for Review & Approval by Selection Committee (SC)**	December 4, 2024
- **CM@R Prequalification Selection Committee Meeting**	December 5, 2024
- **Advertisements for CM@R RFQ in Central Register, COMBUYS & Local Newspapers**	December 11, 2024
- **Issue CM@R RFQ**	**December 11, 2024**
- **CM@R Qualifications Due**	January 9, 2025
- **Prequalification Committee Reviews Qualifications to Shortlist 3 to 4 Firms**	January 13, 2025
- **SBC Meeting: Notification of Shortlisted Firms**	January 23, 2025

CM@R Proposal and Selection Process

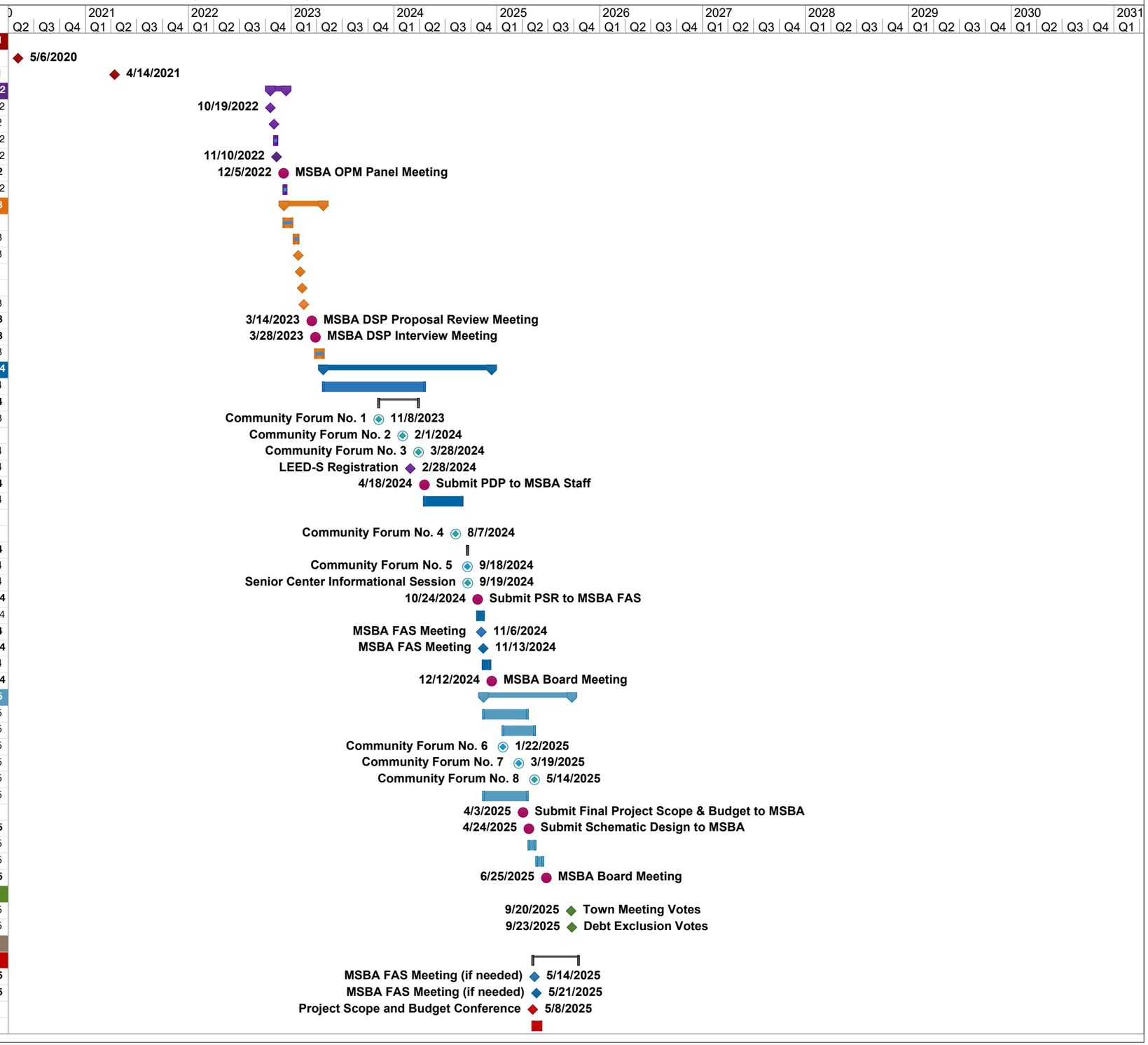
- **Develop CM@Risk RFP / Contracts / Schedule / Estimate Requirements**	December 4, 2024 – December 11, 2024
- **Town Counsel Review of RFP & Contracts**	December 12, 2024 – January 13, 2025
- **Distribute CM@R RFP**	December 11, 2024
- **CM Site Visit/Walk-Through**	**TBD**
- **CM Proposals Due**	January 13, 2025
- **CM Selection Committee Review Proposals**	January 13, 2025 – January 20, 2025
- **CM Selection Committee Meets and Scores Proposals**	January 23, 2025
- **Issue Interview Questions & Sequence**	January 30, 2025
- **Interview CM Firms**	**TBD: Week of February 4-10, 2025**
- **Negotiate Contract and award CM Firm**	February 11, 2025
- **Award SD Estimating Purchase Order**	February 20, 2025

November 4, 2022
Updated: December 1, 2024

Town of Wilmington
Wildwood Early Childhood Center
Feasibility Study Preliminary Project Schedule
Design-Bid-Build Delivery Method

smma

ID	Task Name	Duration	Start	Finish
1	**MSBA PREREQUISITES**	**241 days**	**5/6/2020**	**4/14/2021**
2	Statement of Interest	0 days	5/6/2020	5/6/2020
3	MSBA Invite into Feasibility	0 days	4/14/2021	4/14/2021
4	**RETAIN OPM**	**39 days**	**10/19/2022**	**12/13/2022**
5	Submit OPM Proposals	0 days	10/19/2022	10/19/2022
6	OPM Interview	0 days	11/1/2022	11/1/2022
7	Negotiate OPM Contract	6 days	11/3/2022	11/10/2022
8	Submit Documents to MSBA OPM Panel	0 days	11/10/2022	11/10/2022
9	**MSBA OPM Panel Meeting**	**0 days**	**12/5/2022**	**12/5/2022**
10	Execution of OPM Agreement	6 days	12/6/2022	12/13/2022
11	**RETAIN DESIGNER**	**100 days**	**12/6/2022**	**4/24/2023**
12	Draft Designer RFS and Submit to MSBA	21 days	12/6/2022	1/3/2023
13	MSBA Approve Draft RFS	11 days	1/11/2023	1/25/2023
14	Submit to Central Register	0 days	1/26/2023	1/26/2023
15	Notice in Central Register	0 days	2/1/2023	2/1/2023
16	Briefing Session	0 days	2/8/2023	2/8/2023
17	Submit Designer Proposals	0 days	2/14/2023	2/14/2023
18	**MSBA DSP Proposal Review Meeting**	**0 days**	**3/14/2023**	**3/14/2023**
19	**MSBA DSP Interview Meeting**	**0 days**	**3/28/2023**	**3/28/2023**
20	Negotiate Designer Contract	20 days	3/28/2023	4/24/2023
21	**FEASIBILITY STUDY (FS)**	**420 days**	**4/25/2023**	**12/12/2024**
22	Develop Preliminary Design Program	253 days	4/25/2023	4/18/2024
23	**Community Presentations**	**98 days**	**11/8/2023**	**3/28/2024**
24	Community Forum No. 1	0 days	11/8/2023	11/8/2023
25	Community Forum No. 2	0 days	2/1/2024	2/1/2024
26	Community Forum No. 3	0 days	3/28/2024	3/28/2024
27	LEED-S Registration	0 days	2/28/2024	2/28/2024
28	**Submit PDP to MSBA Staff**	**0 days**	**4/18/2024**	**4/18/2024**
29	Develop Preferred Schematic Report (PSR)	95 days	4/18/2024	8/29/2024
30	**Community Presentations**	**0 days**	**8/7/2024**	**8/7/2024**
31	Community Forum No. 4	0 days	8/7/2024	8/7/2024
32	**Select Board, Town Meeting & School Committee Presentations**	**1 day**	**9/18/2024**	**9/19/2024**
33	Community Forum No. 5	0 days	9/18/2024	9/18/2024
34	Senior Center Informational Session	0 days	9/19/2024	9/19/2024
35	**Submit PSR to MSBA FAS**	**0 days**	**10/24/2024**	**10/24/2024**
36	MSBA Comments	15 days	10/24/2024	11/13/2024
37	**MSBA FAS Meeting**	**0 days**	**11/6/2024**	**11/6/2024**
38	**MSBA FAS Meeting**	**0 days**	**11/13/2024**	**11/13/2024**
39	Respond to MSBA Comments	17 days	11/13/2024	12/6/2024
40	**MSBA Board Meeting**	**0 days**	**12/12/2024**	**12/12/2024**
41	**SCHEMATIC DESIGN (SD)**	**220 days**	**11/14/2024**	**9/23/2025**
42	Develop Schematic Design	109 days	11/14/2024	4/18/2025
43	Community Presentations	80 days	1/22/2025	5/14/2025
44	Community Forum No. 6	0 days	1/22/2025	1/22/2025
45	Community Forum No. 7	0 days	3/19/2025	3/19/2025
46	Community Forum No. 8	0 days	5/14/2025	5/14/2025
47	Select Board, Town Meeting & School Committee Presentations	109 days	11/14/2024	4/18/2025
48	**Submit Final Project Scope & Budget to MSBA**	**0 days**	**4/3/2025**	**4/3/2025**
49	**Submit Schematic Design to MSBA**	**0 days**	**4/24/2025**	**4/24/2025**
50	MSBA Comments	16 days	4/24/2025	5/15/2025
51	Respond to MSBA Comments	15 days	5/22/2025	6/11/2025
52	**MSBA Board Meeting**	**0 days**	**6/25/2025**	**6/25/2025**
53	**LOCAL APPROPRIATION**			
54	Town Meeting Votes	0 days	9/20/2025	9/20/2025
55	Debt Exclusion Votes	0 days	9/23/2025	9/23/2025
56	**DESIGN AND CONSTRUCTION**			
66	**PROJECT SCOPE AND BUDGET**			
67	**MSBA FAS Meeting (if needed)**	**0 days**	**5/14/2025**	**5/14/2025**
68	**MSBA FAS Meeting (if needed)**	**0 days**	**5/21/2025**	**5/21/2025**
69	Project Scope and Budget Conference	0 days	5/8/2025	5/8/2025
70	Execute Scope and Budget Agreement	21 days	5/8/2025	6/5/2025

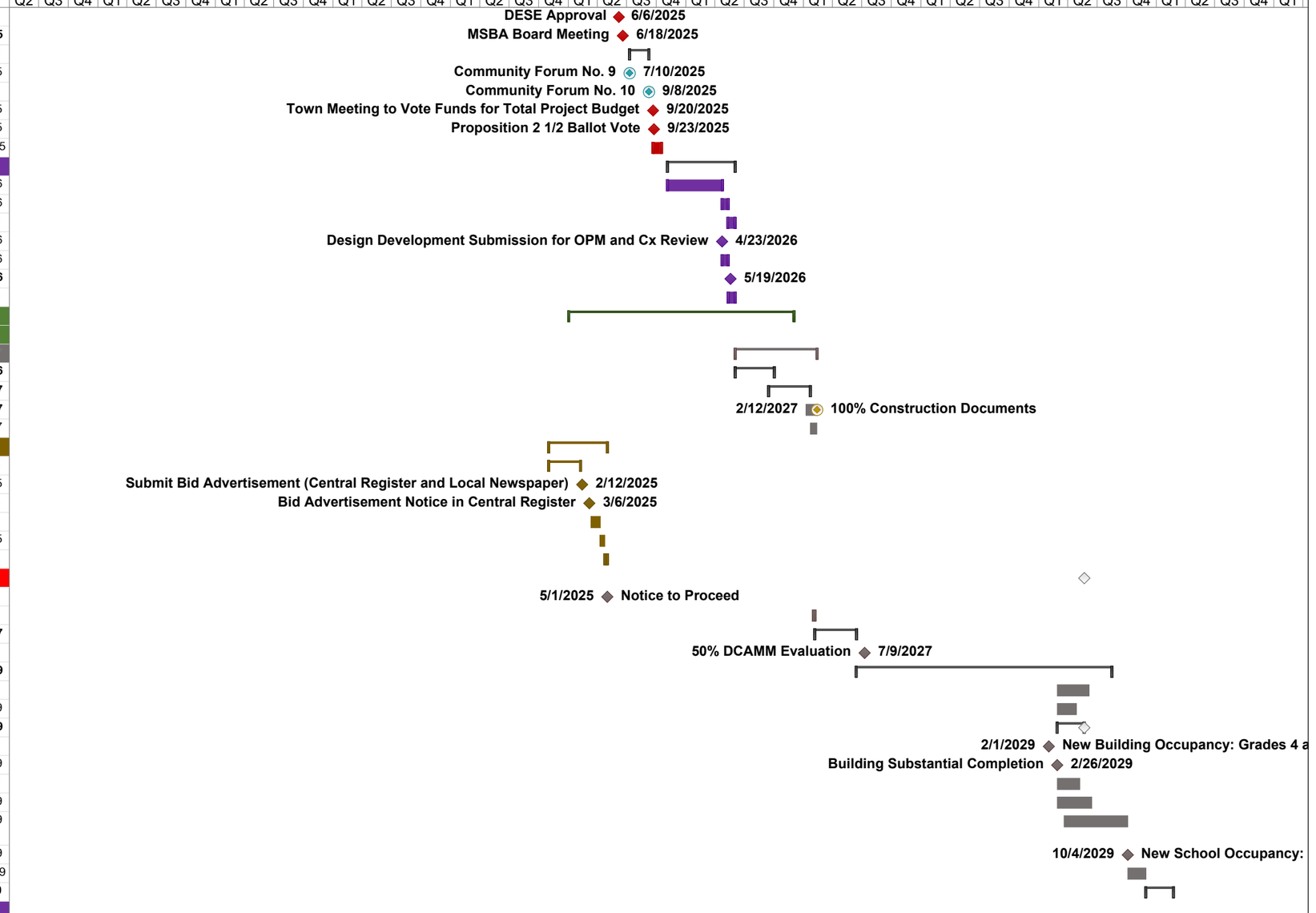


November 4, 2022
Updated: December 1, 2024

Town of Wilmington
Wildwood Early Childhood Center
Feasibility Study Preliminary Project Schedule
Design-Bid-Build Delivery Method

smma

ID	Task Name	Duration	Start	Finish
71	DESE Approval	0 days	6/6/2025	6/6/2025
72	**MSBA Board Meeting**	**0 days**	**6/18/2025**	**6/18/2025**
73	**Community Presentations**	**41 days**	**7/10/2025**	**9/8/2025**
74	Community Forum No. 9	0 days	7/10/2025	7/10/2025
75	Community Forum No. 10	0 days	9/8/2025	9/8/2025
76	Town Meeting to Vote Funds for Total Project Budget	0 days	9/20/2025	9/20/2025
77	Proposition 2 1/2 Ballot Vote	0 days	9/23/2025	9/23/2025
78	Execute Project Funding Agreement	21 days	9/20/2025	10/17/2025
79	**DESIGN DEVELOPMENT**			
80	Develop Design Development Documents to Estimator	120 days	11/4/2025	4/24/2026
81	Design Development Cost Estimate	13 days	4/23/2026	5/12/2026
82	Value Engineering	16 days	5/11/2026	6/2/2026
83	Design Development Submission for OPM and Cx Review	0 days	4/23/2026	4/23/2026
84	OPM and Cx Review	13 days	4/23/2026	5/12/2026
85	**Design Development Submission to MSBA**	**0 days**	**5/19/2026**	**5/19/2026**
86	MSBA Comments	16 days	5/12/2026	6/3/2026
87	**SITE PERMITTING**			
172	**BUILDING PERMITTING**			
177	**CONSTRUCTION DOCUMENTS**	178 days	6/3/2026	2/12/2027
178	**60% Construction Documents**	**86 days**	**6/3/2026**	**10/2/2026**
187	**90% Construction Documents**	**91 days**	**9/14/2026**	**1/22/2027**
197	**100% Construction Documents**	**25 days**	**1/8/2027**	**2/12/2027**
198	LEED Design Submission	14 days	1/22/2027	2/11/2027
199	**PROCUREMENT**			
200	**Prequalification**	**68 days**	**11/1/2024**	**2/7/2025**
215	Submit Bid Advertisement (Central Register and Local Newspaper)	0 days	2/12/2025	2/12/2025
216	Bid Advertisement Notice in Central Register	0 days	3/6/2025	3/6/2025
217	Filed Subcontractors Bidding	21 days	3/12/2025	4/9/2025
218	General Contractor Bidding	11 days	4/9/2025	4/23/2025
219	General Contractor Award	6 days	4/24/2025	5/1/2025
220	**CONSTRUCTION**			
221	Notice to Proceed	0 days	5/1/2025	5/1/2025
222	Site Mobilization	5 days	2/1/2027	2/5/2027
223	**Site Enabling Work**	**92 days**	**2/5/2027**	**6/14/2027**
228	50% DCAMM Evaluation	0 days	7/9/2027	7/9/2027
229	**Building Construction**	**560 days**	**6/14/2027**	**8/15/2029**
238	FF&E and Educational Technology Installation	71 days	2/27/2029	6/5/2029
239	Teacher/Staff Move-In	43 days	2/27/2029	4/26/2029
240	**Punch List**	**60 days**	**2/26/2029**	**5/21/2029**
243	New Building Occupancy: Grades 4 and 5	0 days	2/1/2029	2/1/2029
244	Building Substantial Completion	0 days	2/26/2029	2/26/2029
245	Closeout	50 days	2/27/2029	5/7/2029
246	LEED-S Construction Submission	77 days	2/27/2029	6/13/2029
247	Demolish Existing North Intermediate School and Construct Parking lot, Playgrounds, Playfields and School Site Amenities	140 days	3/20/2029	10/3/2029
248	New School Occupancy: Grades PreK, K, 1, 2 and 3	0 days	10/4/2029	10/4/2029
249	Completion of Parking Lot and Playfield Construction	40 days	10/4/2029	11/28/2029
250	**Closeout**	**59 days**	**11/28/2029**	**2/22/2030**
259	**MOVE-IN MANAGEMENT**			



Programming Legend

- CORE ACADEMIC
- SPECIAL EDUCATION
- ART & MUSIC
- VOCATIONS & TECHNOLOGY
- HEALTH & PHYSICAL EDUCATION
- MEDIA CENTER
- DINING & FOOD SERVICE
- MEDICAL
- ADMINISTRATION & GUIDANCE
- CUSTODIAL & MAINTENANCE

N

1" = 40'

AR.1 Add/Reno @ Woburn Street Site

PK-3rd

Site Plan

Special Note: This illustrations depicts the main level for the public elements which are proposed to be at grade to the east AND the lower level for the academic elements which are proposed to be at grade to the west. Please refer to floor plans for more information.

AR.1 Add/Reno @ Woburn Street Site

Lower Level

PK-3rd

1" = 40'

N

Programming Legend

- CORE ACADEMIC
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- MEDICAL
- ADMINISTRATION & GUIDANCE
- CUSTODIAL & MAINTENANCE

DRIVE-UP SERVICES ENTRY

PRE-K W/ TOILET 1100

PRE-KINDERGARTEN XLA 1000 SF

STRIDES PREK-K 1100

KINDERGARTEN W/ TOILET 1100

KINDERGARTEN XLA 300 SF

LEARNING CENTER 200 SF

MATH

CALM

T

TLT

SGR 150

VEST

LANGUAGE BASED 1ST-3RD 900

GENERAL CLASSROOM 900

PSYCH

READ

ASST OFF

ADJ

SLP 200

GYM 6000

ELEV

STOR

PE OFF

TEACH COLLAB

TEACH WELL

1ST-5TH XLA 1000 SF

STRIDES 1ST-3RD 900

BACKFILL

UNEXCAVATED

MEP

CARES STORAGE 500

HEATLH CLASSROOM 900

STORAGE

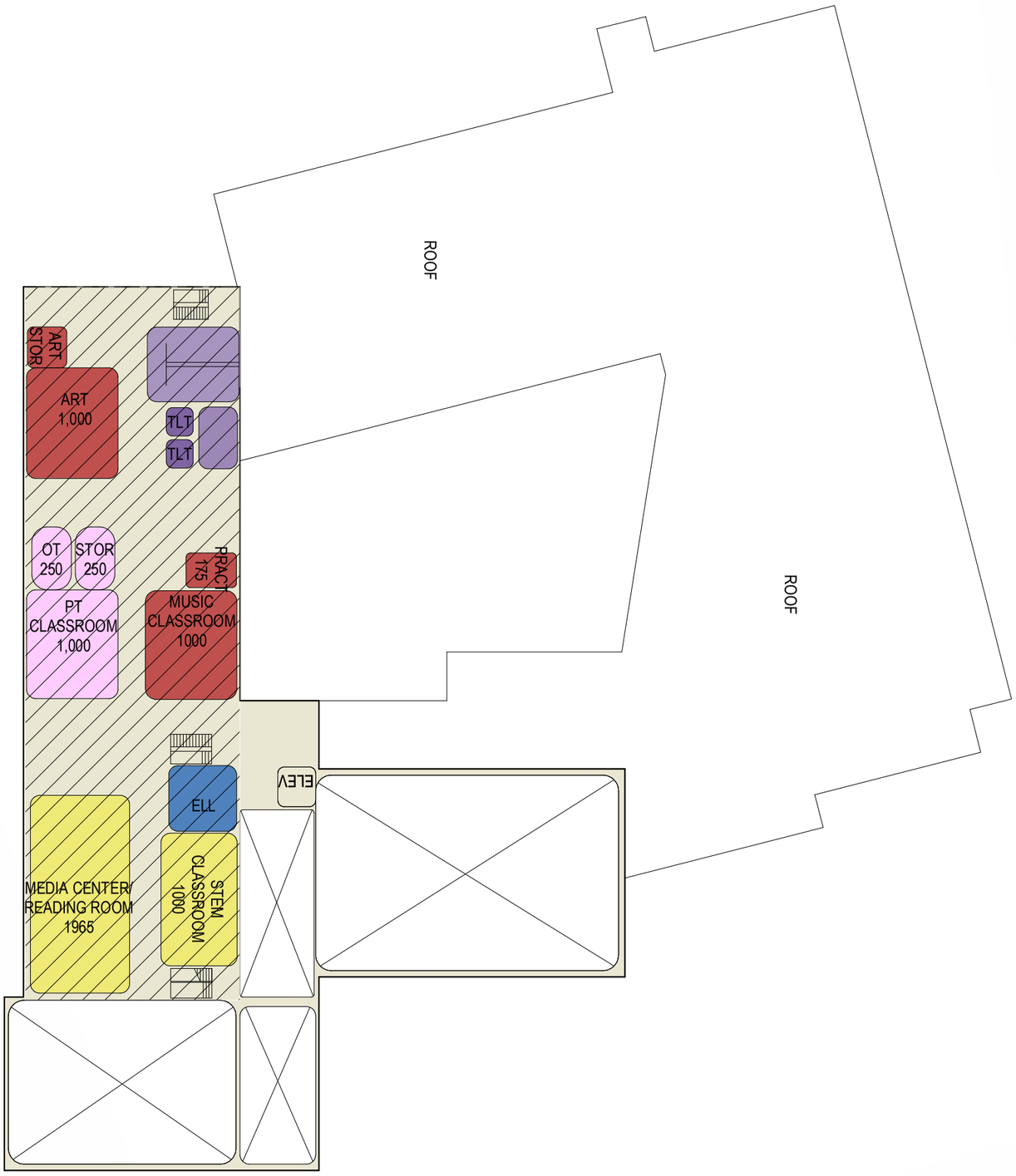
CUSTODIAL MAINTENANCE 2110

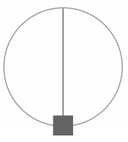
PK-3rd

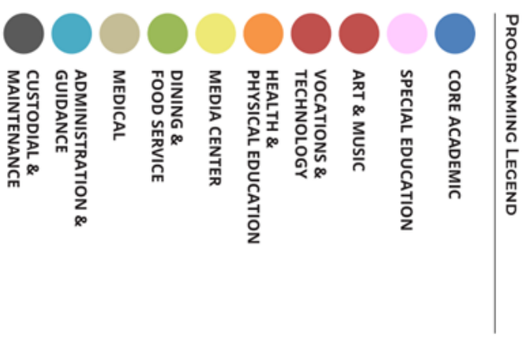
AR.1 Add/Reno @ Woburn Street Site

First Floor

1" = 40'





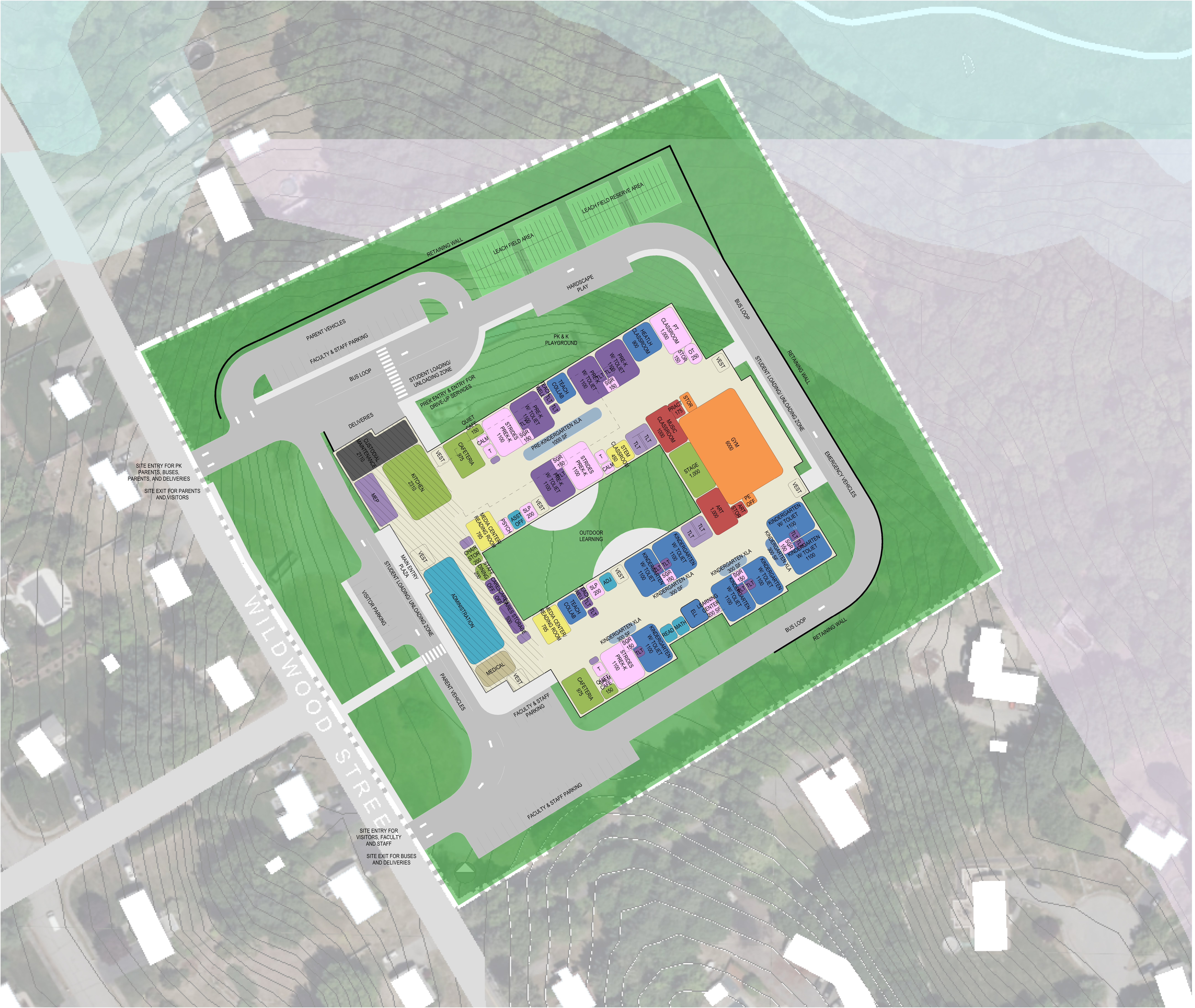


PK-3rd

AR.1 Add/Reno @ Woburn Street Site

Second Floor

1" = 40'



Programming Legend

- Core Academic
- Special Education
- Art & Music
- Vocations & Technology
- Health & Physical Education
- Media Center
- Dining & Food Service
- Medical
- Administration & Guidance
- Custodial & Maintenance

N

1" = 40'

AR.1 Add/Reno @ Wildwood ECC Site

Site Plan

PK-K

PROGRAMMING LEGEND

- CORE ACADEMIC
- SPECIAL EDUCATION
- ART & MUSIC
- VOCATIONS & TECHNOLOGY
- HEALTH & PHYSICAL EDUCATION
- MEDIA CENTER
- DINING & FOOD SERVICE
- MEDICAL
- ADMINISTRATION & GUIDANCE
- CUSTODIAL & MAINTENANCE

N

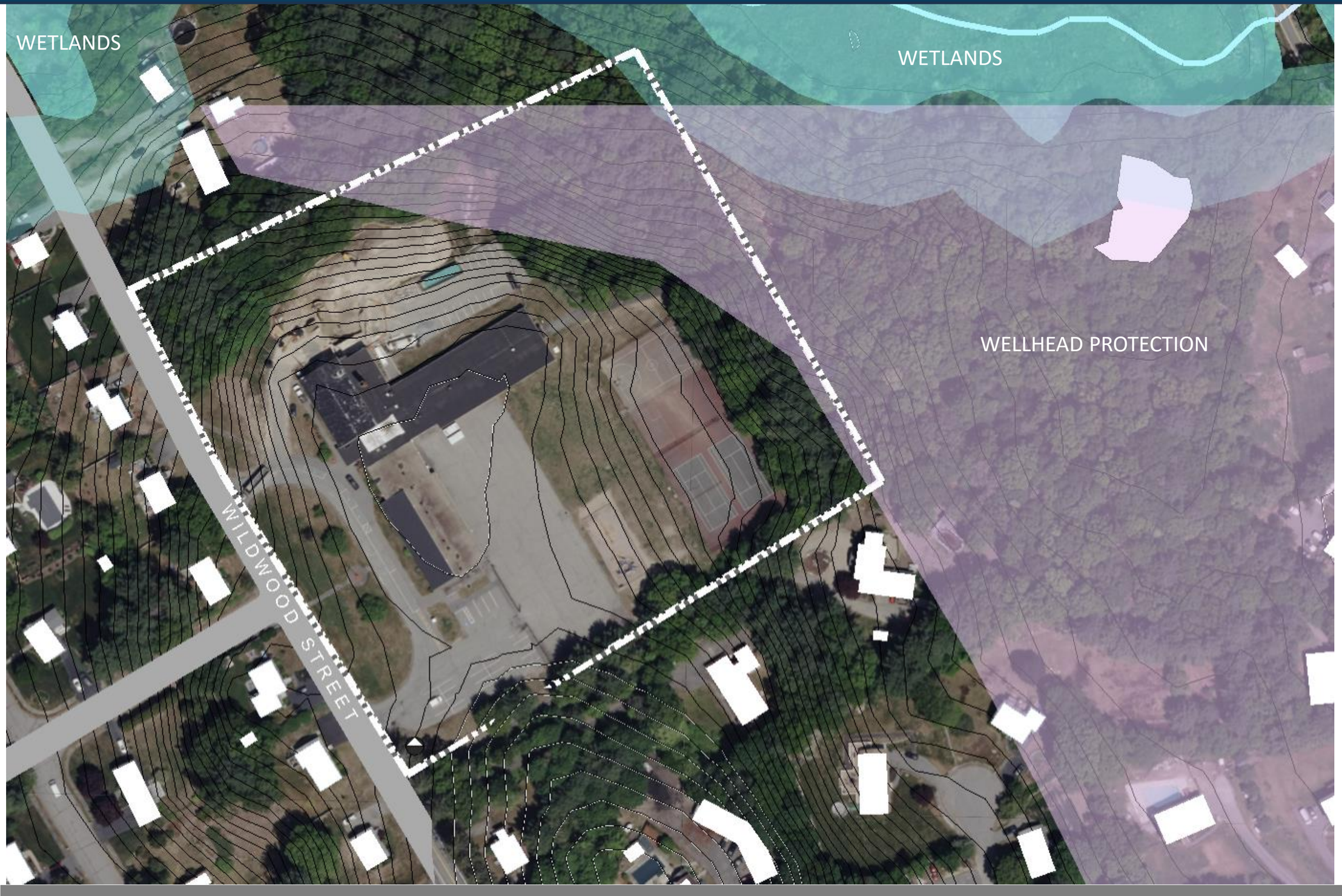
PK-K

AR.1 Add/Reno @ Wildwood ECC Site

First Floor

1" = 40'

Option PK-K R.1



SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WILDWOOD ECC - WILMINGTON MA

1" = 100' - 0"

SCALE

2023-07-12

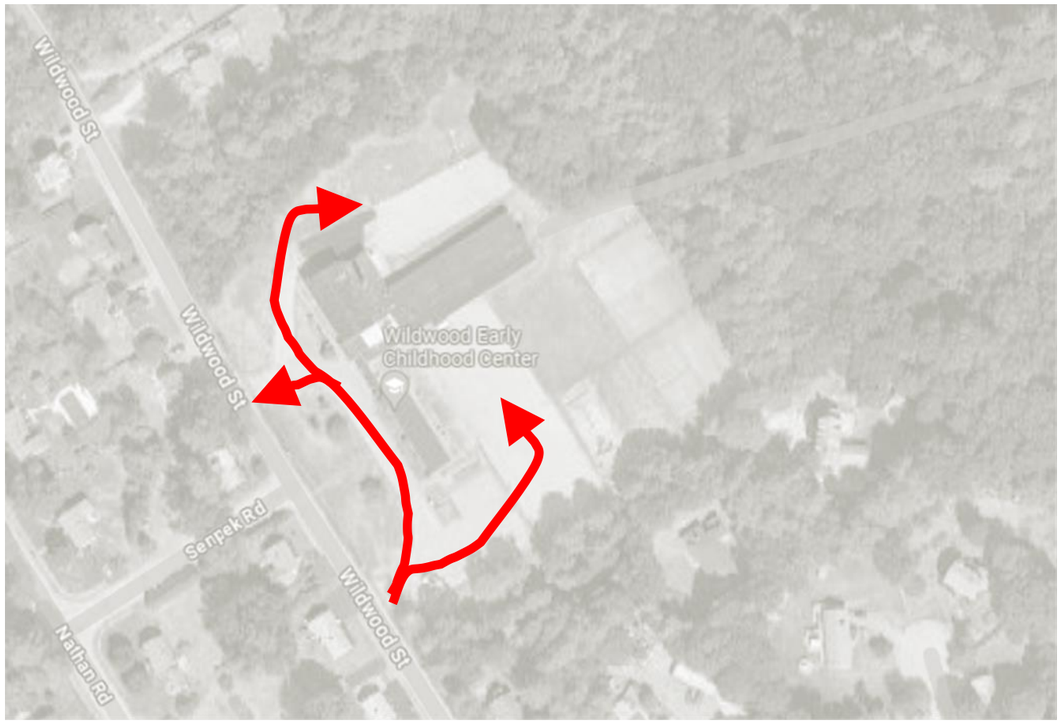
DATE

1

Option PK-K R.1 – Circulation Patterns

Bus and Parent drop-off/pick up locations

Vehicular and Pedestrian Circulation



Emergency Vehicle Access

Accessible Paths

Parent
Bus
Vehicle
Pedestrian
Emergency
Accessible

WILMINGTON SCHOOLS

WILDWOOD ECC - WILMINGTON MA

Option PK-AK AR.1

SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WILDWOOD EE - WILMINGTON MA

1" = 100' - 0"

SCALE

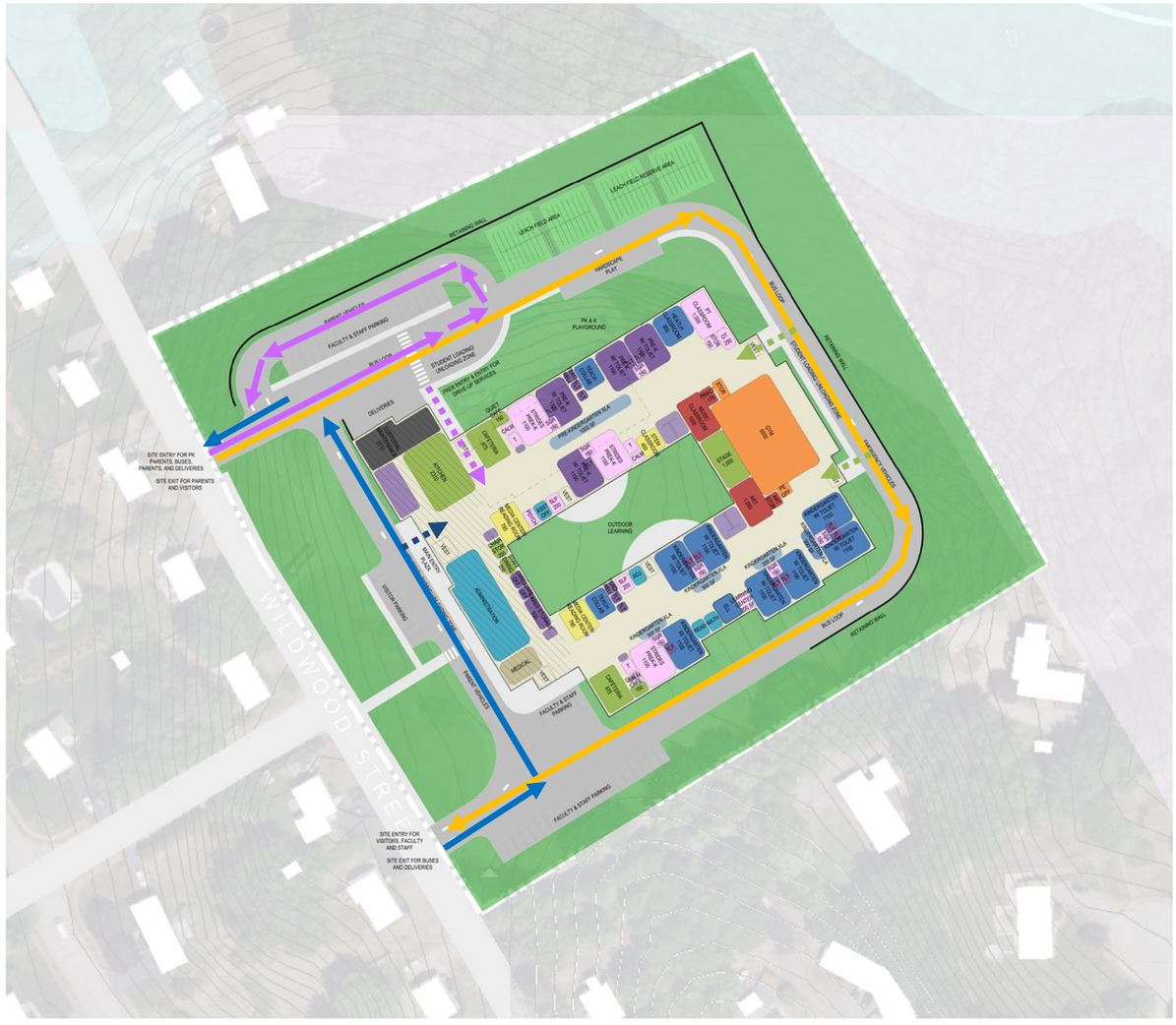
2023-07-12

DATE

DORE + WHITTIER

Option PK-K AR.1 – Circulation Patterns

Drop-off and Pick-Up

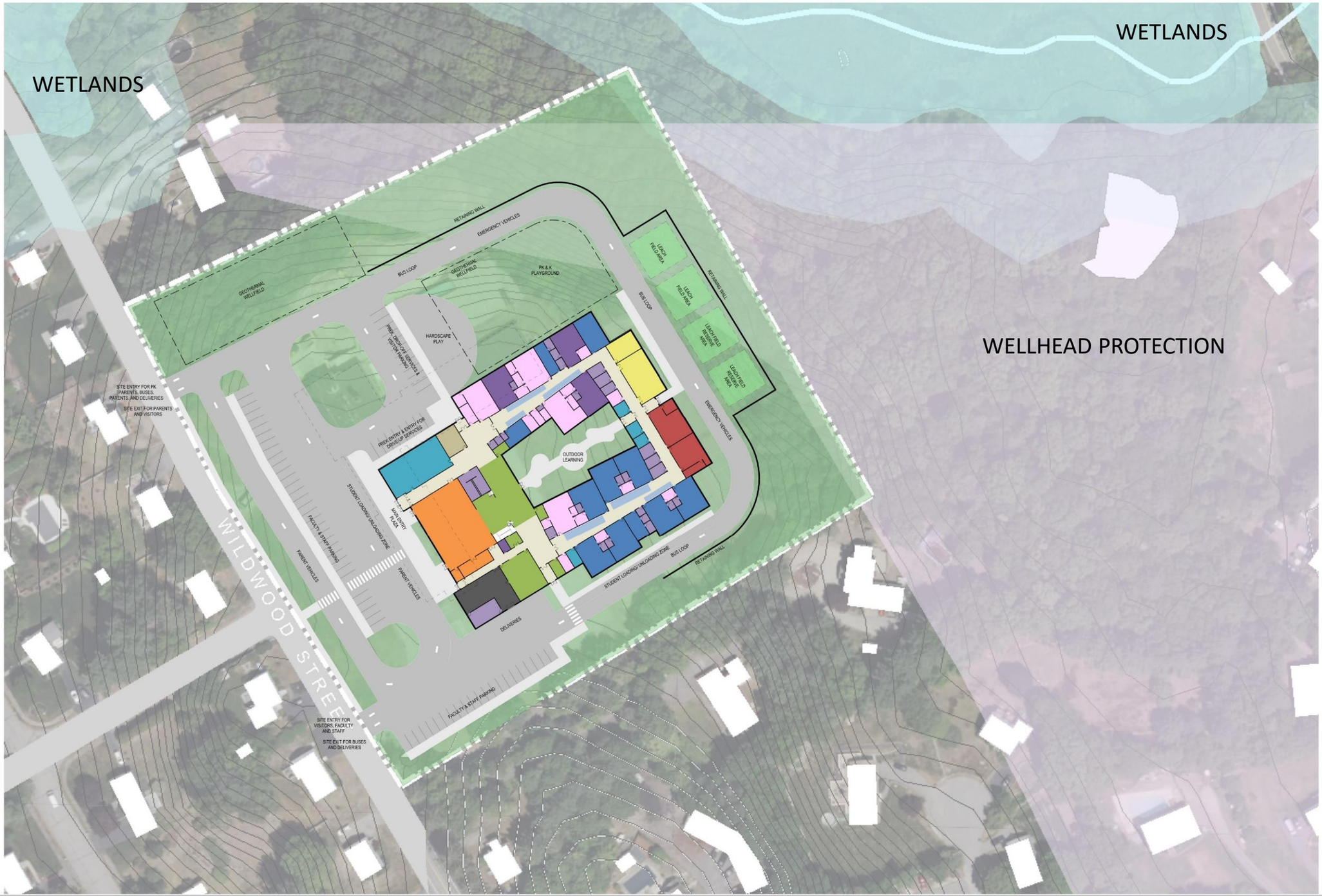


Vehicles

Pre-K Vehicles

Bus

Option PK-K N.1



SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WILDWOOD EE - WILMINGTON MA

1" = 100' - 0"

SCALE

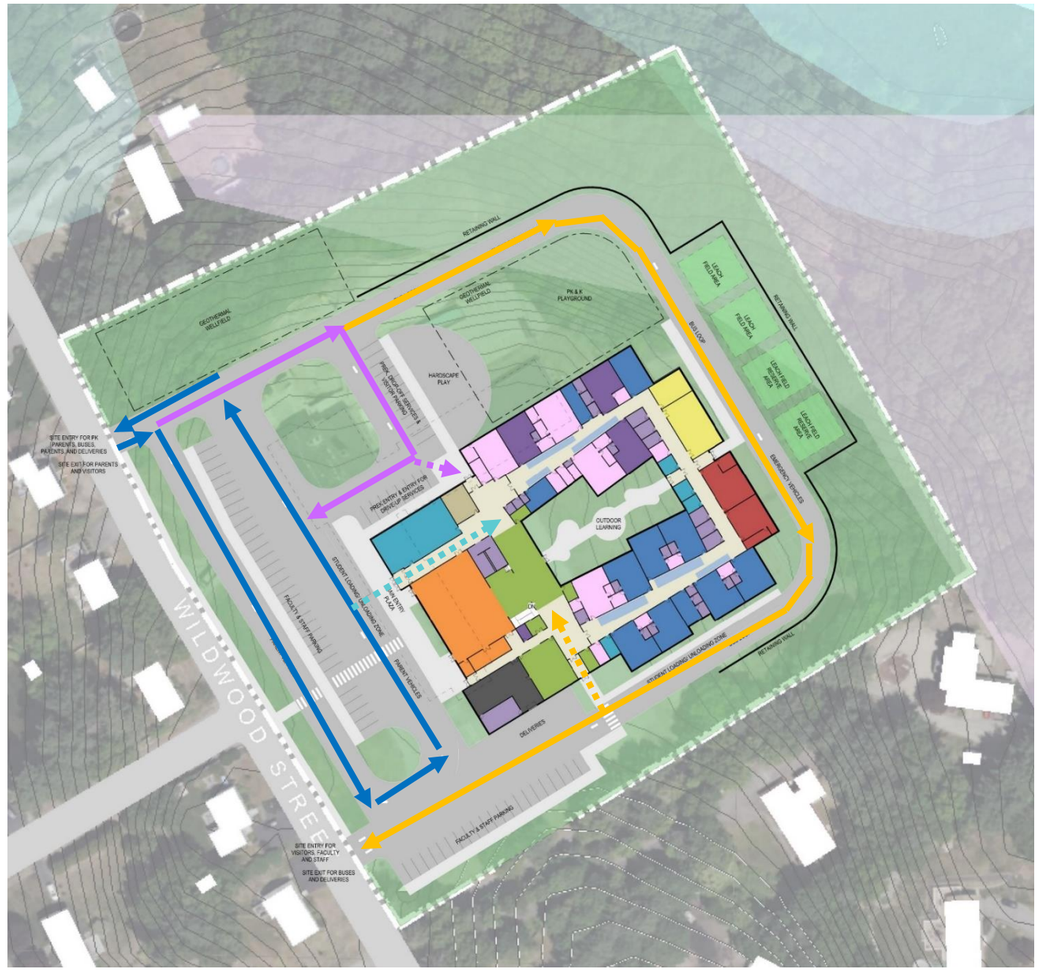
2023-07-12

DATE

DORE + WHITTIER

Option PK-K N.1 – Circulation Pattern

Drop-off and Pick-Up

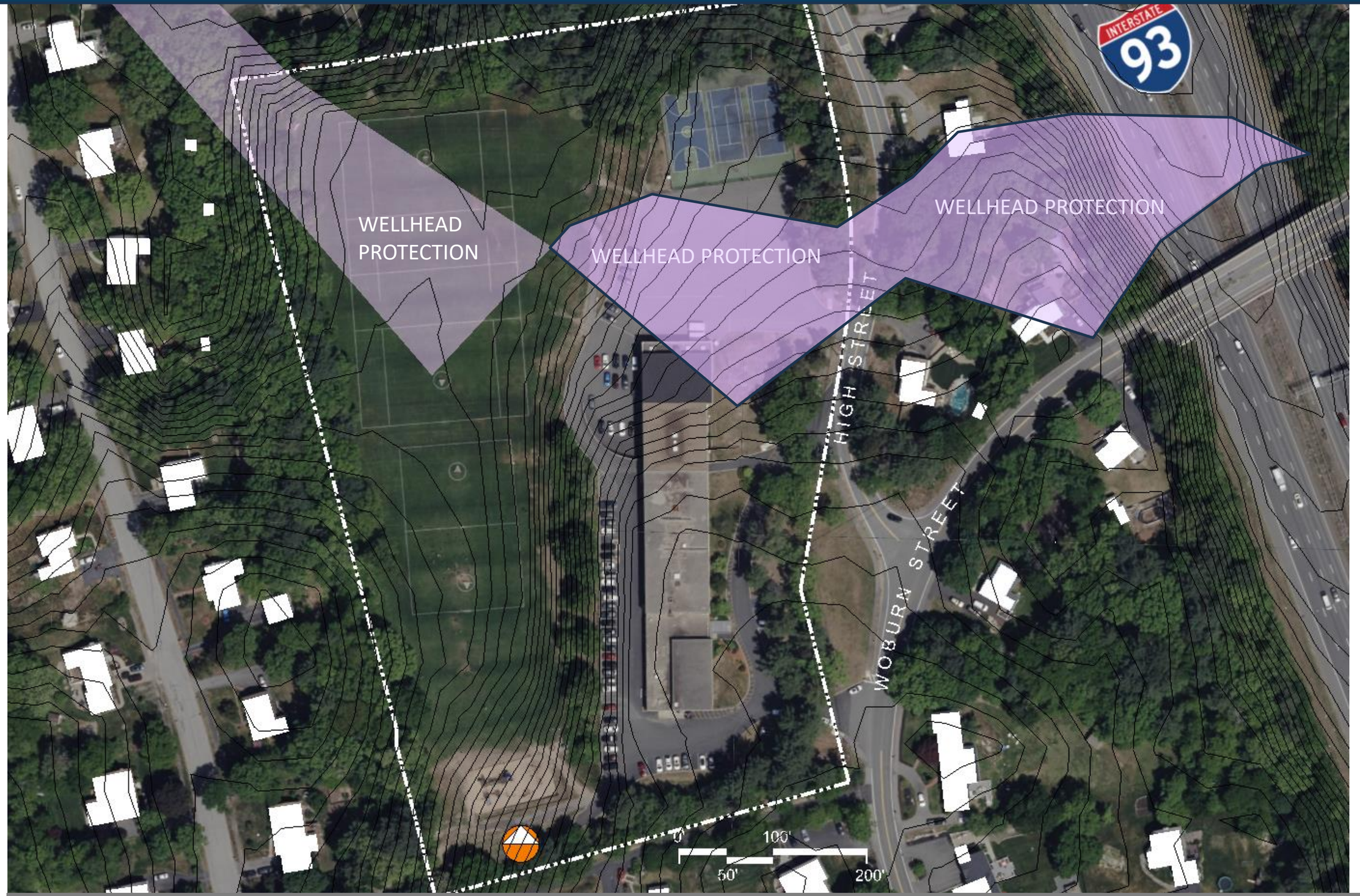


Vehicles

Pre-K Vehicles

Bus

Option PK-3 R.1



SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WOBURN STREET SCHOOL - WILMINGTON MA

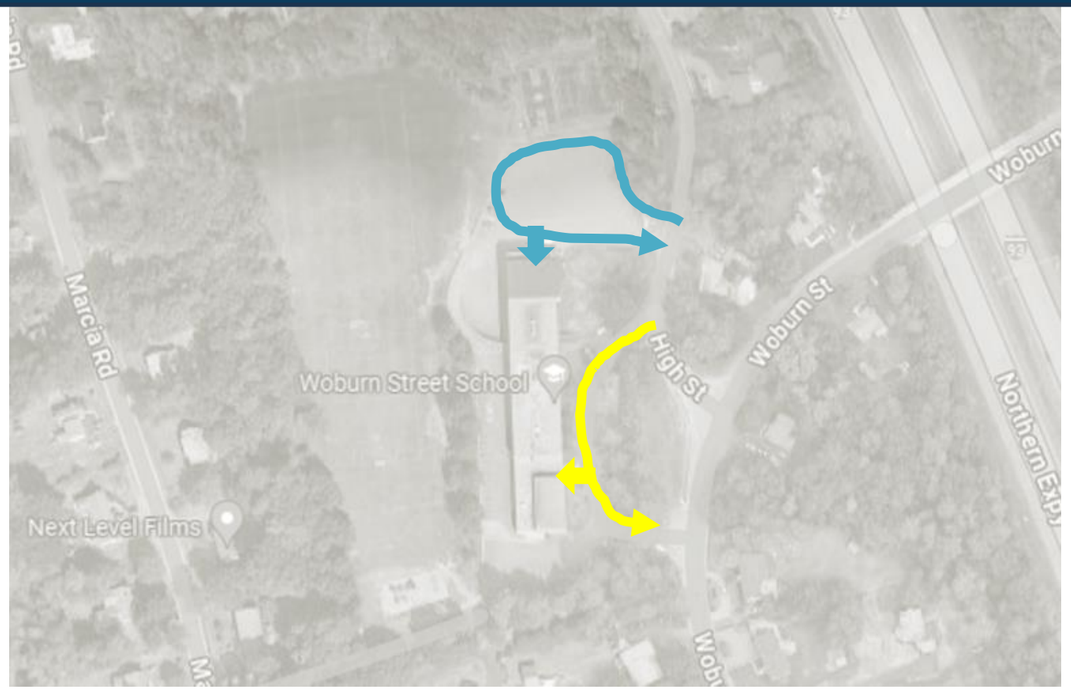
1" = 100' - 0"

SCALE

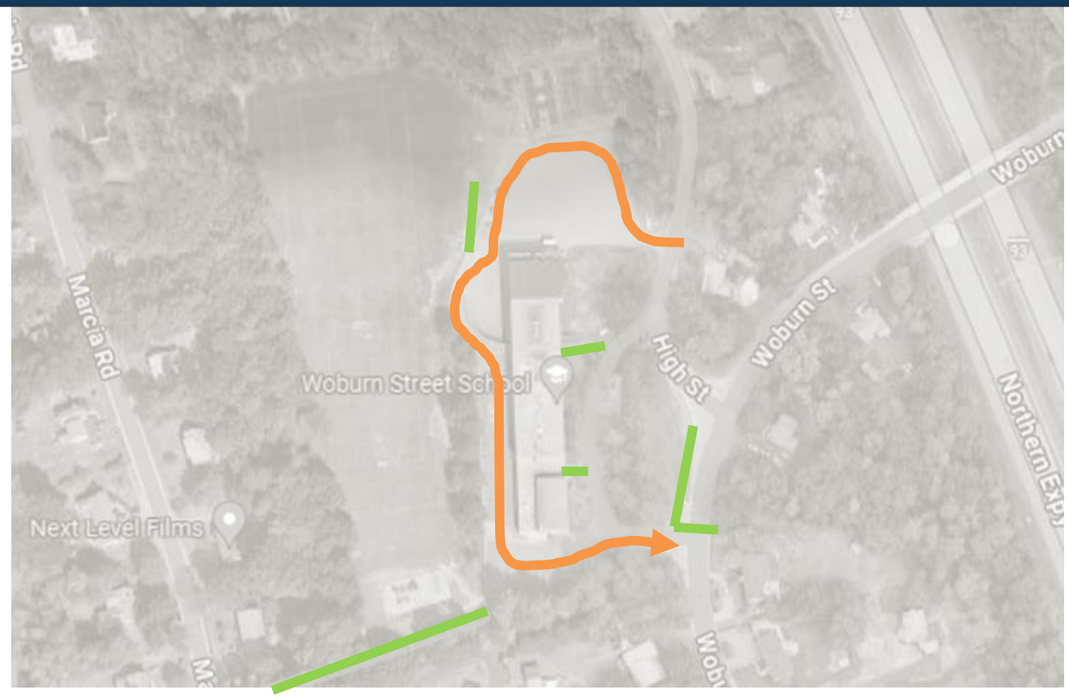
2023-07-12

DATE

Option PK-3 R.1 – Circulation Patterns

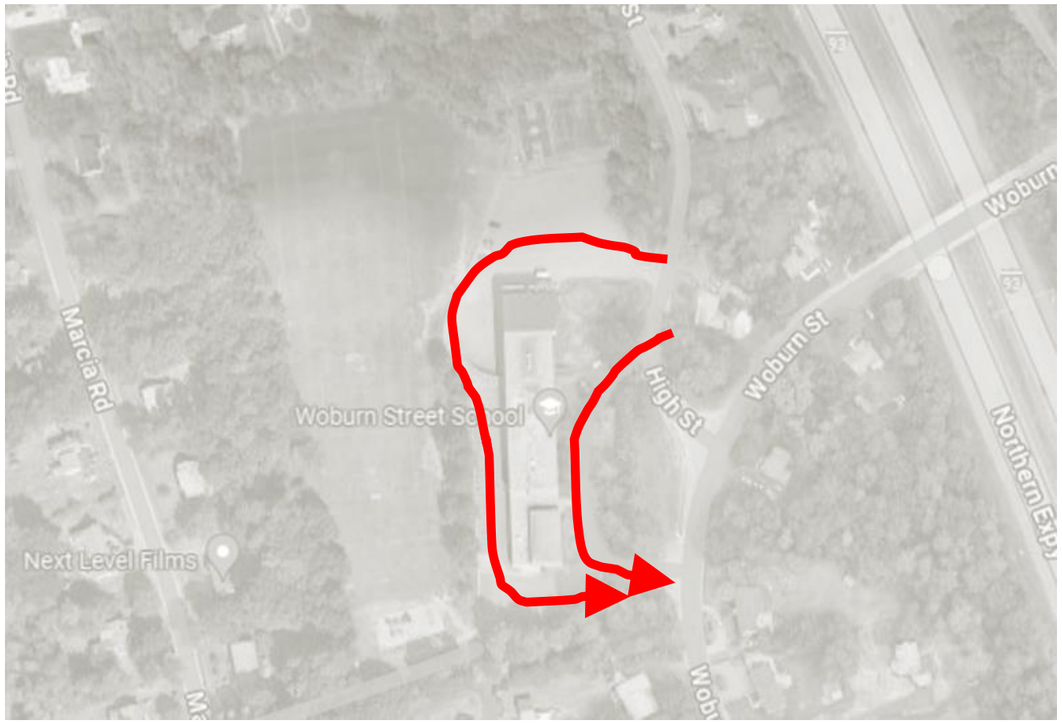


Bus and Parent drop-off/pick up locations



Vehicular and Pedestrian Circulation

Parent
Bus
Vehicle
Pedestrian
Emergency
Accessible



Emergency Vehicle Access

Accessible Paths

WILMINGTON SCHOOLS
WOBURN ESTREET SCHOOL - WILMINGTON MA

Option PK-3 AR.1

SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WOBURN ELEMENTARY - WILMINGTON MA

1" = 100' - 0"

SCALE

2023-07-12

DATE

DORE + WHITTIER

Option PK-3 AR.1 – Circulation Patterns

Drop-off

Drop-off

Bus

Vehicles

Pre-K Vehicles

Option PK-3 AR.1 – Circulation Patterns

Pick-Up

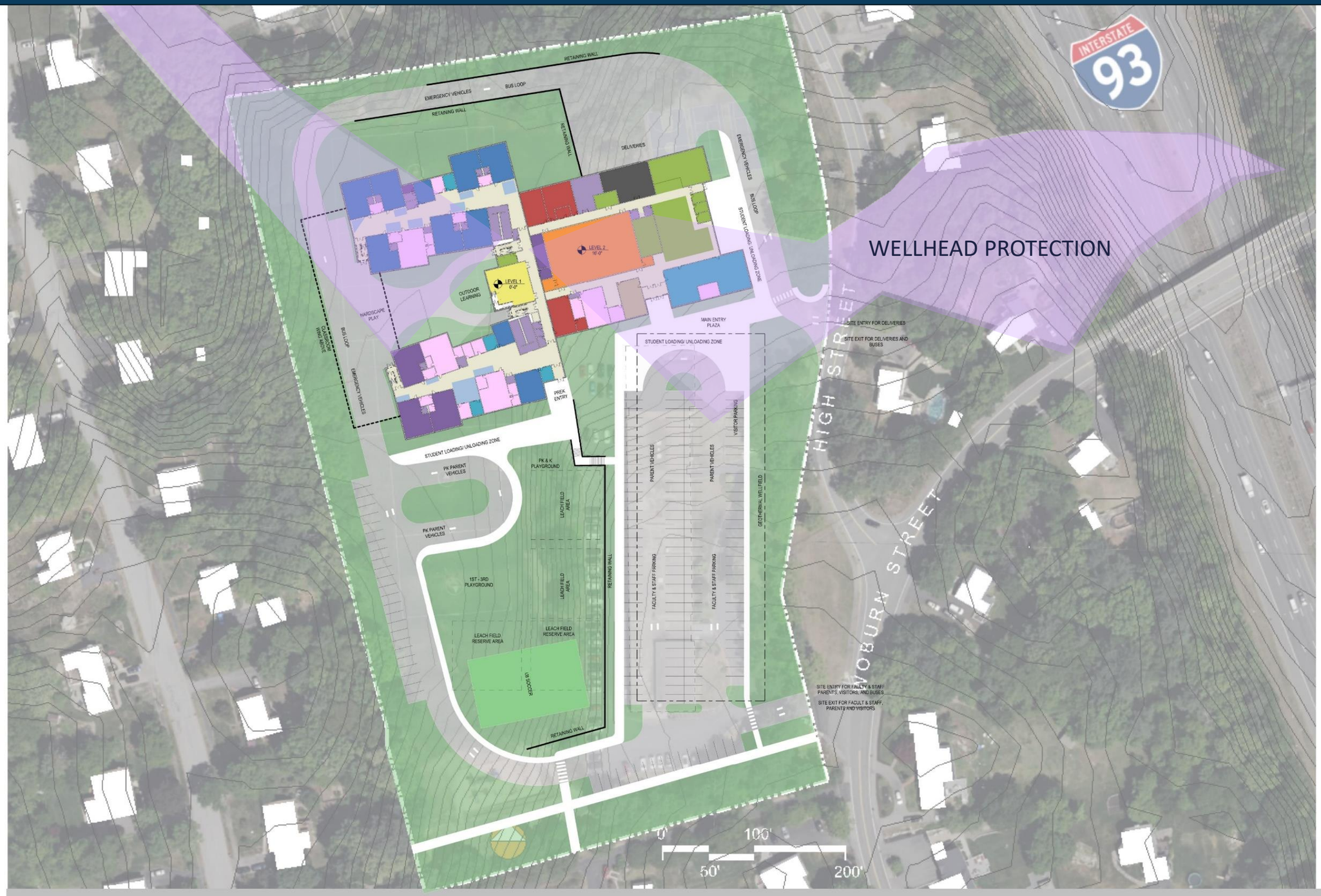
Pick-Up

Bus

Vehicles

Pre-K Vehicles

Option PK-3 N.1



SITE BASE CONDITIONS

WILMINGTON SCHOOLS

WOBURN ELEMENTARY - WILMINGTON MA

1" = 100' - 0"

SCALE

2023-07-12

DATE

DORE + WHITTIER

Option PK-3 N.1 – Circulation Patterns

Drop-off and Pick-Up

Bus

Drop-off and Pick-Up

Vehicles

Pre-K Vehicles

Option PK-5 R.1

SITE BASE CONDITIONS

WILMINGTON SCHOOLS

NORTH INTERMEDIATE SCHOOL - WILMINGTON
MA

1" = 100' - 0"

SCALE

2023-07-12

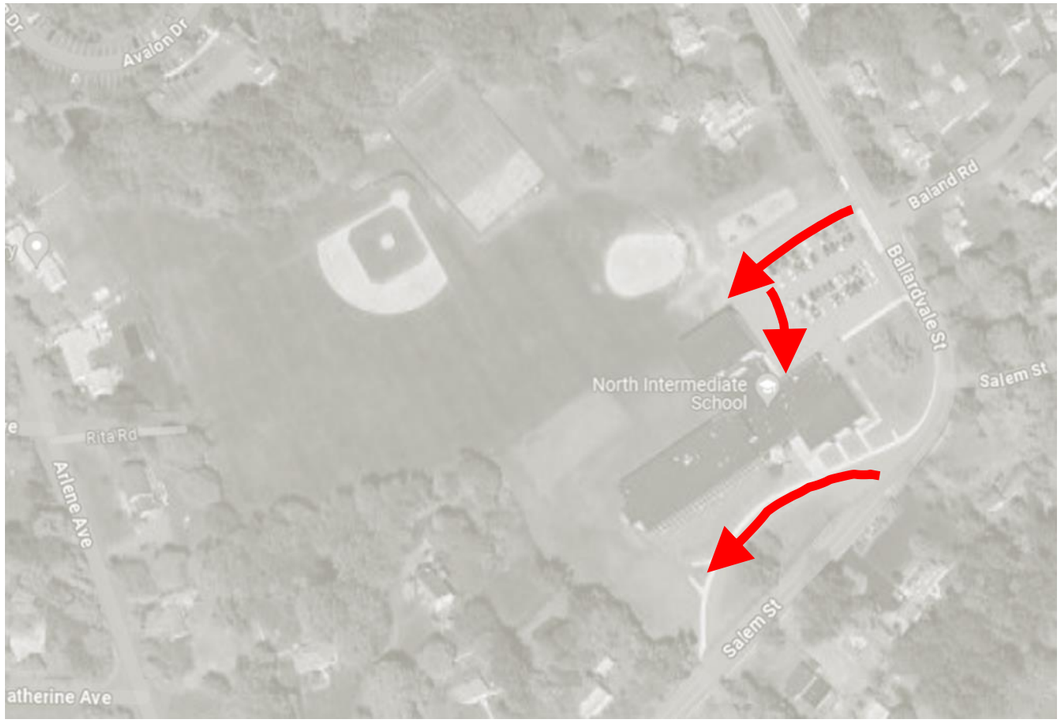
DATE

Option PK-5 R.1 – Circulation Patterns

Bus and Parent drop-off/pick up locations

Vehicular and Pedestrian Circulation

- Parent
- Bus
- Vehicle
- Pedestrian
- Emergency
- Accessible



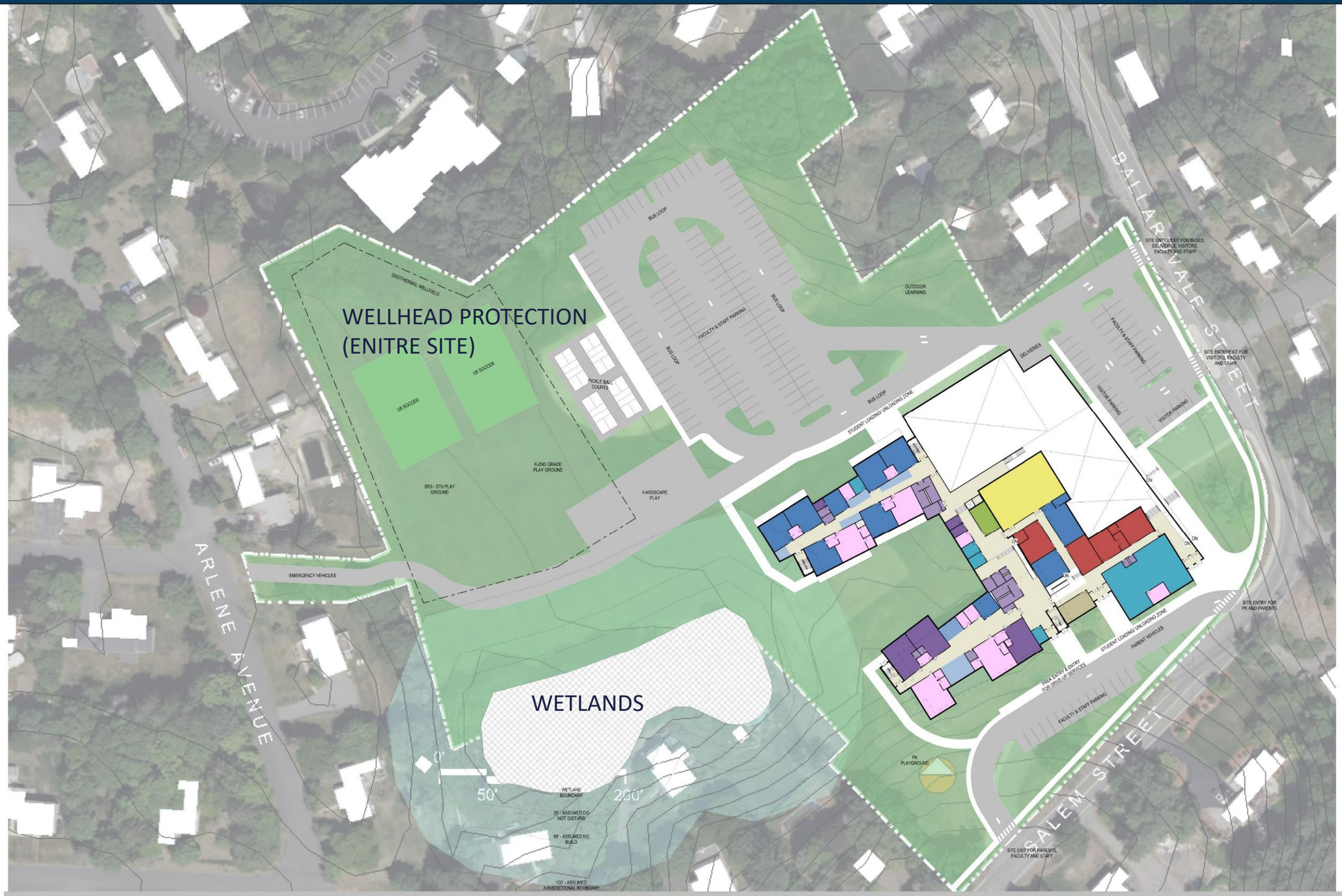
Emergency Vehicle Access

Accessible Paths

WILMINGTON SCHOOLS

NORTH INTERMEDIATE SCHOOL - WILMINGTON MA

Option PK-5 AR.1



SITE BASE CONDITIONS

WILMINGTON SCHOOLS

NORTH INTERMEDIATE - WILMINGTON MA

1" = 100' - 0"

SCALE

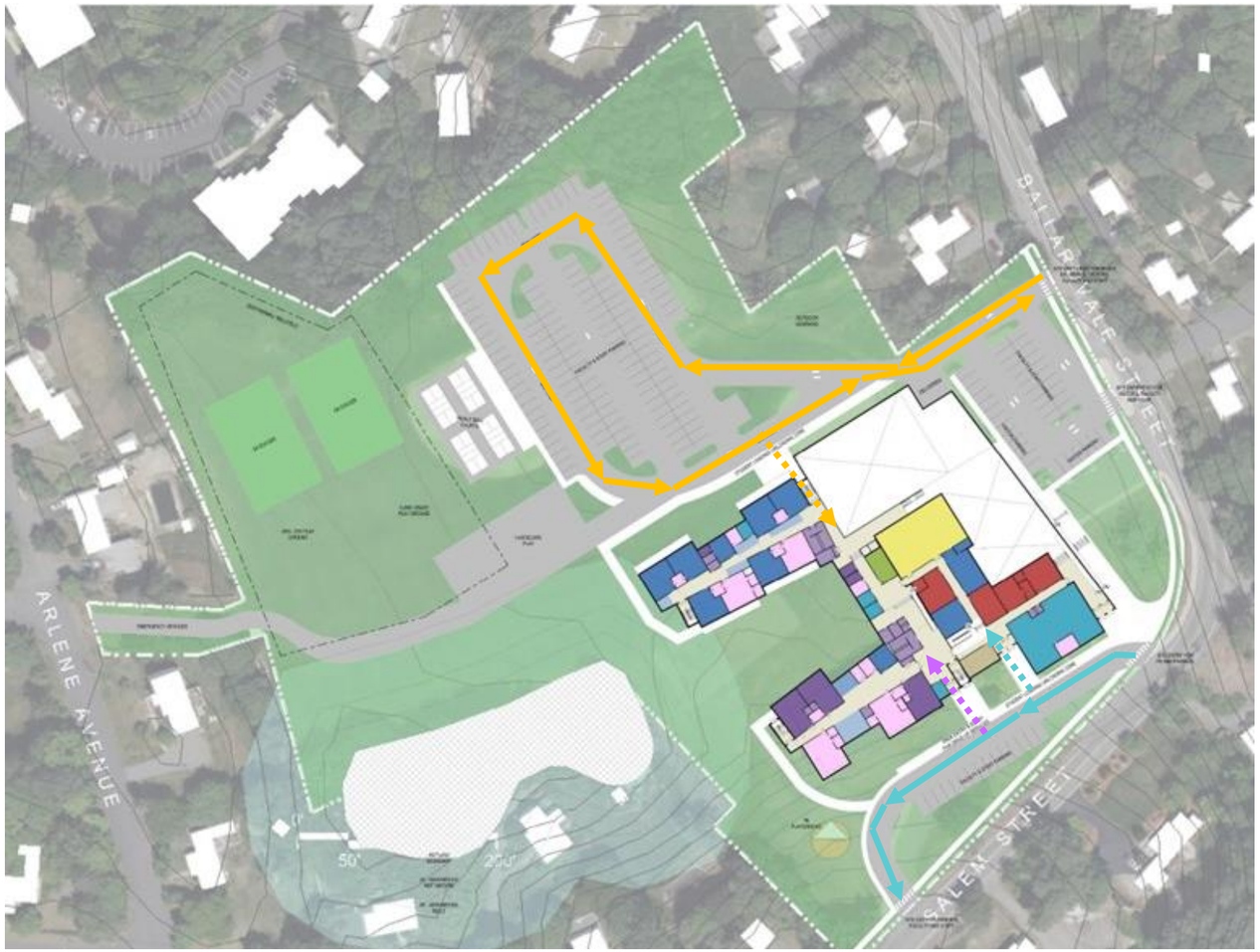
2023-07-12

DATE

DORE + WHITTIER

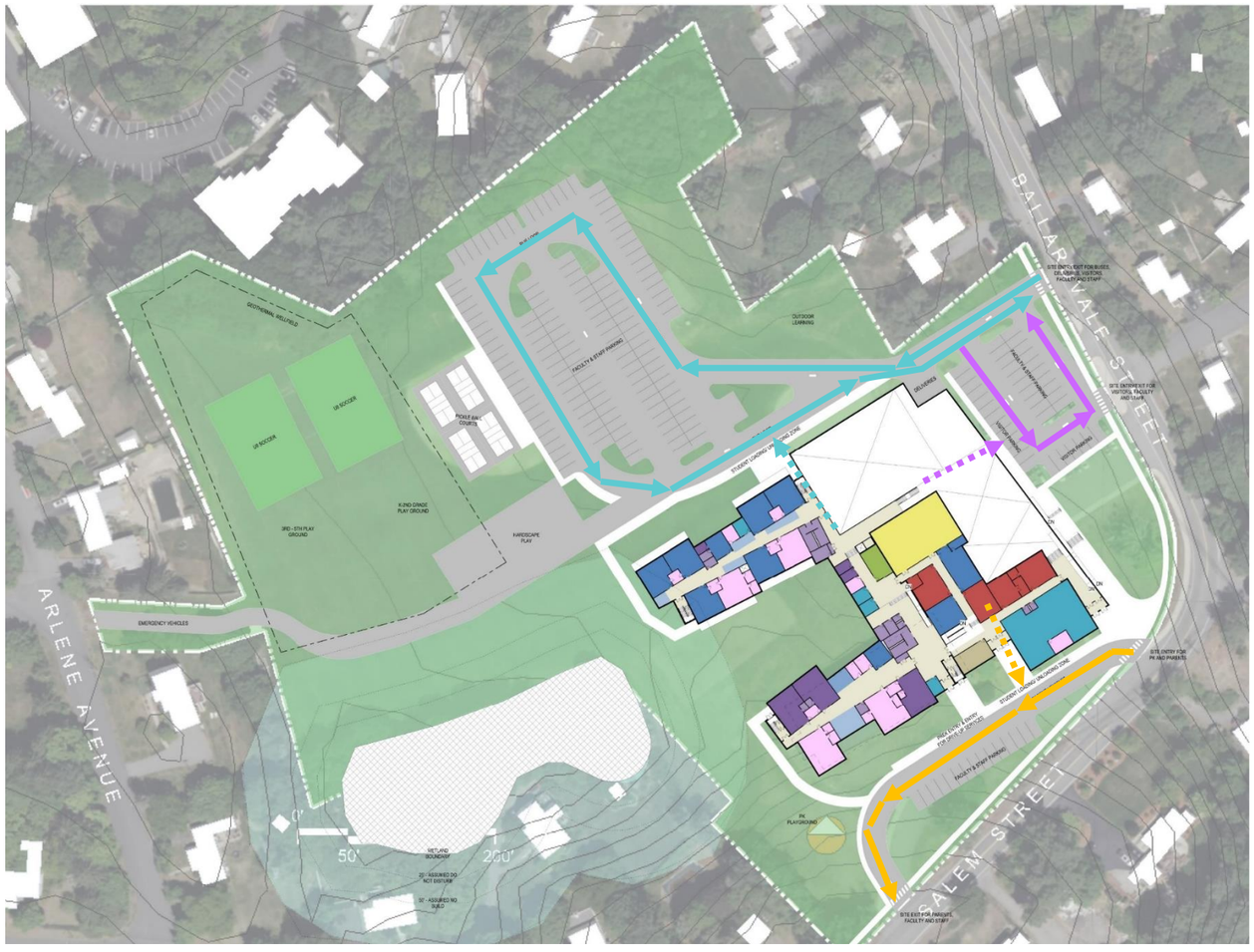
Option PK-5 AR.1 – Circulation Patterns

Drop-Off



Bus

Pick-Up



Vehicles

Pre-K Vehicles

Option PK-5 N.1

SITE BASE CONDITIONS

WILMINGTON SCHOOLS

NORTH INTERMEDIATE - WILMINGTON MA

1" = 100' - 0"

SCALE

2023-07-12

DATE

DORE + WHITTIER

Option PK-5 N.1 – Circulation Patterns

Drop-Off

Alternate Pick-Up

Bus →

Vehicles →

Pre-K Vehicles →

		WILDWOOD EARLY CHILDHOOD CENTER (29,302 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
		GSF:	29302				
1	**Health, Safety & Welfare**						
	1.01	Hazardous Materials Abatement and Disposal - Cost Estimate provided by UEC in report dated 10/10/23	1	EA	HAZ MAT	1	$1,550,000
	1.02	Provide crosswalk signage at Wildwood Street and connect across the loop road (2 signs, 25' x x8' wide crosswalk)	1	ALLOW	CIVIL	1	$15,600
	1.03	Provide separation between Parking Lot #1 and the loop road using curbing (preferred) or striping. (50-LF)	50	LF	CIVIL	1	$4,500
							$1,570,100
2	**Code Compliance (items not noted above)**						
	2.01	Provide a new automatic sprinkler system to protect all areas of the building, designed and installed in accordance with MA State Building Code and NFPA 13. Provide a new dedicated fire water service with cement-lined ductile iron pipe and a dedicated gate valve. Perform a new hydrant flow test to confirm Municipal water supply capacity. (Unit cost)	29,302	SF	CIVIL/FIRE PROTECTION	1	$313,718
	2.02	Upgrade interior masonry walls (if required to meet code prior to a comprehensive renovation). This may require addition of reinforced masonry shear walls with new reinforced concrete foundations, connecting the floor and roof diaphragms to the existing masonry walls. All of the existing masonry walls would have to be adequately connected to the roof and floor structure.	29,302	SF	STRUCT	1	$351,624
							$665,342
3	**Handicap Accessibility (includes only items not noted above)**						
	3.01	Provide accessible path at main entrance and connect to accessible parking spaces. Regrade, sign, and stripe handicap parking spaces as needed to meet ADA Accessibility Standards. (4 spaces and 2 entrances)	4000	SF	CIVIL	1	$78,000
	3.02	Provide crosswalk signage at Wildwood Street. (2 signs)	2	EA	LANDSCAPE	1	$3,000
	3.03	Provide ADA-compliant walk and ramp to access site amenities (playground and fields)	135	LF	LANDSCAPE	2	$135,000
	3.04	Provide new ADA-Complaint tennis/basketball courts.	24,000	SF	LANDSCAPE	2	$240,000
	3.05	Replace playground equipment and surface with an ADA compliant playground with accessible surfacing.	5,000	SF	CIVIL/LANDSCAPE	2	$425,000
	3.06	Provide sloped walk at north entrance pad currently raised above grade.	40	SF	LANDSCAPE	1	$1,000
	3.07	At main entry doors provide a motorized operator for accessibility.	1	EA	ARCH	1	$8,000
	3.08	Provide single use toilet rooms with accessible accessories (grab bars etc.)	14	EA	ARCH	1	$560,000
	3.09	Add accessible wheelchair lift to platform stage in multipurpose room and handrails at stair (4 risers).	1	ALLOW	ARCH	1	$70,000
	3.10	Add (4) dual-height accessible drinking fountains, with bottle fillers	4	EA	ARCH/PLUMB	1	$32,000
	3.11	Provide accessible rooms signage throughout the building. (unit cost)	29,302	SF	ARCH	1	$23,442
	3.12	Reconfigure gang toilet rooms to be accessible, which may require reconfiguring doorways and structural work. Remove and replace partitions with new.	550	SF	ARCH	1	$165,000
	3.13	Reconfigure doorways to be accessible, which will require structural work to widen door alcoves. Replace with new wood doors, with ratings where appropriate to the opening rating. Provide mop plates at all doors to prevent soiling. Hardware throughout the building should be replaced with barrier-free lever sets to provide universal accessibility as well as the ability to quickly lock doors during a lockdown. Paint frames. (approx 20 single)	20	EA	ARCH	1	$80,000
							$1,820,442
4	**Maintenance - Extending the Life of the Building (includes only items not noted above)**						
	4.01	Replace all asphalt vehicular pavement. Edge pavement with granite or cast-in-place concrete curbs to best maintain the vehicular pavement and adjacent sidewalks and turf panels. (50,000 SF, 1,000 LF).	50,000	SF	CIVIL/LANDSCAPE	2	$405,000
	4.02	Replace all asphalt play area pavement. (30,000 SF).	30,000	SF	LANDSCAPE	2	$210,000
	4.03	Alternate to play area pavement: pour-in-place-rubber surface (30,000 SF)	30,000	SF	LANDSCAPE		$0
	4.04	Replace chain-link fence along southeast property line	250	LF	LANDSCAPE	1	$22,500
	4.05	Replace timber guard rail along north and east sides of Parking Lot #2.	100	LF	CIVIL	1	$7,000

		WILDWOOD EARLY CHILDHOOD CENTER (29,302 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.06	Replace the existing domestic water service with cement-lined ductile iron pipe and a dedicated gate valve. (150-ft)	150	LF	CIVIL	1	$22,500
	4.07	Inspect the existing septic system to confirm compliance with 310 CMR 15.00 (Massachusetts State Environmental Code, Title V) and the Wilmington Board of Health Regulations. Upgrade the system as needed to meet the regulations. (Allowance to inspect system and perform upgrades)	1	ALLOW	CIVIL	1	$50,000
	4.08	Line the flow discharge path from the leaching catch basin with stone to prevent erosion. (200 sq.ft.)	200	SF	CIVIL	2	$8,000
	4.09	Repair erosion of the grass slope north of Parking Lot #2. (200 sq.ft.)	200	SF	LANDSCAPE	2	$1,200
	4.10	Install stone drip edge wherever building façade meets turf or planted areas to protect the building foundation.	390	LF	LANDSCAPE	2	$15,600
	4.11	Remove 2 dead trees and plant 10 trees around site	1	ALLOW	LANDSCAPE	1	$20,000
	4.12	Install granite or cast-in-place concrete curbs along vehicular pavement	2,080	LF	LANDSCAPE	2	$114,400
	4.13	Provide allowance to update site furnishings including bicycle racks, 4 benches , 4 ADA-complaint picnic tables and litter and recycling receptacles.	1	ALLOW	LANDSCAPE	1	$40,000
	4.14	At exterior CIP foundation walls above grade (loading dock), there is surface spalling at higher impact areas. Repair CIP concrete by removing unstable material and replacing with concrete patch.	240	SF	ARCH	1	$3,600
	4.15	Parging is stained and cracked in some areas. Patch/ fill cracks in parging. Clean worst of the stains with gentle wash solution. Remove any vegetative material from concrete.	1,100	LF	ARCH	1	$27,500
		20% of brick down low near grade or in other weathered conditions have mortar joints severely degraded in great need of repointing. Much brick has vegetative growth. Some zig zag cracking was observed. Carefully clean brick with non-abrasive, mild cleaners and hand tools approved for use with brick materials. Remove any cracked mortar and re-tool/ repoint brick veneer.(20% x 1,100' exterior perimeter facade = 220 LF)	220	LF	ARCH	1	$17,600
	4.16	Replace handrails and guardrails entirely with new. (4 risers + 15LF guardrail)	1	EA	ARCH	1	$7,185
	4.17	At precast concrete sills, remove failed mortar joints between sill pieces and install backer rod and sealant. Clean vegetative growth with non-abrasive, mild cleaners and hand tools approved for use with concrete materials.	917	LF	ARCH	1	$45,850
	4.18	Remove rotted wood elements of horizontal roof projections (painted plywood fascia's and soffits) and replace in kind with rot-resistant materials. Repair and prep non-replaced wood surfaces, caulk all cracks and holes, and repaint all fascia's, soffits, and trim.	1,100	LF	ARCH	1	$99,000
	4.19	Chimney: Clean, repair, and repoint brick. Repoint concrete cap. Install metal cap and bird screen over the boiler flue opening.	450	SF	ARCH	1	$25,250
	4.20	Windows: replace with new thermally-broken, heavy commercial aluminum curtain wall systems, with dual-pane Low-E insulating glass, and operable sash similar to existing operation. (Window openings at each classroom are approximately 15'x9' high) Caulk in place with new caulk joints.	7,012	SF	ARCH	1	$1,472,520
	4.21	Glass block on gym east side is in poor condition. This wall was blocked off on the inside, so remove the glass block and replace with an insulated metal panel system.	1,240	SF	ARCH	1	$148,800
	4.22	Replace main exterior entry systems with new, thermally-broken heavy commercial storefront entry systems, with full glass doors and dual-pane, Low-E insulating glass. 2 locations (28' wide and 12' wide)	1	EA	ARCH	1	$88,000
	4.23	Replace exterior service and utility door systems with new, thermally-improved insulated hollow metal doors in steel frames (for punched openings). Infill transom and sidelight areas as needed with thermally-improved storefront systems, similar to above. (4 single doors, 4 double doors)	1	EA	ARCH	1	$42,000
	4.24	Allowance to replace louvers (intake and exhaust at classrooms, Larger AHU louvers at multipurpose room, and louvers to ventilate basement crawl space)	1	EA	ARCH	1	$5,000
	4.24	Sloped Roof at Multipurpose Room: Replace roof with white TPO fully adhered membrane roof, with FRT wood blocking and metal edge trim. Provide code-minimum insulation on existing deck. Replace wood soffits and fascia with brake metal trim formed over top of new pressure-treated plywood to mimic present	3,500	SF	ARCH	1	$157,500
	4.25	South Wing: Replace roof with white TPO fully adhered membrane roof, with FRT wood blocking and metal edge trim, and new drains and baskets. Provide code-minimum insulation on existing deck. Replace existing copper base flashings with new in existing reglets. Replace wood soffits and fascia with brake metal trim formed over top of new pressure-treated plywood to mimic present trim profiles, with MDO soffits.	6,100	SF	ARCH	2	$274,500

		WILDWOOD EARLY CHILDHOOD CENTER (29,302 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.26	Replace VAT/VCT with linoleum flooring. (Abatement cost in 1.01) in classroom wings and administrative areas	18400	SF	ARCH	1	$165,600
	4.27	Replace VAT with resilient sports floor system in Multipurpose Room. (Abatement cost in 1.01)	2,650	SF	ARCH	1	$53,000
	4.28	Refinish wood floor at platform.	800	SF	ARCH	1	$12,000
	4.29	Provide a good deep cleaning of the terrazzo with mildly abrasive cleaners suitable for the job that will remove stains.	2000	SF	ARCH	1	$20,000
	4.30	Provide a good deep cleaning of the quarry tile in kitchen.	650	SF	ARCH	2	$6,500
	4.30	At interior walls, repair cracks, remove peeling paint, and repaint throughout.	1	ALLOW	ARCH	1	$15,000
	4.31	Replace interior doors within the facility with new wood doors, with ratings where appropriate to the opening rating. Provide mop plates at all doors to prevent soiling. Hardware throughout the building should be replaced with barrier-free lever sets to provide universal accessibility as well as the ability to quickly lock doors during a lockdown. Paint frames. (approx 45 single)	45	EA	ARCH	2	$112,500
	4.32	Replace interior doors and frames including borrowed light frames at perimeters of corridors with 1 hour rated doors, frames, and windows to improve separation of corridors. (8 locations)	8	EA	ARCH	2	$80,000
	4.33	After abatement of plaster ceiling finish, replace with all new ACP ceiling systems.	29302	SF	ARCH	1	$263,718
	4.34	Replace classroom casework and sinks with new units that are compliant with accessibility for the age of the intended users, and with a uniform appearance throughout the school - 30 LF of casework + 1 sink in each room	14	LOCS	ARCH	1	$378,000
	4.35	Remove lockers and curbs and install new wood shelving and cloak hooks/ benches in the alcoves. Will likely require wall finish improvements – provide wood paneling to cover raw CMU.	144	LF	ARCH	1	$60,480
	4.36	At Library: remove old shelving and install new custom built in wood shelving along corridor and window walls.	1000	SF	ARCH	1	$90,000
	4.37	Replace entire heating system with a new high efficiency condensing boiler plant with electronically commutated motors (ECM) pump arrays for increased energy savings. Save existing high efficiency condensing boiler and reuse for renovation or at other Town location.	29,302	SF	HVAC	1	$146,510
	4.38	Replace entire piping system with a combination of schedule 40 black steel and copper piping and utilize dielectric fitting for dissimilar materials. Replace insulation.	29,302	SF	HVAC	1	$293,020
	4.39	Provide new HVAC equipment (Unit Ventilators) & associated control systems to provide the classroom spaces with greater indoor environmental conditions. (Approx. 15 spaces)	15,000	SF	HVAC	1	$750,000
	4.40	Provide new supplemental cooling terminal units such as min-split, or variable refrigerant flow (VRF) - 15 classroom spaces	14,500	SF	HVAC	1	$797,500
	4.41	Alternative: Provide a fossil fuel free HVAC system replacement such as an air-source variable refrigerant flow (VRF) system and dedicated outdoor air system (DOAS). Replace piping, hydronic appurtenances, and insulation with new equipment and materials.	29,302	SF	HVAC	1	$0
	4.42	Replace the pneumatic control system and components with current direct digital control (DDC) technologies for improved reliability, controllability, and the ability for a web-based building management system (BMS).	29,302	SF	HVAC	1	$234,416
	4.43	At administrative areas , provide Mechanical Ventilation Systems to serve all spaces that currently lack mechanical ventilation.	2,000	SF	HVAC	1	$20,000
	4.44	The Multi-purpose space is heated and ventilated by two pneumatically controlled units suspended from the ceiling that have exceeded expected service life and are in poor condition. Provide new HVAC equipment & associated control systems to provide the gym with acceptable indoor air quality.	3,500	SF	HVAC	1	$140,000
	4.45	Remove all existing equipment in kitchen. Salvage shelving, pots and pans. Demolish plaster ceiling finish and replace with smooth, wipeable surface. Provide code compliant plumbing and electrical infrastructure. Provide all new stainless steel or similar equipment throughout. Hood shall include safety features, proper lighting, exhaust coverage above and fire suppression system. Plumbing fixtures to include separate hand washing sink, 3-compartment for wash sink and compliant food prep sink drains. Replace the food counter with new sneeze guards and modern hot and cold serving equipment that is capable of maintaining proper holding temperatures.	650	SF	FOOD SERVICE	1	$227,500

		WILDWOOD EARLY CHILDHOOD CENTER (29,302 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.46	Replace all primary switchgear, electrical distribution system and sub-panels with new, and increase receptacle distribution to present-day code standards. Provide GFCI receptacles at wet locations.	29,302	SF	ELECT	1	$351,624
	4.47	Provide additional receptacles in all classrooms and offices, remove cord and plug violations.	29,302	SF	ELECT	1	$293,020
	4.48	Provide automatic lighting control system in combination with daylight sensors/occupancy sensors/automatic dimming sensors for all upgraded LED lighting building-wide.	29,302	SF	ELECT	1	$351,624
	4.49	Provide new LED 100% cutoff lighting at exterior doors with automatic control.	10	EA	ELECT	1	$10,000
	4.50	Provide lightning protection/preventor system.	1	EA	ELECT	1	$25,000
	4.51	Provide an emergency standby system: emergency stand-by generator and automatic transfer switches, expand emergency lighting system to include battery-type fixtures with remote heads at exterior doors and add additional emergency battery units for full coverage.	29,302	SF	ELECT	1	$234,416
	4.52	Establish dedicated network closets for adequate temperature control and securing equipment. (Allowance)	100	SF	TECH	1	$15,000
	4.53	Remove and replace older existing surface mount raceways and cabling as part of any renovation project. Replace existing Cat 5e cabling with Cat 6a.	29,302	SF	TECH	1	$87,906
	4.54	New hard-wired data outlets in addition to cabling for wireless should be installed in all educational spaces as part of any building renovation project so that teachers and staff can make use of a hardwired connection to the Network when required.	29,302	SF	TECH	1	$146,510
	4.55	Install new public address main equipment including new speakers as part of any facility renovation or upgrade project. System to allow for emergency telephone calls to be made from classrooms through the public address handsets in classrooms.	29,302	SF	TECH	1	$87,906
	4.56	Install new master clocks system with low voltage secondary clocks as part of any facility renovation or upgrade project.	29,302	SF	TECH	1	$58,604
	4.57	Include state of the art Voice Reinforcement systems in classrooms. (14 rooms or 14,500 SF)	14	EA	TECH	1	$56,000
	4.58	Upgrade built in Audio-Visual systems in Multi-purpose space as part of any facilities renovation and upgrade project	3,450	SF	TECH	1	$30,000
	4.59	Include a new large format projection screen with a permanently installed high lumen projector and sound system in the Multi-purpose space.	1	EA	TECH	2	$15,000
	4.60	Replace older systems with newer interactive display technology to include either interactive projectors in classrooms. (14 rooms or 14,500 SF) - Included above	14	EA	TECH	2	$0
	4.61	Add digital signage in the main entrance and other spaces such as the cafeteria with easy to manage system software.	1	EA	TECH	3	$40,000
	4.62	Add additional surveillance cameras and necessary Network Video Recorder storage as part of any facilities upgrade project. If the surveillance system relies on any analog technology, the surveillance system should be upgraded to IP. Introduce an intrusion motion detection system for ground floor rooms with windows.	29,302	SF	TECH	1	$146,510
	4.63	All the water closets, lavatories, etc. be modified to be accessible water conservation type fixtures. Replace all electric water coolers with new handicap accessible fixtures. Replace all mop receptors and janitor sinks with new fixtures and provide backflow protection for soap dispensers to comply with code. Replace plumbing fixtures with high-efficiency sinks, toilets and urinals.	40	Fixt	PLUMB	1	$120,000
	4.64	Provide new backflow preventer and water meter assembly on domestic water service.	1	EA	PLUMB	1	$3,000
	4.65	Domestic water piping, valves, hangers and insulation have outlived its useful life. Provide new domestic water piping, insulation, hangers and valves.	29,302	SF	PLUMB	1	$175,812
	4.66	Provide 120 degree F hot water to fixtures via thermostatic mixing valve and 140 degree F hot water to kitchen appliances.	29,302	SF	PLUMB	1	$29,302
	4.67	Install new point of use grease interceptors and exterior grease trap for Kitchen.	1	EA	CIVIL/PLUMB	1	$30,000
	4.68	Provide a new domestic water heater with a thermostatic mixing valve, recirculating pump, and accessories to service the building.	29,302	SF	PLUMB	1	$146,510
	4.69						$0

		WILDWOOD EARLY CHILDHOOD CENTER (29,302 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.70	Sanitary, waste and vent piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance)	1	EA	PLUMB	1	$3,000
	4.71	Sanitary, waste and vent piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age.	1	EA	PLUMB	1	$175,812
	4.72	Storm piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance)	1	EA	PLUMB	1	$146,510
	4.73	Storm piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age. (Allowance) Included above	1	EA	PLUMB	2	$0
	4.74	Roof drain covers nearing their life expectancy. New roof drain dome covers are recommended.	10	EA	PLUMB	2	$30,000
							$10,005,315
		TOTALS					**$14,061,199**

		WOBURN STREET SCHOOL (53,771 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
		GSF:	53771				
1	**Health, Safety & Welfare**						
	1.01	Hazardous Materials Abatement and Disposal - Cost Estimate provided by UEC in report dated 10/10/23	1	EA	HAZ MAT	1	$1,650,000
	1.02	Provide crosswalk signage and stripping at entrance of front loop road- (2) signs, 70' long crosswalk) - 3 locations	1	ALLOW	CIVIL	1	$17,600
							$1,667,600
2	**Code Compliance (items not noted above)**						
	2.01	Provide a new automatic sprinkler system to protect all areas of the building, designed and installed in accordance with MA State Building Code and NFPA 13. Provide a new dedicated fire water service with cement-lined ductile iron pipe and a dedicated gate valve. Perform a new hydrant flow test to confirm Municipal water supply capacity. (Unit cost)	53,771	SF	CIVIL/FIRE PROTECTION	1	$533,939
	2.02	Upgrade interior CMU walls (if required to meet code prior to a comprehensive renovation) for seismic bracing.	53,771	SF	STRUCT	1	$645,252
							$1,179,191
3	**Handicap Accessibility (includes only items not noted above)**						
	3.01	Provide accessible path at main entrance and connect to accessible parking spaces. Provide new ramp and stair at main entry. (1 location; 4 risers)	400	SF	CIVIL/LANDSCAPE	1	$80,000
	3.02	At north parking lot, provide striping.	35000	SF	LANDSCAPE	1	$17,500
	3.03	Replace asphalt walk on south side of site to playground. Provide ADA-compliant walk and ramp to access site amenities (playground and fields)	3,500	SF	LANDSCAPE	1	$105,000
	3.04	Replace playground equipment and surface with an ADA compliant playground with accessible surfacing.	3,000	SF	CIVIL/LANDSCAPE	1	$305,000
	3.05	Provide ramps at entrances currently raised above grade by 5 risers. (3 locations)	3	EA	LANDSCAPE	1	$180,000
	3.06	Add accessible wheelchair lift at cafetorium platform stage.	1	EA	ARCH	1	$70,000
	3.07	Replace handrails/guardrails at stairwells with new.	6	EA	ARCH	1	$54,000
	3.08	Add (4) dual-height accessible drinking fountains, with bottle fillers	4	EA	ARCH/PLUMB	1	$32,000
	3.09	Provide accessible rooms signage throughout the building. (unit cost)	53,771	SF	ARCH	1	$43,017
	3.10	Provide accessible window/counter at Main Office.	5	LF	ARCH	1	$4,500
	3.11	Provide elevator addition to access all 3 floors.	1	EA	ARCH	1	$750,000
	3.12	Add accessible wheelchair lift to access cafeteria from main level (4 risers)	1	EA	ARCH	1	$70,000
	3.13	Renovate all toilet rooms to provide accessibility. (6 gang toilets, 5 single user toilet rooms)	1	EA	ARCH	1	$1,900,000
							$3,611,017
4	**Maintenance - Extending the Life of the Building (includes only items not noted above)**						
	4.01	Add additional drainage structures to capture and control the runoff along sidewalk down to athletic area to prevent erosion of grassy area. At minimum, provide erosion protection to the affected area.	200	SF	CIVIL	1	$10,000
	4.02	Inspect the existing septic system to confirm compliance with 310 CMR 15.00 (Massachusetts State Environmental Code, Title V) and the Wilmington Board of Health Regulations. Upgrade the system as needed to meet the regulations. (Allowance to inspect system)	1	ALLOW	CIVIL	1	$50,000
	4.03	Resurface pavement at tennis/basketball courts	24,000	SF	LANDSCAPE	1	$120,000
	4.04	Install stone drip edge wherever building façade s meet turf or planted areas to protect the building foundation.	395	LF	LANDSCAPE	1	$15,800
	4.05	Provide allowance to update site furnishings including bicycle racks, 4 benches , 4 ADA-complaint picnic tables and litter and recycling receptacles.	1	ALLOW	LANDSCAPE	2	$40,000
	4.06	Patch cracks at exterior concrete and interior masonry walls. Some exterior concrete deterioration with exposed rebar and spalling concrete. Remove loose concrete. Remove rust from rebar. Provide stainless steel studs and patch/repair concrete. Apply water-resistant breathable coating over entire precast concrete elements. ((5'x perimeter of gym addition 280 LF) + (3'x perimeter of west façade 330 LF) + (4'x 40 LF at loading dock) +retaining walls)	2,550	SF	ARCH/STRUCT	1	$153,000

		WOBURN STREET SCHOOL (53,771 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.07	Provide brick cleaning for 40% of the brick area. (8' x 300 LF) =2,400 SF of surface area	2,400	SF	ARCH	1	$24,000
	4.08	Full window replacement with a new, energy efficient translucent glazing system. Selection criteria should include rain-screen principles and thermal efficiency. Approx 7,000 SF	7,000	SF	ARCH	2	$1,470,000
	4.09	Cover sills with aluminum during window replacement project (similar to North intermediate School). Approx 1,100 LF of sill.	1,100	LF	ARCH	3	$44,000
	4.10	Replace exterior entry systems with new, thermally-broken heavy commercial storefront entry systems, with full glass doors and dual-pane, Low-E insulating glass. (6 locations, openings are 9'x20')	6	EA	ARCH	1	$75,000
	4.11	Replace exterior entry systems with new, thermally-broken heavy commercial storefront entry system at main entry, with full glass doors and dual-pane, Low-E insulating glass. (1 location with opening of 9'x15')	135	SF	ARCH	1	$33,750
	4.12	Replace exterior service doors with new, thermally-improved insulated hollow metal doors in steel frames (for punched openings). (4) 4'x7' doors	4	EA	ARCH	2	$14,000
	4.13	Replace exterior louvers throughout. (Allowance)	1	ALLOW	ARCH	1	$5,000
	4.14	Replace roof EPDM rubber membrane, extend perimeter blocking and curbs for rooftop accessories and new metal fascia. This would be an ideal to replace exhaust fans or roof equipment at this time. Confirm existing insulation meets code. Replace existing copper base flashings with new in existing reglets. Provide soffits and fascia with brake metal trim to mimic present trim profiles. Approx 18,000 SF	18,000	SF	ARCH	2	$810,000
	4.15	Clean, repair, and repoint brick at needed. Repoint concrete cap. Install metal cap and bird screen over the boiler flue opening. (16 SF opening, approximately 48 SF brick surface area)	1	EA	ARCH	2	$3,360
	4.16	At gym, provide curtain divider.	52	LF	ARCH	1	$32,500
	4.17	Provide a good deep cleaning of the terrazzo with mildly abrasive cleaners suitable for the job that will remove stains.	9250	SF	ARCH	1	$92,500
	4.18	Remove operable partitions between classrooms and replaced with steel stud framed walls that extend to the structure above. Provide power, data, and other services within the permanent wall. (5 locations, 29 LF each)	1160	SF	ARCH	1	$40,600
	4.19	Paint CMU throughout. (Allowance)	53771	SF	ARCH	1	$80,657
	4.20	Replace wired glass with clear vision glass or tempered safety glass in areas required by the building code. (Allowance for vision lites)	1	ALLOW	ARCH	2	$10,000
	4.21	Replace interior doors within the facility with new wood doors, with ratings where appropriate to the opening rating. Provide mop plates at all doors to prevent soiling. Hardware throughout the building should be replaced with barrier-free lever sets to provide universal accessibility as well as the ability to quickly lock doors during a lockdown. (approx 80 single). Pain door frames.	80	EA	ARCH	2	$200,000
	4.22	Replace interior doors and frames including borrowed light frames at corridors with 1 hour rated doors, frames, and windows to improve separation of corridors and stairwells. (18 locations)	18	EA	ARCH	2	$180,000
	4.23	Replace classroom casework and sinks with new units that are compliant with accessibility for the age of the intended users, and with a uniform appearance throughout the school - 30 LF of casework + 1 sink in each room	26	LOCS	ARCH	2	$702,000
	4.24	Update built in furniture in admin and office spaces. (Allowance)	10	LOCS	ARCH	2	$40,000
	4.25	Renovate library and adjacent rooms to update space with flooring, paint, furniture and shelving.	1700	SF	ARCH	2	$102,000
	4.26	Gut and renovate locker room areas to provide toilet rooms for lower level and support spaces.	1800	SF	ARCH	2	$360,000
	4.27	Replace entire heating system with a new high efficiency condensing boiler plant with electronically commutated motors (ECM) pump arrays for increased energy savings.	53,771	EA	HVAC	1	$268,855
	4.28	Replace 10,000 gallon double wall below ground fuel-oil tank (based on new heating system).	1	EA	HVAC	1	$60,000
	4.29	Replace entire piping system with a combination of schedule 40 black steel and copper piping and utilize dielectric fitting for dissimilar materials. Replace insulation.	53,771	SF	HVAC	1	$537,710
	4.30	Provide new HVAC equipment (Unit Ventilators) & associated control systems to provide the classroom spaces with greater indoor environmental conditions. (Approx. 28 spaces)	32,000	SF	HVAC	1	$1,600,000

		WOBURN STREET SCHOOL (53,771 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.31	Alternative: Provide a fossil fuel free HVAC system replacement such as an air-source variable refrigerant flow (VRF) system and dedicated outdoor air system (DOAS). Replace piping, hydronic appurtenances, and insulation with new equipment and materials. Remove 10,000 gallon double wall below ground fuel-oil tank.	53,771	SF	HVAC	1	$0
	4.32	Replace the pneumatic control system and components with current direct digital control (DDC) technologies for improved reliability, controllability, and the ability for a web-based building management system (BMS).	53,771	SF	HVAC	1	$430,168
	4.33	At administrative areas , provide Mechanical Ventilation Systems to serve all spaces that currently lack mechanical ventilation.	2,000	SF	HVAC	1	$20,000
	4.34	The Gym is heated and ventilated by two pneumatically controlled units suspended from the roof that have exceeded expected service life and are in poor condition. Provide new HVAC equipment & associated control systems to provide the gym with acceptable indoor air quality.	4,600	SF	HVAC	1	$184,000
	4.35	The kitchen and cafeteria/stage area heated and ventilated by units suspended from the roof that have exceeded expected service life and are in poor condition. Provide new HVAC equipment & associated control systems to provide acceptable indoor air quality.	4,500	SF	HVAC	1	$225,000
	4.36	Replace the original kitchen hood with a code compliant hood equipped with safety features, proper lighting, exhaust coverage above and fire suppression system.	1	EA	FOOD SERVICE	1	$30,000
	4.37	Replace walk-in cooler and freezer for proper storage capacity and adequate cold food holding temperatures	125	SF	FOOD SERVICE	1	$50,000
	4.38	Replace the food counter with new sneeze guards and modern hot and cold serving equipment that is capable of maintaining proper holding temperatures.	30	LF	FOOD SERVICE	1	$30,000
	4.39	Eliminate all wood surfaces. Replace them with appropriate materials that are complaint with the modern health code standards.	600	SF	FOOD SERVICE	1	$18,000
	4.40	Provide hand washing station and an adequate three compartment wash sink.	1	EA	FOOD SERVICE	1	$9,000
	4.41	Provide new pad mounted transformer, new primary service, and new secondary service. Replace all primary switchgear, electrical distribution system and sub-panels with new, and increase receptacle distribution to present-day code standards. Provide GFCI receptacles at wet locations.	53,771	SF	ELECT	1	$645,252
	4.42	Provide additional receptacles in all classrooms and offices, remove cord and plug violations.	32,000	SF	ELECT	1	$96,000
	4.43	Provide automatic lighting control system in combination with daylight sensors/occupancy sensors/automatic dimming sensors for all upgraded LED lighting building-wide.	53,771	SF	ELECT	1	$645,252
	4.44	Provide exterior pole-mounted lighting with energy efficient, 100% cutoff LED type with automatic control. Provide (20) 20' lights at parking and drives; (10) 10' poles at walkways.	30	EA	ELECT	1	$150,000
	4.45	Provide new LED 100% cutoff lighting at exterior doors with automatic control.	8	EA	ELECT	1	$8,000
	4.46	Provide lightning protection/preventor system.	1	EA	ELECT	1	$50,000
	4.47	Provide emergency power off switch to shut down electrical equipment in kitchen in an emergency.	1	EA	ELECT	1	$6,000
	4.48	Establish dedicated network closets for adequate temperature control and securing equipment. (Allowance)	200	SF	TECH	1	$30,000
	4.49	Install new public address main equipment including new speakers as part of any facility renovation or upgrade project. System to allow for emergency telephone calls to be made from classrooms through the public address handsets in classrooms.	53,771	SF	TECH	1	$161,313
	4.50	Install new master clocks system with low voltage secondary clocks as part of any facility renovation or upgrade project.	53,771	SF	TECH	1	$107,542
	4.51	Include state of the art Voice Reinforcement systems in remaining classrooms. (50% of classrooms or 14 rooms)	14	EA	TECH	1	$56,000
	4.52	Include a new large format projection screen with a permanently installed high lumen projector and sound system in the Cafetorium.	1	EA	TECH	2	$15,000
	4.53	Add (3) additional surveillance cameras and necessary Network Video Recorder storage as part of any facilities upgrade project.	3	EA	TECH	1	$12,000
	4.54	Add infrared motions sensors to all windowed spaces on the first floor. Upgrade system as part of any facility renovation project. (Approx 150 windows)	150	EA	TECH	2	$60,000

		WOBURN STREET SCHOOL (53,771 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.55	All the water closets, lavatories, etc. be modified to be accessible water conservation type fixtures. Replace all electric water coolers with new handicap accessible fixtures. Replace all mop receptors and janitor sinks with new fixtures and provide backflow protection for soap dispensers to comply with code. Replace plumbing fixtures with high-efficiency sinks, toilets and urinals.	70	Fixt	PLUMB	1	$210,000
	4.56	Provide new backflow preventer and water meter assembly on domestic water service.	1	EA	PLUMB	1	$5,000
	4.57	Domestic water piping, valves, hangers and insulation have outlived its useful life. Provide new domestic water piping, insulation, hangers and valves.	53,771	SF	PLUMB	1	$322,626
	4.58	Provide 120 degree F hot water to fixtures via thermostatic mixing valve and 140 degree F hot water to kitchen appliances.	53,771	SF	PLUMB	1	$53,771
	4.59	Install new point of use grease interceptors and exterior grease trap for Kitchen.	1	EA	PLUMB	1	$30,000
	4.60	Install new solids interceptors for Art sinks	2	EA	PLUMB	1	$4,000
	4.61	Sanitary, waste and vent piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance)	1	EA	PLUMB	1	$3,000
	4.62	Sanitary, waste and vent piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age.	1	EA	PLUMB	1	$322,626
	4.63	Storm piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance) - Included above	1	EA	PLUMB	1	$0
	4.64	Storm piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age. (Allowance)	1	EA	PLUMB	2	$268,855
	4.65	Provide a new sewage ejector pump and new basin.	1	EA	PLUMB	1	$15,000
	4.66	Roof drain covers nearing their life expectancy. New roof drain dome covers are recommended.	10	EA	PLUMB	1	$30,000
							$11,478,137
		TOTALS					**$17,935,945**
GENERAL NOTES							

		NORTH INTERMEDIATE SCHOOL (55,541 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
		GSF:	55541				
1	**Health, Safety & Welfare**						
							$0
	1.01	Hazardous Materials Abatement and Disposal - Cost Estimate provided by UEC in report dated 10/10/23	1	EA	HAZ MAT	1	$1,650,000
	1.02	Provide (2) signs and striping designating front loop road as one-way for vehicular traffic (east to west) - Allowance	1	ALLOW	CIVIL	1	$5,000
							$1,655,000
2	**Code Compliance (items not noted above)**						
	2.01	Provide a new automatic sprinkler system to protect all areas of the building, designed and installed in accordance with MA State Building Code and NFPA 13. Provide a new dedicated fire water service with cement-lined ductile iron pipe and a dedicated gate valve. Perform a new hydrant flow test to confirm Municipal water supply capacity. (Unit cost)	55,541	SF	CIVIL/FIRE PROTECTION	1	$552,869
	2.02	Upgrade interior CMU walls (if required to meet code prior to a comprehensive renovation) for seismic bracing.	55,541	SF	STRUCT	1	$666,492
							$1,219,361
3	**Handicap Accessibility (includes only items not noted above)**						
	3.01	Create (3) ADA parking spaces with proper signage to the east parking lot. 1,000 SF repaving/striping, continuous flush curbing 100'; 400 LF of 5' walk;	1	EA	CIVIL/LANDSCAPE	1	$51,500
	3.02	Install granite or cast-in-place concrete curbs along vehicular pavement	600	LF	LANDSCAPE	1	$33,000
	3.03	Provide crosswalks with curb cut ramps and detectable warning panels at locations where pedestrian routes cross vehicular routes.	2	EA	LANDSCAPE	1	$6,000
	3.04	Replace concrete sidewalks on west side of building. Provide ADA-compliant cast-in-place concrete walks and ramp along west side of building and north side of building to access site amenities	775	SF	CIVIL	1	$15,500
	3.05	Replace playground equipment and surface with an ADA compliant playground with accessible surfacing .	1,800	SF	CIVIL	1	$163,000
	3.06	Add accessible wheelchair lift at cafetorium platform stage.	1	EA	ARCH	1	$70,000
	3.07	Replace handrails/guardrails at stairwells with new.	4	EA	ARCH	1	$36,000
	3.08	Add (4) dual-height accessible drinking fountains, with bottle fillers	4	EA	ARCH/PLUMB	1	$32,000
	3.09	Provide accessible rooms signage throughout the building. (unit cost)	55,541	SF	ARCH	1	$44,433
	3.10	Provide accessible window/counter at Main Office.	5	LF	ARCH	1	$4,500
	3.11	Provide elevator addition to access 2nd floor.	1	flight	ARCH	1	$400,000
	3.12	Provide elevator addition to access lower level and main level (gymnasium).	1	flight	ARCH	1	$450,000
	3.13	Add accessible wheelchair lift to access gym from main level (5 risers)	1	EA	ARCH	1	$70,000
							$1,375,933
4	**Maintenance - Extending the Life of the Building (includes only items not noted above)**						
	4.01	Replace asphalt pavement at tennis/basketball courts	24,000	SF	CIVIL/LANDSCAPE	1	$240,000
	4.02	Allowance to clean and video inspect the storm drainage system to confirm its condition. Any pipes and/or structures that are damaged or compromised should be replaced.	1	ALLOW	CIVIL	1	$2,000
	4.03	Allowance to clean the surface and inside drainage structures at tennis and basketball courts. Inspect to check integrity of the structure and replace if needed. (4 structures)	1	ALLOW	CIVIL	2	$3,600
	4.04	Install screens/fencing to enclose dumpsters	20	LF	LANDSCAPE	1	$3,000
	4.05	Provide allowance to update site furnishings including 5-tier stadium seating, 4 benches , 4 picnic tables, flagpole, bicycle racks, litter and recycling receptacles, and signage.	1	ALLOW	LANDSCAPE	2	$60,000
	4.06	The precast concrete shelf at the gym has significant deterioration with exposed rebar and spalling concrete. Remove loose concrete. Remove rust from rebar. Provide stainless steel studs and patch/repair concrete. Apply water-resistant breathable coating over entire precast concrete elements. (5'x 210 'perimeter of gym- three sides = 1,050 SF)	1,050	SF	ARCH	1	$63,000

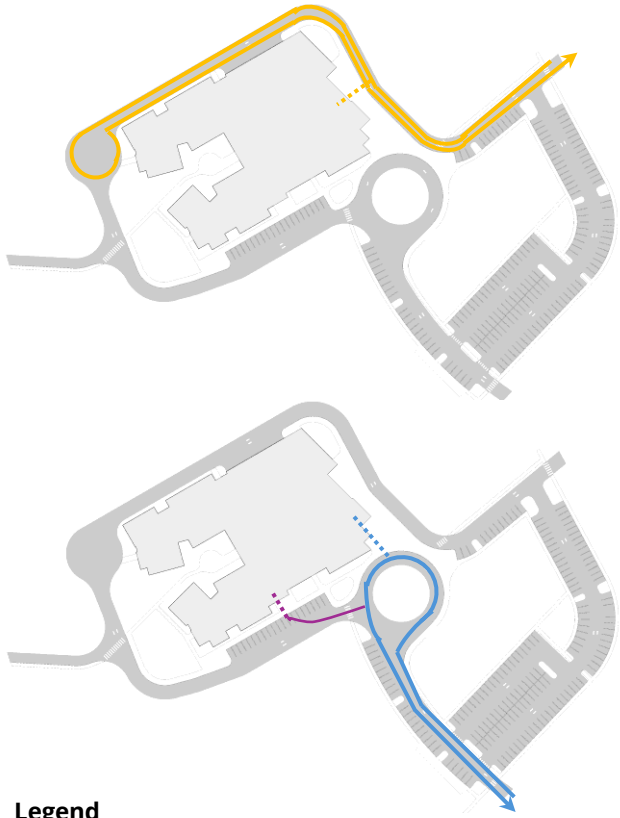
	NORTH INTERMEDIATE SCHOOL (55,541 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
4.07	Exterior concrete stairs leading from grade up to gymnasium floor level are in poor condition, with spalling concrete and exposed rebar. Because the handrails/guardrails are not compliant also, it is recommended to replace the stairs, handrails and guardrails entirely with new. (20 risers + 2 landings, 5' wide)	1	EA	ARCH	1	$10,000
4.08	At the southwest corner of the classroom wing, cracked/damaged brick was observed. (Image 7). There was also damaged brick on each side of the receiving area loading dock. Replace damaged brick (100 SF)	100	SF	ARCH	2	$15,000
4.09	Discoloration at brick areas below some windows, particularly on north-facing and shaded areas. Provide brick cleaning for 50% of the brick area.	300	LF	ARCH	3	$6,000
4.10	A copper and PVC pipe which drains the cafeteria roof onto the roof above the entry roof, has an opening through the brick that is larger than needed and has exposed insulation. Draining the roof onto this lower roof is not an ideal condition as it sheds a large quantity of water onto another roof. Repair brick (4 SF), seal opening and provide escutcheon to provide waterproof condition. Provide a new roof drain leader to connect cafeteria roof drain to underslab storm drainage system.	1		ARCH	1	$6,000
4.11	At EPDM roofs, sealant is beginning to crack at seams. Folded membrane at seams could contribute to accelerated deterioration. Re-strip flashing tape at all seams. Flatten membrane roofing where folded.	22,000	SF	ARCH	1	$110,000
4.12	Section of asphalt roofing should be replaced. Perform structural analysis to confirm if additional insulation can be added. If so, the following is additional recommended scope: Cut brick at adjacent walls to construct thru-wall flashing, provide tapered insulation, roof board and 60 mil EPDM rubber membrane, extend perimeter blocking and curbs for rooftop accessories and new metal fascia. This would be an opportune time to replace exhaust fans or roof equipment at this time also. Remove clerestory aluminum window at platform and infill with insulation and brick veneer.	10,000	SF	ARCH	2	$350,000
4.13	Replace VAT with linoleum flooring. (Abatement cost in 1.01)	32000	SF	ARCH	1	$288,000
4.14	Replace with resilient sports wood floor system in Gymnasium.	5,000	SF	ARCH	2	$110,000
4.15	Refinish wood floor at cafeteria. Replace apron and stairs with new.	4,000	SF	ARCH	2	$35,000
4.16	Remove gym folding partition. Provide curtain divider.	60	LF	ARCH	1	$37,500
4.17	Replace wired glass with clear vision glass or tempered safety glass in areas required by the building code. (Allowance for vision lites)	1	ALLOW	ARCH	2	$10,000
4.18	Replace interior doors within the facility with new wood doors, with ratings where appropriate to the opening rating. Provide mop plates at all doors to prevent soiling. Hardware throughout the building should be replaced with barrier-free lever sets to provide universal accessibility as well as the ability to quickly lock doors during a lockdown. (approx 80 single)	80	EA	ARCH	2	$200,000
4.19	Replace interior doors and frames including borrowed light frames at perimeters of corridors with 1 hour rated doors, frames, and windows to improve separation of corridors. (7 locations)	7	EA	ARCH	2	$70,000
4.20	Remove concealed-spline acoustic ceiling tiles and replace with ACP system.	50541	SF	ARCH	1	$505,410
4.21	Replace classroom casework and sinks with new units that are compliant with accessibility for the age of the intended users, and with a uniform appearance throughout the school - 30 LF of casework + 1 sink in each room	20	LOCS	ARCH	2	$540,000
4.22	Install a gas or heat pump domestic water heater to segregate the boilers from the domestic system	1	EA	HVAC	1	$30,000
4.23	Replace entire piping system with a combination of schedule 40 black steel and copper piping and utilize dielectric fitting for dissimilar materials. Replace insulation.	55,541	SF	HVAC	1	$555,410
4.24	Provide new HVAC equipment (Unit Ventilators) & associated control systems to provide the classroom spaces with greater indoor environmental conditions. (Approx. 24 spaces)	25,000	SF	HVAC	1	$1,250,000
4.25	Alternative: Provide a fossil fuel free HVAC system replacement such as an air-source variable refrigerant flow (VRF) system and dedicated outdoor air system (DOAS). Replace piping, hydronic appurtenances, and insulation with new	55,541	SF	HVAC	1	$0
4.26	Replace the control system and components with current direct digital control (DDC) technologies for improved reliability, controllability, and the ability for a web-based building management system (BMS).	55,541	SF	HVAC	1	$444,328

		NORTH INTERMEDIATE SCHOOL (55,541 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.27	At administrative areas and corridors, provide Mechanical Ventilation Systems to serve all spaces that currently lack mechanical ventilation.	11,000	SF	HVAC	1	$110,000
	4.28	The Gym is heated and ventilated by two pneumatically controlled units suspended from the roof that have exceeded expected service life and are in poor condition. Provide new HVAC equipment & associated control systems to provide the gym with acceptable indoor air quality.	5,000	SF	HVAC	1	$200,000
	4.29	The kitchen and cafeteria/stage area heated and ventilated by units suspended from the roof that have exceeded expected service life and are in poor condition. Provide new HVAC equipment & associated control systems to provide acceptable indoor air quality.	5,800	SF	HVAC	1	$290,000
	4.30	Replace the original kitchen hood with a code compliant hood equipped with safety features, proper lighting, exhaust coverage above and fire suppression system.	1	EA	FOOD SERVICE	1	$30,000
	4.31	Replace walk-in cooler and freezer for proper storage capacity and adequate cold food holding temperatures	100	SF	FOOD SERVICE	2	$45,000
	4.32	Replace the food counter with new sneeze guards and modern hot and cold serving equipment that is capable of maintaining proper holding temperatures.	40	LF	FOOD SERVICE	1	$40,000
	4.33	Eliminate all wood surfaces. Replace them with appropriate materials that are complaint with the modern health code standards.	800	SF	FOOD SERVICE	1	$24,000
	4.34	Remove the dish room equipment from the dish room to renovate into office and provide for efficient storage area.	250	SF	FOOD SERVICE	2	$50,000
	4.35	Provide new pad mounted transformer, new primary service, and new secondary service. Replace all primary switchgear, electrical distribution system and sub-panels with new, and increase receptacle distribution to present-day code standards. Provide GFCI receptacles at wet locations.	55,541	SF	ELECT	1	$666,492
	4.36	Provide additional receptacles in all classrooms and offices, remove cord and plug violations.	35,000	SF	ELECT	1	$105,000
	4.37	Provide automatic lighting control system in combination with daylight sensors/occupancy sensors/automatic dimming sensors for all upgraded LED lighting building-wide.	55,541	SF	ELECT	1	$666,492
	4.38	Provide exterior pole-mounted lighting with energy efficient, 100% cutoff LED type with automatic control. Provide (15) 20' lights at parking and drives; (10) 10' poles at walkways.	25	EA	ELECT	1	$120,000
	4.39	Provide new LED 100% cutoff lighting at all exterior doors with automatic control.	16	EA	ELECT	1	$16,000
	4.40	Provide C.O. detection in mechanical rooms with fossil fuel burning equipment.	1	EA	ELECT	1	$1,500
	4.41	Provide C.O. detection system UL listed to shut down gas valve with reset button in Kitchen.	1	EA	ELECT	1	$3,000
	4.42	Provide lightning protection/preventor system.	1	EA	ELECT	1	$50,000
	4.43	Provide emergency power off switch to shut down electrical equipment in kitchen in an emergency.	1	EA	ELECT	1	$6,000
	4.44	Establish dedicated network closets for adequate temperature control and securing equipment. (Allowance)	200	SF	TECH	1	$30,000
	4.45	Install new public address main equipment including new speakers as part of any facility renovation or upgrade project. System to allow for emergency telephone calls to be made from classrooms through the public address handsets in classrooms.	55,541	SF	TECH	1	$166,623
	4.46	Install new master clocks system with low voltage secondary clocks as part of any facility renovation or upgrade project.	55,541	SF	TECH	1	$111,082
	4.47	Upgrade all built in Audio-Visual systems in large assembly spaces (Gymnasium and Cafeteria) as part of any facilities renovation and upgrade project	10,000	SF	TECH	2	$80,000
	4.48	Include a new large format projection screen with a permanently installed high lumen projector and sound system in the Cafetorium.	1	EA	TECH	2	$15,000
	4.49	All the water closets, lavatories, etc. be modified to be accessible water conservation type fixtures. Replace all electric water coolers with new handicap accessible fixtures. Replace all mop receptors and janitor sinks with new fixtures and provide backflow protection for soap dispensers to comply with code. Replace plumbing fixtures with high-efficiency sinks, toilets and urinals.	80	Fixt	PLUMB	2	$240,000
	4.50	Provide new backflow preventer and water meter assembly on domestic water service.	1	EA	PLUMB	1	$5,000

		NORTH INTERMEDIATE SCHOOL (55,541 sf existing)	Quantity	Unit (%, SF, LF, etc.)	Discipline (Architectural, Civil, Landscape, Structural, HVAC, Electrical, Plumbing, Fire Protection, Tech)	Priority 1 = (0-2 yrs) 2 = (3-6 yrs) 3 = (7+ yrs)	Estimated Cost
	4.51	Domestic water piping, valves, hangers and insulation have outlived its useful life. Provide new domestic water piping, insulation, hangers and valves.	55,541	SF	PLUMB	2	$333,246
	4.52	Provide 120 degree F hot water to fixtures via thermostatic mixing valve and 140 degree F hot water to kitchen appliances.	55,541	SF	PLUMB	1	$55,541
	4.53	Install new point of use grease interceptors and exterior grease trap for Kitchen.	1	EA	PLUMB	1	$30,000
	4.54	Install new solids interceptors for Art sinks	2	EA	PLUMB	1	$4,000
	4.55	Demo gang showers and renovate locker rooms into functional use for the school. (Allowance)	2,000	SF	ARCHITECTURAL	2	$500,000
	4.56	Sanitary, waste and vent piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance)	1	EA	PLUMB	1	$3,000
	4.57	Sanitary, waste and vent piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age.	1	EA	PLUMB	3	$333,246
	4.58	Storm piping reaching its life expectancy. Piping should be video inspected for any interior corrosion and blockage. (Allowance) Included above	1	EA	PLUMB	1	$0
	4.59	Storm piping reaching its life expectancy. If video inspected indicates interior corrosion and blockage, consider replacement in its entirety due to its age. (Allowance)	1	EA	PLUMB	3	$277,705
	4.60	Gas piping for laboratory sinks nearing its life expectancy New gas piping for all the laboratory sinks is recommended.	2	EA	PLUMB	1	$10,000
	4.61	Galvanized pipe is used for hazardous waste which is a code violation. Replace with new acid waste and vent system with pH adjustment.	1	EA	PLUMB	1	$45,000
	4.62	Roof drain covers nearing their life expectancy. New roof drain dome covers are recommended.	10	EA	PLUMB	2	$30,000
							$9,637,175
		TOTALS					**$13,887,469**
GENERAL NOTES							

Preferred Schematic

North Intermediate Site



Legend

Bus Circulation

Parent Circulation

PK/drive up services

Building Entrance

Preferred Schematic **PK-5 N.1**

- Administration
- Art & Music
- Core Academic
- Dining & Food Service
- Health & Physical Ed
- Media Center
- Medical
- Special Education
- Custodial / Maintenance
- Other, MEP
- Other, Storage
- Other, Toilets
- Student Circulation
- Student Circulation

Preferred Option Interior Circulation FIRST FLOOR PLAN

Preferred Schematic **PK-5 N.1**

- Administration
- Art & Music
- Core Academic
- Dining & Food Service
- Health & Physical Ed
- Media Center
- Medical
- Special Education
- Custodial / Maintenance
- Other, MEP
- Other, Storage
- Other, Toilets
- Student Circulation
- Student Circulation

Preferred Option
SECOND FLOOR PLAN

Preferred Schematic PK-5 N.1

- Administration
- Art & Music
- Core Academic
- Dining & Food Service
- Health & Physical Ed
- Media Center
- Medical
- Special Education
- Custodial / Maintenance
- Other, MEP
- Other, Storage
- Other, Toilets
- Student Circulation
- Student Circulation

Preferred Option
Interior Circulation
THIRD FLOOR PLAN

Preferred Schematic **PK-5 N.1**

Preferred Option
Accessible Circulation
FIRST FLOOR PLAN

Preferred Schematic **PK-5 N.1**

- Administration
- Art & Music
- Core Academic
- Dining & Food Service
- Health & Physical Ed
- Media Center
- Medical
- Special Education
- Custodial / Maintenance
- Other, MEP
- Other, Storage
- Other, Toilets
- Student Circulation
- Student Circulation

Preferred Option
Accessible Circulation
SECOND FLOOR PLAN

Preferred Schematic **PK-5 N.1**

Preferred Option
Accessible Circulation
THIRD FLOOR PLAN

SUSTAINABILITY NARRATIVE

The Town of Wilmington identified sustainability as a high priority for this project with a focus on reducing annul energy consumption, implementing applicable sustainable design and construction practices and promoting health and wellness for the students. The project is following the MSBA's Green Schools Program, Project Advisory 81, dated June 2023 and intends to pursue a minimum LEED for Schools v4 'Silver level of certification', including earning three of the seven available points within specific Materials and Resources and Indoor Environmental Quality credits, and meet the minimum energy efficiency requirements per MA DOER Stretch Code requirements. The project team is pursuing the feasibility of reimbursements meeting the MA DOER Opt-In Specialized Code and/or earning additional points within the credit categories previously mentioned.

Making sustainable choices for the built environment requires the intentional collaboration of all design disciplines in an integrated process. Additionally, a true integrative process requires input from the client and consultants and considers the needs of the end users, the students and teachers. To that end, the Schematic Design phase will include regular meetings with the entire design team, to broaden these goals and outline tasks and responsibilities going forward.

The goals for a sustainable project include designing a low impact site and energy-efficient building that serves as an educational tool for staff, students, and visitors. Daylighting and acoustics will be key design elements to improve the interior environmental quality. Sustainable features will be further reviewed as the design develops. To the extent possible, the design team will seek to select building materials and furniture that are low-emitting and have a reduced environmental impact. Per MSBA requirements, the building systems, including the envelope and HVAC systems will be commissioned to ensure they operate efficiently and as designed.

The team will continue to evaluate design options against LEED requirements with the goal of designing and constructing a building that minimizes its impact on the environment, creates an engaging and healthy space for occupants, and reduces operating costs. While the project seeks to achieve certification under LEED for Schools v4, the team's approach is not one of "point chasing" to maximize a LEED score. Rather, LEED will be used as a validation tool to check project performance, but in general will not base design decisions strictly on achieving LEED certification.

Refer to the attached LEED-S v4 scorecard that represents the preliminary assessment against the LEED for Schools v4 requirements. Several credits remain designated as 'Maybe' due to the uncertainty of future design decisions, which is common at this phase of the project. The LEED project has already been registered with the USGBC, locking in the project under the current LEED for Schools version 4 rating system.

Sustainable Design Best Practices

Building Location & Orientation

The preferred option PK-5 N.1 locates the building on the northwest area of the site primarily in response to the need to maintain the existing occupied school building during construction operations. Within this region of the site, the school is located centrally in the westerly ell of the site to maximize solar access from the south while balancing feasible ground source heat pump well field areas to the west, north, and east of the proposed building (Fig. 1).

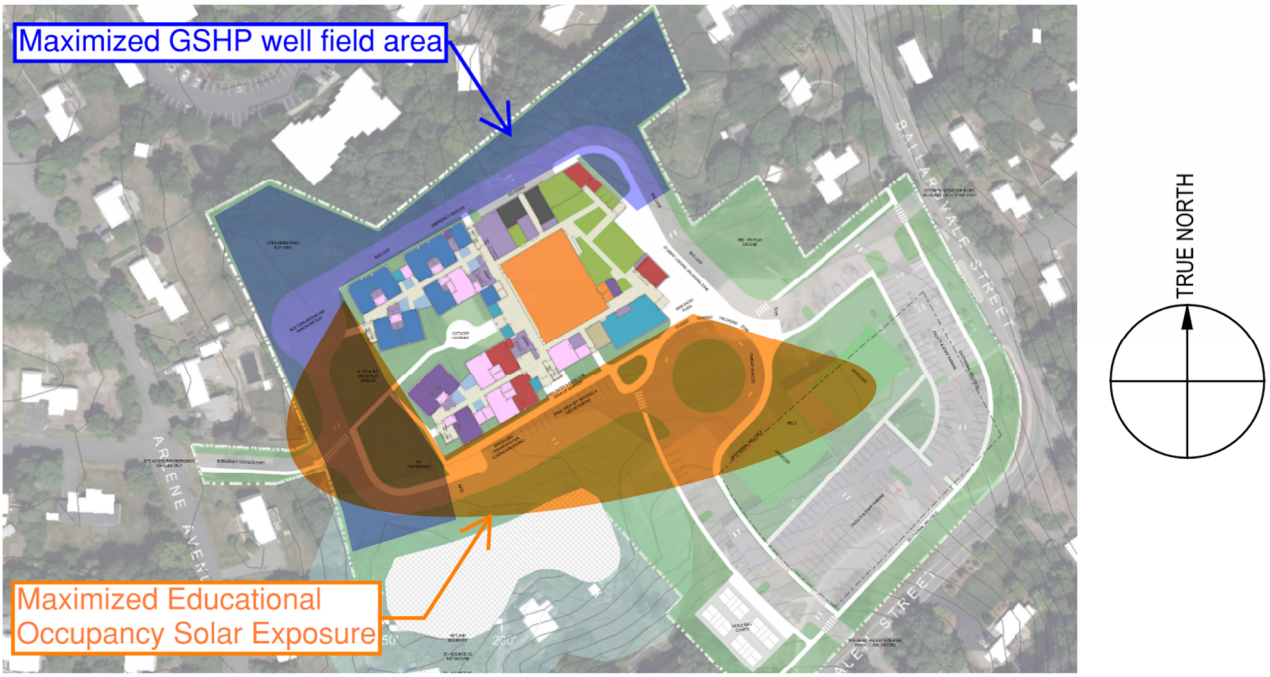


Figure 1

The building is oriented with the principal axis of the classroom wing rotated 29 degrees from east-west access. While a 15 degree from south exposure is ideal for solar harvesting (daylighting and PV exposure) for most regularly-occupied buildings, a bias toward easterly exposure is more beneficial for schools which are generally occupied from early morning until mid-afternoon. Figure 2 illustrates how the solar orientation maximizes controllable daylight exposure for classroom spaces from approximately 8:00 am to 3:00 PM. Early morning stimulation of student circadian rhythms promotes focus and engagement during school hours. Additionally, the easterly bias allows for greater solar access to the courtyard area of the classroom wing throughout the school day.

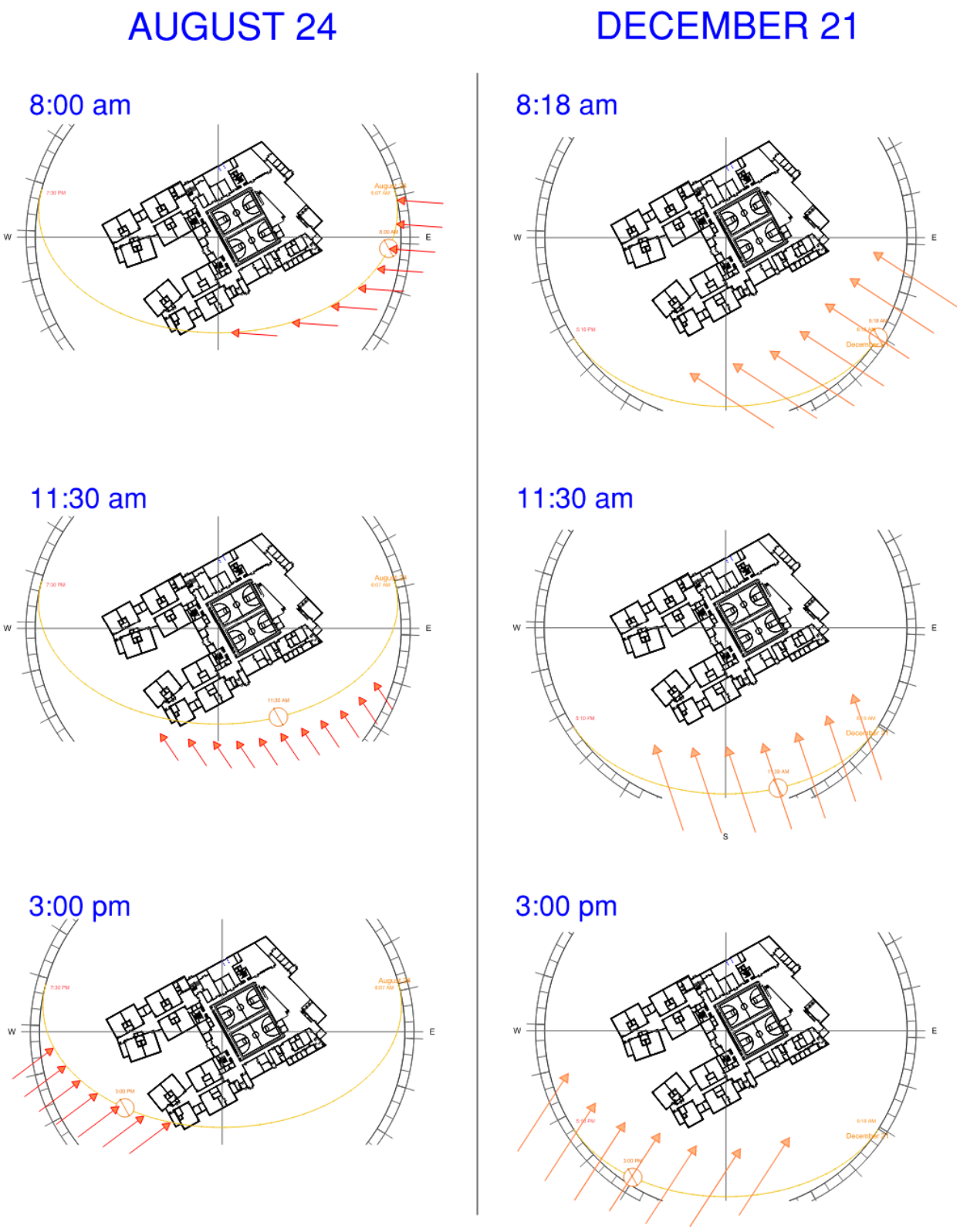

AUGUST 24
DECEMBER 21
8:00 am
8:18 am
11:30 am
11:30 am
3:00 pm
3:00 pm
W
E
S

Figure 2

Compact Building Form

The building mass balances the occupant need for daylighting and views with the performative requirement for a compact volume, exemplified in Figure 3. Classroom spaces are stacked vertically, minimizing horizontal offsets and exposures while maintaining predominant vertical data in deference to structural efficiency. The three-story classroom portion of the building mass overlaps the two story / high volume gymnasium mass, placing classroom spaces over the gymnasium to minimize exterior surface area exposure. The compact building form will help achieve the targeted air leakage rate of 1.75cfm/sf @ 75pa.

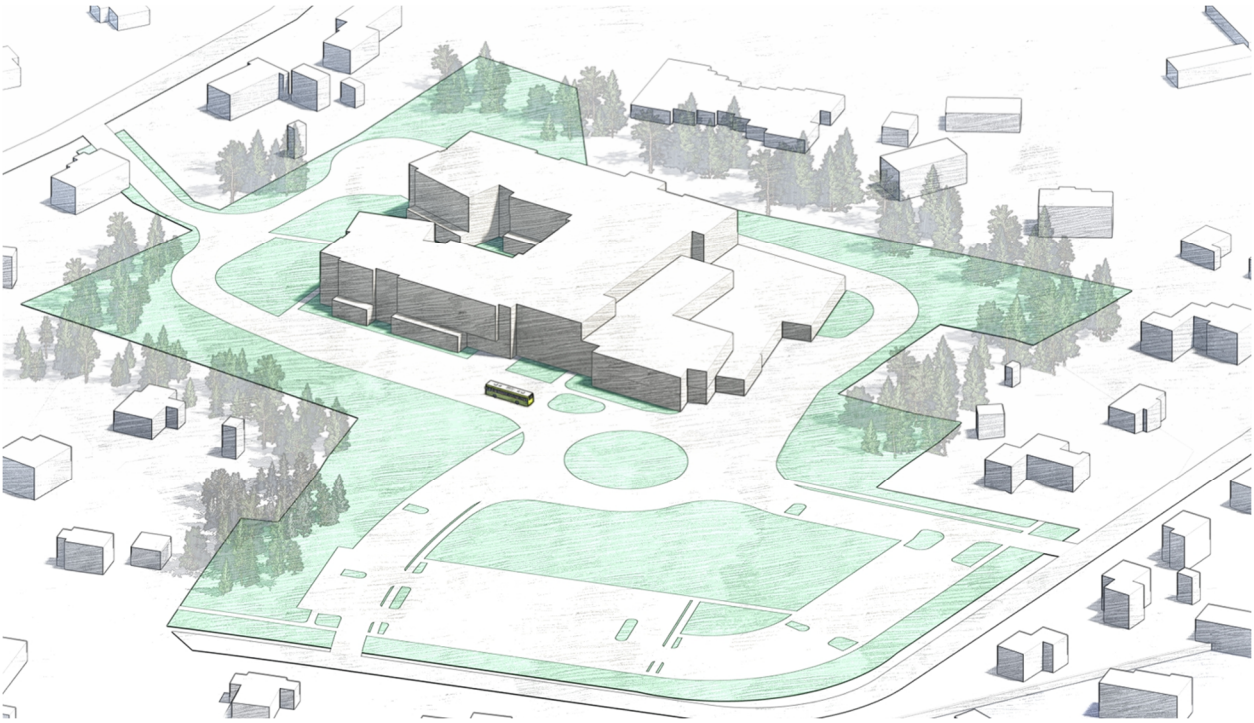


Figure 3

Window-to-Wall Ratio

The fenestration design of the project will be developed in the Schematic Design phase. The project will target a maximum window to wall ratio of 22%; higher window-to-wall ratios have proved challenging in passing Stretch Code TEDI models. Specifically, classroom portions of the building (the westerly portions) will target 25% WWR to maximize daylighting potential while the easterly public and service spaces will target 18% WWR or less to achieve this goal. No extenuating circumstances of high WWR are anticipated.

Energy Use Intensity

A maximum predictive EUI (pEUI) of 25 is intended for the project. The primary approach to achieving this goal will be balancing capital investments in satisfying prescriptive modeling requirements of the Stretch Code (i.e. TEDI modeling) with intended operational energy use; these requirements can be counterproductive. Supporting approaches such as mitigating building envelope thermal bridging in an effort to reduce the overall derating of the enclosure as required by the Code requires capital investment. This investment can detract and redirect funds from functional considerations, such as operational schedule and interior lighting use, which are disregarded by TEDI modeling but will unequivocally influence operational EUI for the facility. Close collaboration with the regional utility company, Reading Municipal Lighting District (RMLD) will be a necessary approach to achieving the targeted EUI.

Fuel Sources and Renewable Energy Systems

Fuel source and building system selection has been discussed but not yet finalized by the District. Continued assessment and evaluation of fuel or energy source will be determined following life cycle assessment modeling during the Schematic Design phase. Renewable energy systems will also be assessed during the next phase of the project.

Resilient Design

The Site Risk Assessment & Evaluation of Environmental Hazards for the selected option identified two primary vulnerabilities for the site: urban flooding from extreme precipitation and extreme heat exposure. High winds and/or interrupted power are not primary considerations for this site. Refer to the Site Risk Assessment for more detailed consideration and developmental strategies of facility systems and materials.

Urban flooding potential will be mitigated by developing a stormwater management design that incorporates both current best practices for storm design as well as anticipated median range increases in stormwater volume over the anticipated lifecycle of the facility.

Similarly, extreme heat exposure will be mitigated through the design of the mechanical and envelope systems for the building with an intentional focus on effective building cooling strategies. Despite the common conception that buildings in Climate Zone 5 need to focus primarily on heating losses in the winter, school buildings – particularly those with a high relative compactness – tend to be cooling-load dominant facilities. An increase in cooling load demand is expected to continue and likely escalate during the building's functional life. Building envelope design, particularly fenestration design, that mitigates solar heat gain coupled with mechanical system design that considers an increase in cooling load over the next 50 years will help reduce the risk exposure to extreme heat. Passive strategies, including fixed shading devices and strategic planting of deciduous trees will help to shade the building exterior, interior, and site.

smma

OCT 29 2024

A TRUE COPY ATTEST
Elizabeth Lawrence
TOWN CLERK

SMMA
1000 Massachusetts Ave.
Cambridge, MA 02138

Minutes

Project Name:	Wilmington Wildwood Early Childhood Center	Project Number:	22127
RE:	School Building Committee	Meeting Date:	10/8/2024
Prepared by:	Sarah A. Traniello	Meeting No:	21
Location:	Hybrid Meeting: In Person at Wilmington High School, 159 Church Street, Wilmington, MA 01887 in the Large Group Instruction Room and Remote Participation via Zoom (recording posted on Wildwood Building Project website, WCTV and YouTube)		
Distribution:	School Building Committee		

Attendees

Wildwood School Building Committee

Diane M. Allan
Gregory B. Bendel
Kate Bissell
Dr. Glenn Brand, *Chair* **Remote**
Kevin A. Caira
Michael Camoscio
Justin Cusce
Marianne Gallezzo
Nicholas Golden
Christine Holloran
John C. Holloway **Absent**
Dennis Kelley
Craig Miner
Christine Murray
Judith O'Connell
Christine Prendergast
Paul J. Melaragni
David A. Ragsdale
Paul Ruggiero
Stacey Scott **Remote**
R. Eric Slagel
Stephen Turner
Vivian Varbedian, *Vice Chair*

SMMA

Julie Leduc, Director, OPM Services and Project Manager
Sarah Traniello, Assistant Project Manager

Dore+Whittier Architects

Donald Walter, Principal-In-Charge
Lee P. Dore, Principal, Designer
Rani Philip, Project Manager

Town Counsel, KP Law

Michael D'Ortenzio, Esquire

Item No.	Action	Discussion
21.01	Record	Vice Chair, Vivian Varbedian, called the meeting to order at 6:30 PM. Roll Call of the School Building Committee was performed to account for all of those who are present in the

Item No.	Action	Discussion
		Large Group Instruction Room and through remote participation on Zoom. Wilmington Public Schools Superintendent, Dr. Glenn Brand, is out of town and joined the meeting a few minutes after it had started once access was provided. The attendance based on the roll call can be found on page 1 of these minutes. All were present in the Large Group Instruction Room for the exception of John Holloway who was not in attendance. Stacey Scott and Dr. Glenn Brand accessed the meeting through the Zoom webinar and were present.
21.2	Record	**Approval of Minutes** G. Bendel motioned to approve the meeting minutes from the September 17, 2024, School Building Committee meeting, with a second motion by M. Gallezzo. Roll Call Vote: Affirmatively responded unanimously.
21.3	Record	**Approval of Invoices and Commitments** – **Warrant No. 16:** J. Leduc presented Warrant No. 16 with SMMA's monthly invoice for OPM Basic Services for the month of September in the amount of $3,750 and Dore+Whittier Architects' monthly invoice for September's Feasibility Study Design Services in the amount of $3,000. The total for Warrant No. 16 is $6,750. o D. Kelley made a motion to approve Warrant No. 16 for a total of $6,750. Motion seconded by C. Prendergast. ▪ Roll Call vote of the School Building Committee was performed and the motion carried by unanimous vote. – **Designer Amendment No. 3 – Investigatory Services *[Site Survey, Geotechnical, Geoenvironmental and Traffic]*:** Commitment Discussion was held until after the One Preferred Option Vote is taken as the Proposal provided was subject to the decision. o Nicholas Golden moved to table the approval of the Designer Amendment No. 3 for Investigatory Site Services until later in the meeting. The motion to table carried unanimously. – Designer Amendment No. 3 for the Investigatory Site Services for the PreK-5 at the North

Item No.	Action	Discussion
		Intermediate site was chosen with the 12,000 sf Gymnasium in the amount of $145,075.70 is being moved forward for approval by the School Building Committee. o C. Prendergast made a motion to approve Designer Amendment No. 3 with the caveat of potentially $5,000 in savings from work to be performed in conjunction with the Wilmington Department of Public Works (DPW). The motion was seconded by N. Golden. o The motion passed unanimously by Roll Call vote.
21.4	Record	**Design Update** – **Mentimeter Survey Results Performed to Date:** R. Philip presented the results of the Mentimeter survey which saw participation from 293 staff members across 8 schools in the Wilmington School District. R. Philip explained how the responses from participants were accumulated into the survey ranking for the preferred options. – There is a typo in the survey which saw the New PreK-K at the Wildwood site not included correctly in the survey. Co-Chair Brand noted that the primary intent of the survey was to understand the grade consolidation preferences of the staff and as a PreK-K option was included in the survey, it was felt the survey still served to provide understanding of the preferences of the Wilmington staff. o The PreK-5 option at the North Intermediate Site was the top selected option amongst the 293 respondents. o The responses favoring the PreK-5 option cited fewer transitions providing stability, modernized safe and accessible facilities, improved collaboration. Health and safety, cost efficiency, and community building as the basis for their selection of the preferred option. – R. Philip added that the survey was also sent to the community (including handwritten surveys to the Senior Center) which saw over 1,300 respondents participate. The overwhelming majority were parents and community members. Almost 60% of respondents selected the New PreK-5 option at the North Intermediate site as their Preferred Option.

Item No.	Action	Discussion
		○ The responses favoring the PreK-5 option cited consolidation, long term solutions, alignment with goals, tax/financial considerations, and support for new structures as the basis for their selection of the Preferred Option. – **Discussion of Gymnasium Size:** Over 900 respondents answered the question in the Mentimeter survey regarding Gymnasium size. 680 of those respondents favored a larger gymnasium. R. Philip presented a cost impact graphic comparing the 6,000 sf gym option to the 12,000 sf gym option. The difference in annual tax increase between the smaller and larger gymnasium to the average home was $40.
21.5	Record	**Working Group Updates** – **Public Relations Working Group** ○ M. Camoscio informed the Committee that since the last meeting there was a Community Forum, a meeting at the Senior Center, and a table at Fall Fest. He noted there had also been postings in the local newspapers. He added the FAQs on the project website had not yet been updated but hoped updates would occur soon.
21.6	Record	**Review of Shortlist Options** – R. Philip recapped that there were 9 options entering the PSR phase, of which 5 were selected to be on the shortlist for the preferred option. The 4 options that were not shortlisted were added for cost comparison. R. Philip showed the cost impact of each option (costs assuming a 12,000 sf gymnasium): ○ PreK-K Wildwood Site Repair: $29.3M ○ PreK-K Wildwood Site New: $88.6M ○ PreK-3 New Woburn Street Site: $146.7M ○ PreK-5 North Intermediate Site Add/Reno: $185.6M ○ PreK-5 North Intermediate Site Add/Reno: $187.0M – Repair at Wildwood site would not be supported by the MSBA.
21.7	Record	**Public Comments** – Community members A. Iasconi and J. Reynolds, educators at the North Intermediate School

Item No.	Action	Discussion
		representing the staff of the North Intermediate School, read a letter collectively written by the North Intermediate staff expressing support for a New PreK-5 school at the North Intermediate. Site. They cited school safety and security concerns as the basis for their advocacy of a new school on the North Intermediate Site. – Community member L. Jones, a student in the Wilmington School District and G. Jones, parent and alumnus in the Wilmington School District advocated for a PreK-5 new construction, citing that if grant funding is available, they should improve as many schools as possible for the future generation of students and teachers. – Finance Committee member S. Neville, speaking on his own behalf as a community member and parents in the Wilmington School District noted his son's classroom was an uncomfortable temperature at an open house, and that reading evaluations were taking place in the hallways due to a lack of space. He noted that math and reading specialists are working out of closets to help students in need of extra support. – School Committee member M. Mercaldi speaking on his own behalf as a community member discussed his thought process when he was charged with deciding a Preferred Option at the School Committee meeting a month ago. He expressed he put the considerations of the students above the tax impacts, and urged the Committee to explore solutions to reduce the financial implications as the project rolls out. He added that modern education requires modern facilities to best prepare students for the modern workforce. – Community member G. Allan thanked the Committee for their hard work, walked the Committee through the history of the project's inception, stemming from an oil spill at one of the school sites. He noted the students were moved to the Middle School because there is room in the Middle School, and they have adapted to the increased students comfortably. – Community member S. Sheehan told the Committee that her son was at the Wildwood School when it closed and noted it was a very disruptive move, and that the students deserve a space for themselves. She stated that a new space was needed in the

Item No.	Action	Discussion
		event of another incident at a school and noted that the responses are overwhelmingly in favor of a new PreK-5 School and that it would not benefit her children. – School Committee member J. Fennelly speaking on his own behalf as a community member and parent thanked the Committee for their work and dedication and advocated for the Committee to select the New PreK-5 at the North Intermediate Site as the preferred option. He cited the efficiencies in operating one school as opposed to 3 separate schools, improvements to security, and increased accessibility to students in need. He urged the Committee to trust the experts the Town hired and hear the feedback from the parents and staff members who have provided feedback supporting the PreK-5 option. – S. Krull, community member educator in the Wilmington School District, asked the committee to consider the feedback of the school staff who know the needs of the children, and added challenges facing educators in the current school conditions. – S. Benoit, community member and educator at the Woburn Street. School told the Committee that the educators need support and access to the best technology to best help the students. She added the New PreK-5 at North Intermediate Site was the best option to achieve those goals.
21.8	Record	**Discussion and Committee Questions** – V. Varbedian led the School Building Committee in an open dialogue of their perspectives and opinions relating to the options before the committee for the One Preferred Option. Asking the members of the Committee to share the reasons supporting their leaning towards or away from any specific option that is on the table. The community members expressed their personal opinions regarding the best options and their reasoning for their position. These opinions can be heard in detail in the meeting recording (time stamp 58:30-2:05:00)
21.9	Record	**Correspondence** – J. Leduc notified the Committee that they received a packet of correspondence that had been received and an email not included in the packet had been forwarded to the Committee members.

Item No.	Action	Discussion
21.10	Record	**Vote One Preferred Option** N. Golden made a motion to select the PreK-5 on the North Intermediate Site with the 12,000 sf Gymnasium. Motion was seconded by C. Prendergast. – Roll Call vote was taken and passed 16:6. o Kate Bissell, Dr. Glenn Brand, Michael Camoscio, Justin Cusce, Nicholas Golden, Christine Holloran, Craig Miner, Christine Murray, Judith O'Connell, Christine Prendergast, David Ragsdale, Paul Ruggiero, Stacey Scott, Eric Slagle, Stephen Turner, Vivian Varbedian voted **Yes = 16** o Diane M. Allan, Gregory B. Bendel, Kevin A. Caira, Marianne Gallezzo, Dennis Kelley, Paul Melaragni voted **No = 6**. o **With a majority vote the Preferred Option of the New PreK-5 at the North Intermediate Site passed.** **Vote Gymnasium Size** – V. Varbedian started discussion regarding the selection of a gymnasium size. – M. Gallezzo asked if the gymnasium could be placed on an external wall as opposed to the middle of the building in the event later in design the committee feels it necessary to reduce the gymnasium size. o L. Dore noted that moving the gymnasium to an external wall was a feasible design option if the design team were directed by the committee. He added that the impact of a change in design becomes more significant as the design progresses. – L. Dore clarified that the eligible square footage for MSBA reimbursement for a gymnasium in an elementary school is 6,000 sf, meaning 12,000 sf gym would have 6,000 sf (approximately 9,000 sf in multiplied gross square footage) non-reimbursable to the MSBA. – Multiple committee members noted that the Superintendent has stated 6,000 sf would be sufficient to accommodate the educational curriculum entirely. Other committee members added that the Community would have access to the gymnasium and a larger gymnasium would better service the community at large beyond the student populus of the new school.

Item No.	Action	Discussion
		○ J. O'Connell made a motion to approve the 12,000 sf gymnasium but have the Designer place the gymnasium on the outside wall of the building. K. Caira seconded the motion. ▪ J. O'Connell commented, if in the event that value engineering is needed, she feels more comfortable designing the gym in a location where it can be more easily modified. ○ **Roll Call vote was taken and passed unanimously.**
21.11	Record	**Budget and Schedule Update** – J. Leduc and R. Philip provided updates regarding the budget and schedule with upcoming meetings and actions needed to occur over the next 2-months. ○ Draft versions of the PSR for Review ○ Upcoming meeting on October 21, 2024 or October 22, 2024 needed to approve the submission of the Preferred Schematic Report. ▪ That meeting will also include a presentation for the Construction Manager at Risk or Design Bid Build construction delivery method. ▪ J. Leduc added that CM-At-Risk delivery method is a qualifications and fee based procurement as opposed to strictly fee based procurement with Design Bid Build. ○ MSBA FAS Meeting(s) in November and changes to dates for November meetings ○ December SBC Meetings to be 2 per month moving forward and meetings. – R. Philip shared the Schematic Design Phase Overview: ○ November: MSBA FAS Meeting(s), User Group meetings, Site Investigation, Design Updates ○ December: Monthly Design and Sustainability Updates ○ January: Monthly Design and Sustainability Updates ○ February: DESE Submission and finalizing cost estimating package

Item No.	Action	Discussion
		○ March: Cost estimating and reconciliation ○ April: Submit Final Project Scope and Budget to MSBA; Submit Schematic Design Package to MSBA.
21.12	Record	**Next Meeting:** October 21, 2024 at 6:30pm Remote Participation via Zoom
21.13	Record	**Adjourn** V. Varbedian thanked the committee for their efforts and invited a motion to adjourn. N. Golden motioned to adjourn. M. Camoscio seconded the motion. The motion carried by unanimous vote.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Project Management | SMMA

Agenda

Project:	Wilmington Wildwood Early Childhood Center	Project No.:	22127
Re:	School Building Committee Meeting	Meeting Date:	10/8/2024
Prepared by:	Julie Leduc	Meeting Time:	6:30 PM
Meeting Location:	Hybrid, Wilmington High School Large Group Instruction Room Remote Participation via Zoom Webinar: https://wpsk12.zoom.us/j/83577025187?pwd=cAMl4Rs4iYaPdh4DoHQTNSnWq5XMom.1	Meeting No.	20

Distribution: School Building Committee (MF)

- Call to Order
- Approval of Minutes
- Approval of Invoices & Commitments
  - Warrant No. 16
  - Designer Amendment No. 3 – Investigatory Services [Site Survey, Geotechnical, GeoEnvironmental and Traffic]
- Design Update
  - Mentimeter Survey Results Performed to Date
  - Discussion of Gymnasium Size
- Working Group Updates
  - Public Relations Working Group
- Review of Shortlist Options
- Public Comments
- Discussion/Committee Questions
- Correspondence
- Vote One Preferred Option
  - Vote Gymnasium Size (if needed)
- Budget and Schedule Update
- New Items
- Next Meeting: November 12, 2024
- Adjourn

The items listed are those reasonably anticipated by the Chair which may be discussed at the meeting. Not all items may in fact be discussed and other items not anticipated may also be brought up for discussion to the extent permitted by law.

1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400

www.smma.com

WILMINGTON PUBLIC SCHOOLS

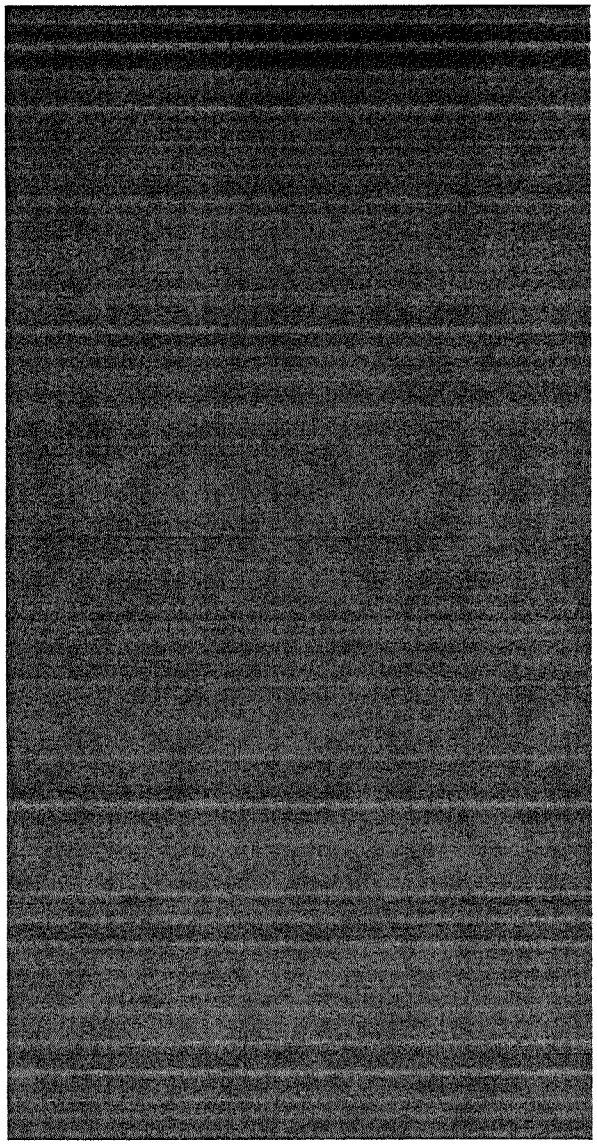
Wildwood Early Childhood Center Project

School Building Committee Meeting #18

October 8, 2024

SMMA dw DORE WHITTIER

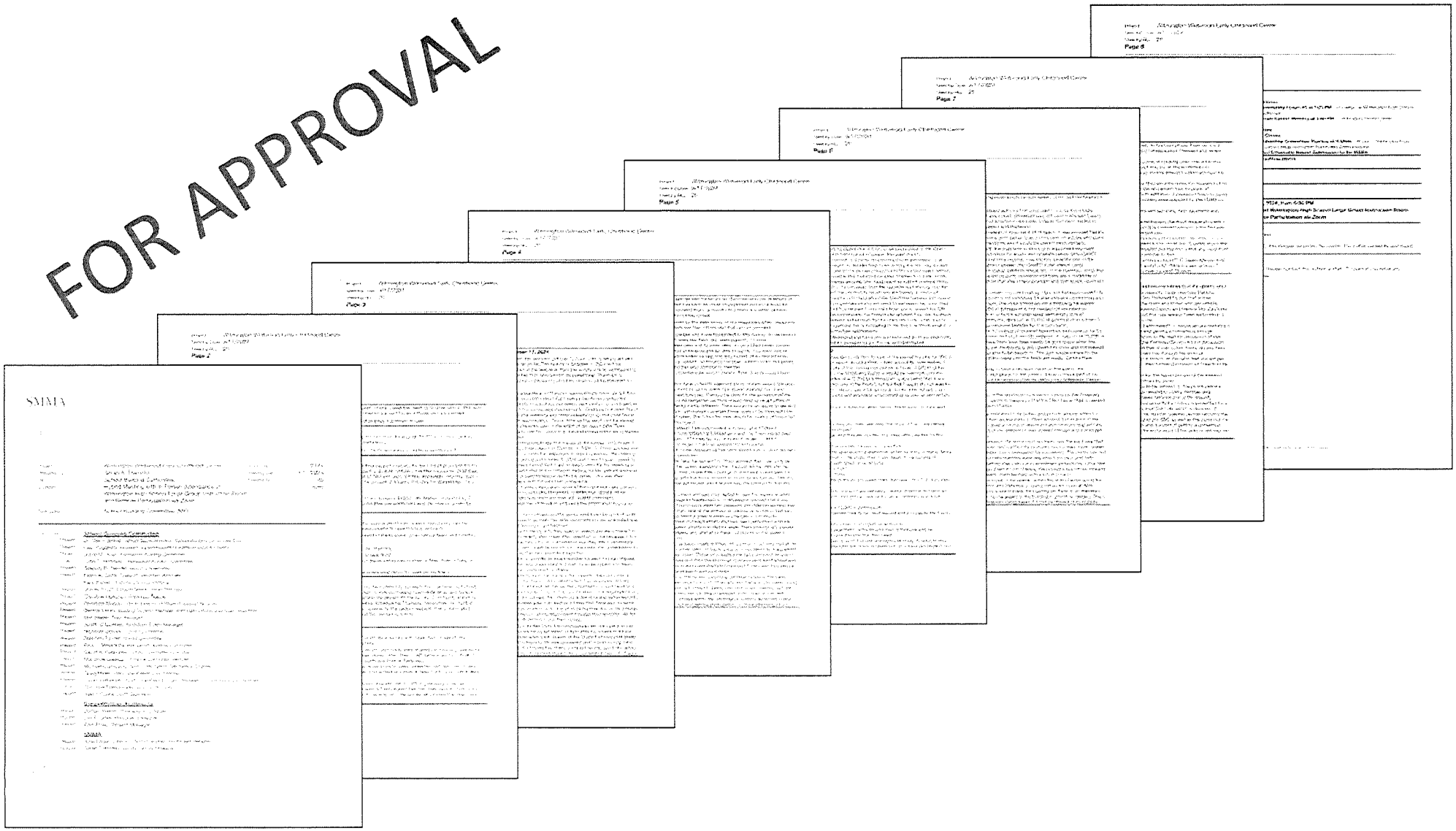
Massachusetts School Building Authority



Agenda

- Call to Order
- Approval of Minutes
- Approval of Invoices
- Approval of Designer Amendment
- Design Update
  - Survey Results
  - Discussion of Gymnasium Size
- Public Relations Working Group Update
- Review Shortlist of Options
- Public Comments
- Discussion/Committee Questions
- Correspondence
- Vote for Preferred Option
  - Vote for Gymnasium Size (If Needed)
- Next Steps/Schedule Update
- New Items
- Adjourn


Approval of
Minutes


FOR APPROVAL
SMMA


Approval of
Invoices

SMMA

Warrant No. 16

Project:	Wildwood Early Childhood Center Wilmington, Massachusetts	Project No.:	22127
Prepared by	Julie Leduc and Sarah Traniello	Date:	10/8/2024

The School Building Committee for the Wilmington Early Childhood Center hereby authorizes the payment for the obligations incurred for the value received in services and for materials shown below.

Vendor	Invoice No.	Invoice Date	Invoice Amount	ProPay Code	Balance After Invoice
SMMA	62042	10/3/2024	$ 3,750.00	[illegible]	$ 18,750.00
Dore+Whittier Architects	[illegible]	09/30/2024	$ 3,000.00	[illegible]	$ 3,000.00
		Total	$ 6,750.00		

Approved on ____________________

Activities for the Month of September 2024:

1. Weekly Leadership Working Group meetings to review progress
2. Monitor Mentimeter townwide flyer survey and provide updates
3. Prepare presentation and participate in School Building Committee Meeting on September 17, 2024
4. Prepare presentation and participate in Community Forum #5 on September 18, 2024
5. Prepare presentation and participate in Meeting at Senior Center on September 19, 2024
6. Continue edits for draft PSR Submission

FOR APPROVAL

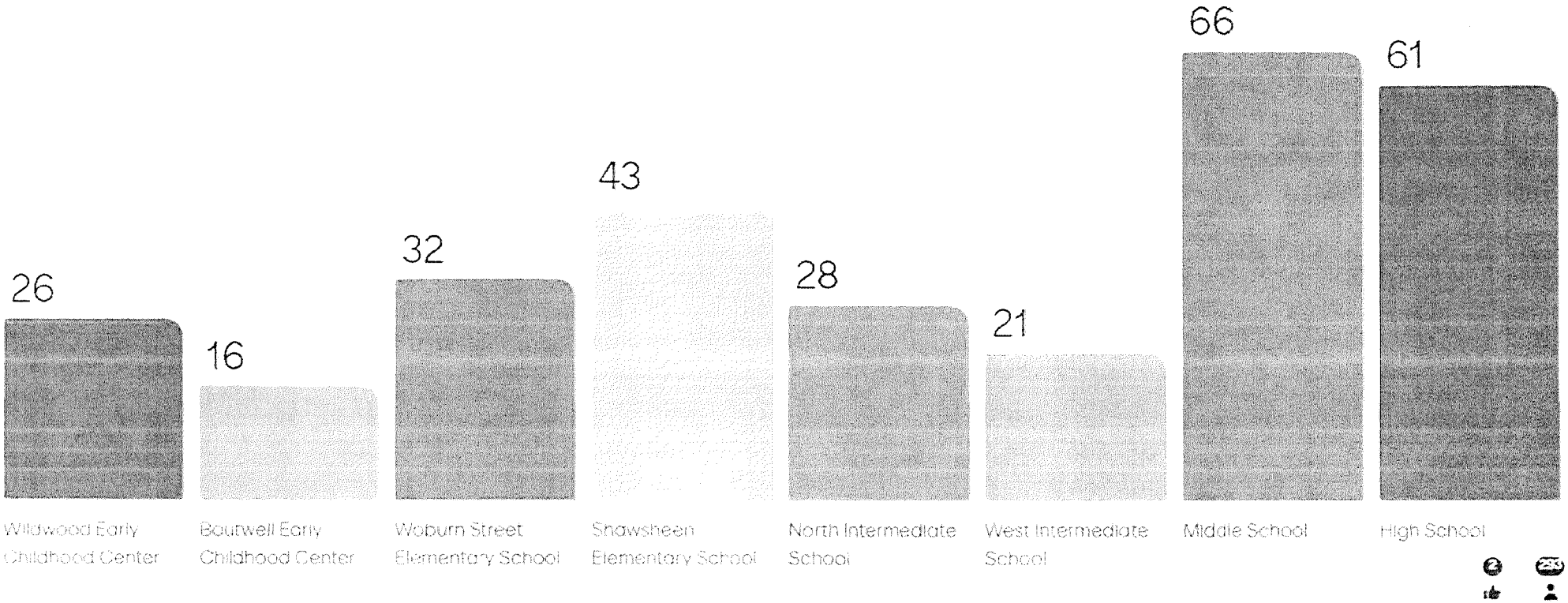

Approval of
Amendment 3
Site Investigation
for Preferred Site

Project Update

Results from Staff Survey

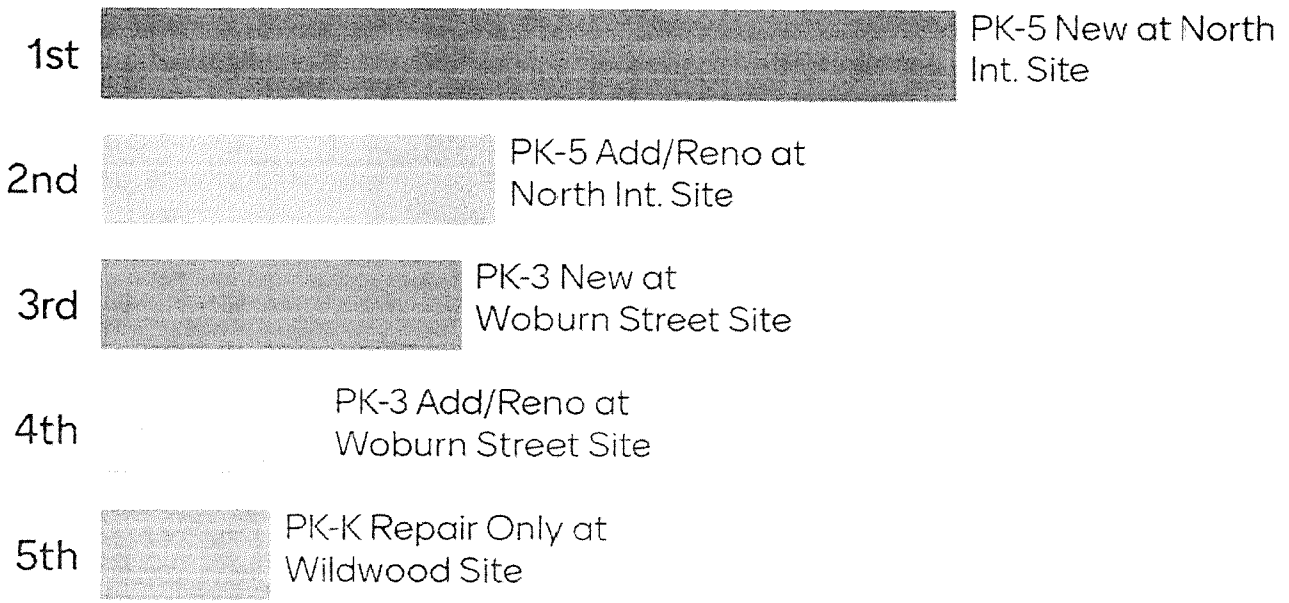
Mentimeter

I'm responding as a representative of (select all that apply):

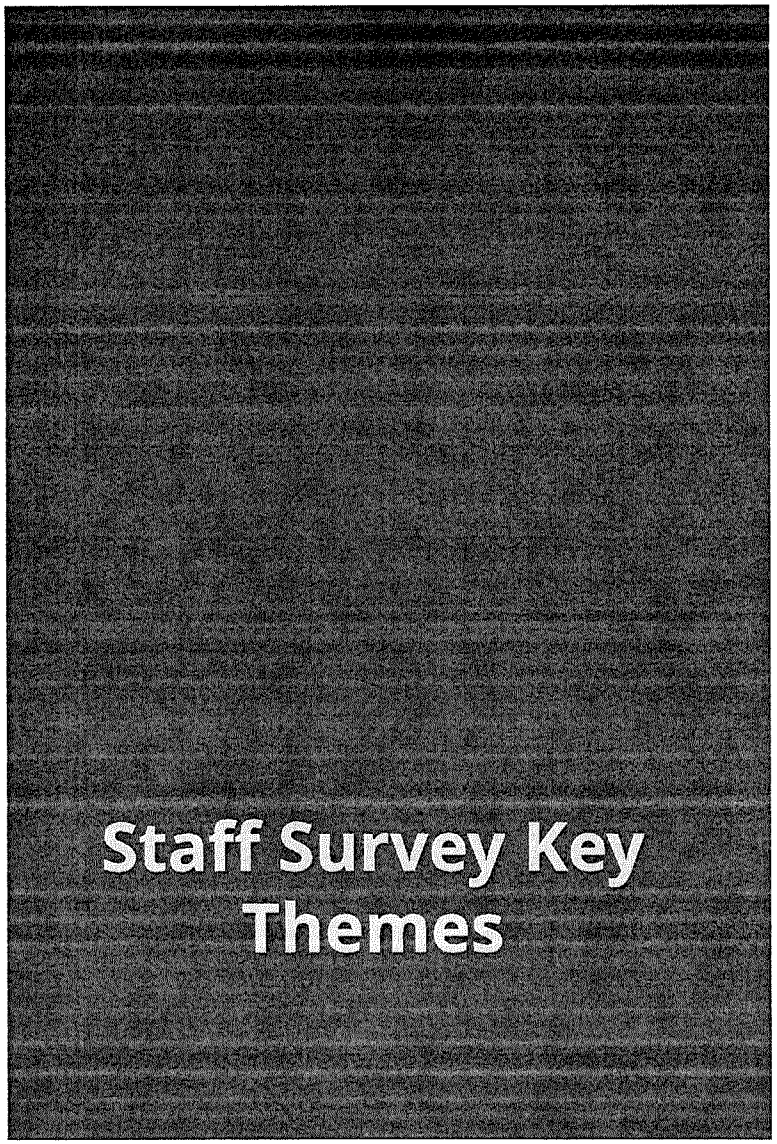


Mentimeter

Please select your preferred option.



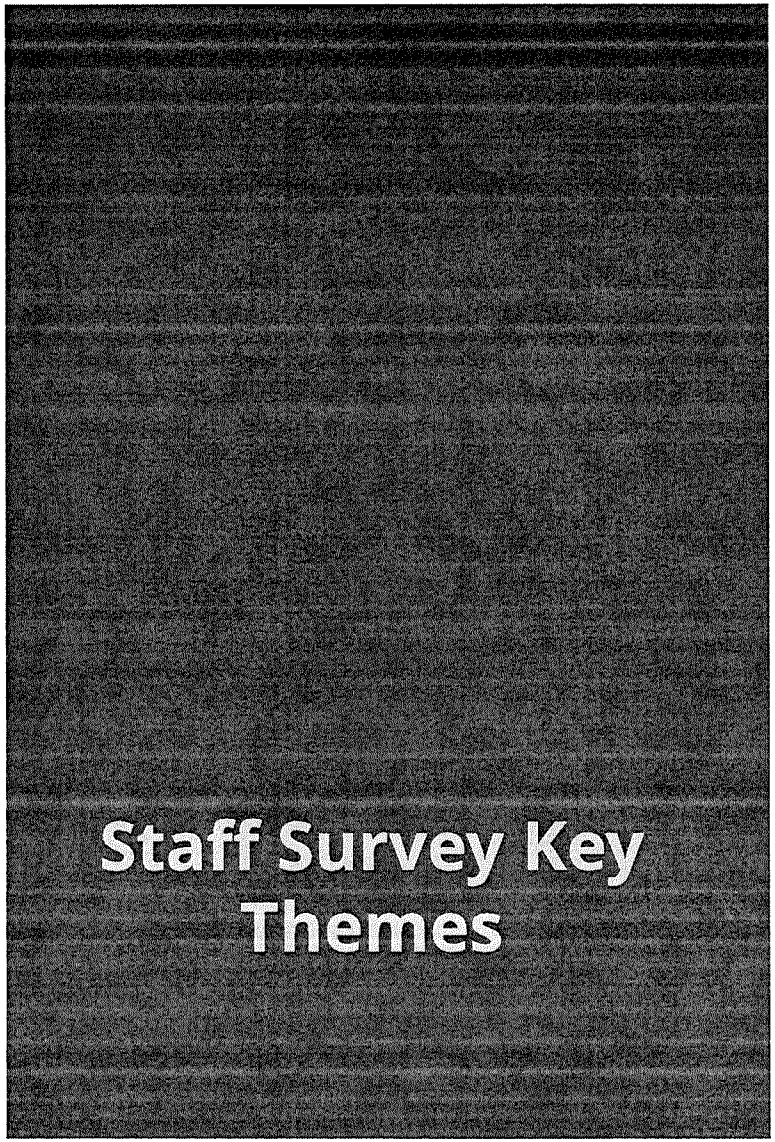
2 269



The general consensus from staff is that building a new Pre-K to 5 school would significantly benefit students, staff, and the overall community in multiple ways:

1. Fewer Transitions: A key theme is that fewer transitions between different schools would benefit students by providing consistency, continuity, and **stability** throughout their elementary years. This would help create a smoother learning experience and enable better collaboration among staff members who would work together for longer periods of time.

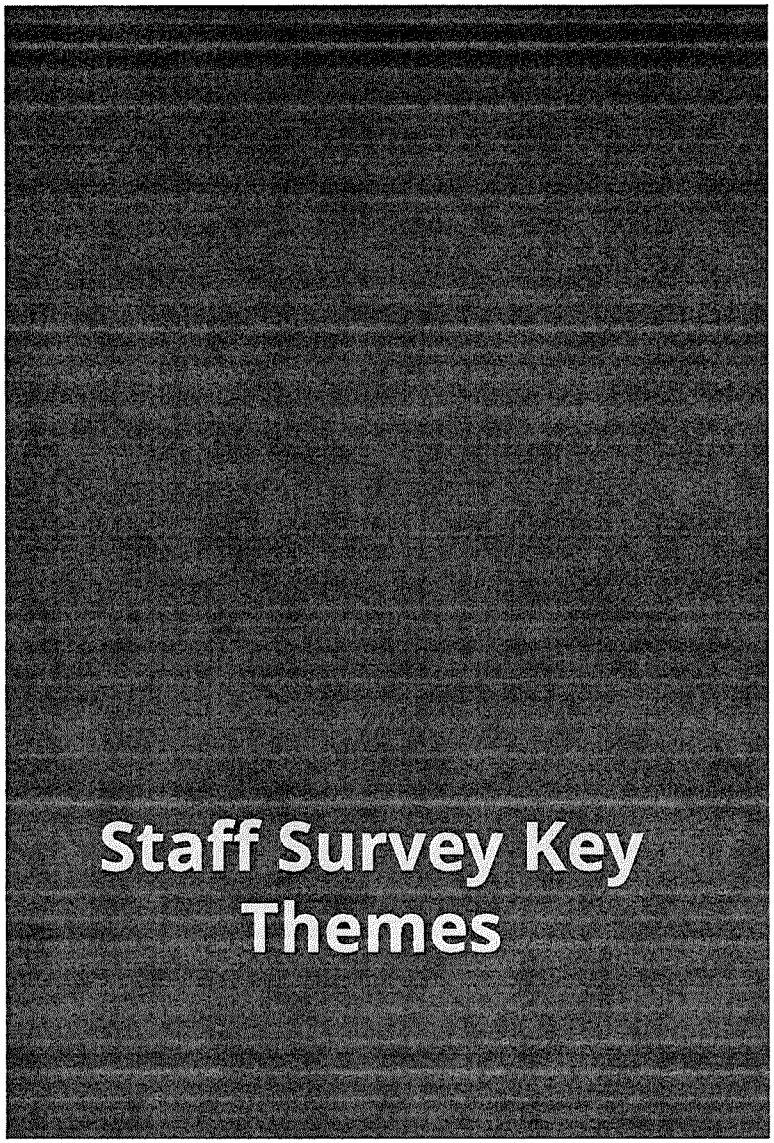
2. Modern Facilities: The current school buildings are described as outdated, with issues such as poor climate control and inadequate spaces for students, particularly those with special needs. New facilities would offer modern, **safe**, and more efficient spaces, which could foster better learning environments, integrate modern technology, and meet **accessibility** needs.



3. Improved Collaboration: Staff collaboration across grade levels is highlighted as a significant benefit. Having everyone in one building would make it easier for educators to communicate, share resources, and support students more effectively, especially when it comes to social-emotional learning and special education needs.

4.Health and Safety: The comments emphasize concerns over health and safety in the current buildings, with some citing outdated infrastructure and a lack of handicapped accessibility. A new building would address these issues and create a healthier learning environment.

5.Cost Efficiency and Future Planning: There is support for consolidating resources and avoiding the costs of maintaining or renovating multiple old buildings. The comments suggest that building a new, modern facility would not only address current issues but also serve the community's needs in the future.



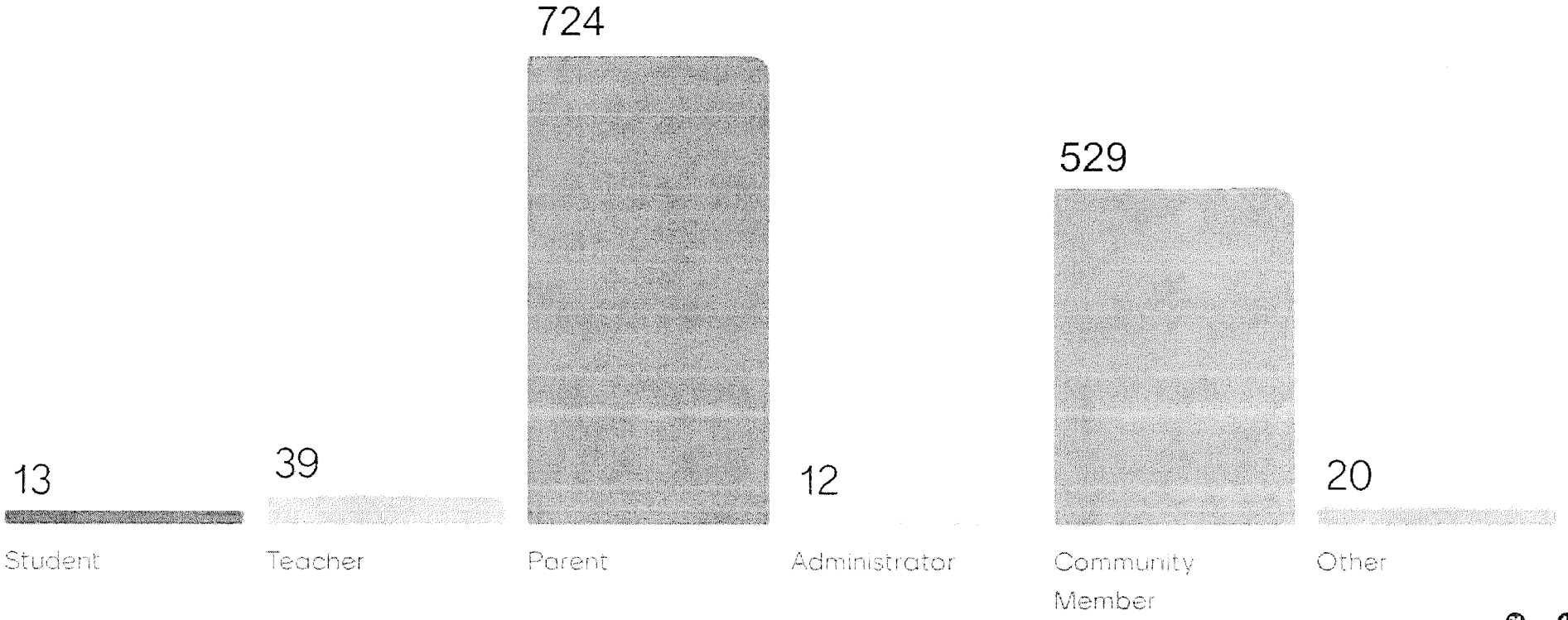
6. Community Building: Having students stay in one school from Pre-K through 5th grade is seen as beneficial for fostering a strong sense of community, both among students and between families. It also reduces disruptions and helps students build longer-term relationships with teachers and peers.

In summary, the overwhelming sentiment is that a new, modern Pre-K to 5 school would be a valuable investment that offers educational, social, and economic benefits through fewer transitions, better collaboration, and improved facilities for both students and staff.

Results from Community Flyer Survey

Mentimeter

I'm responding as:



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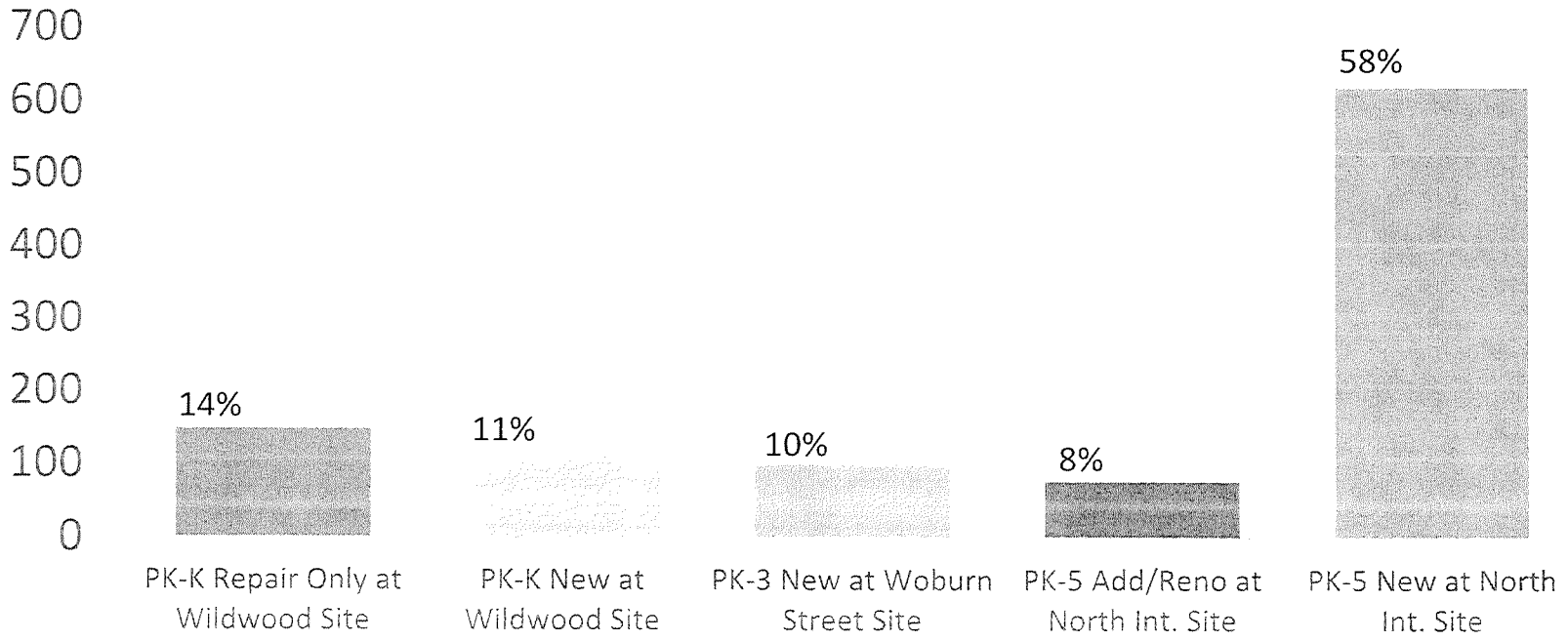
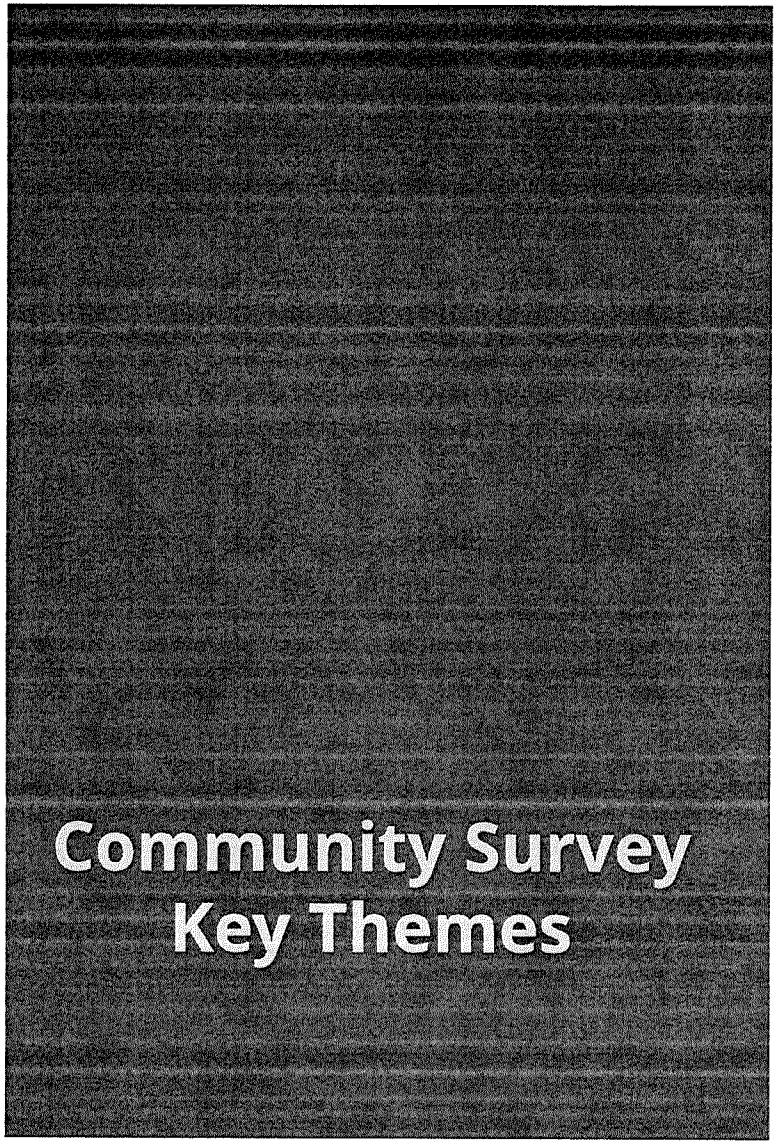
Please select your preferred option.





1. Consolidation Importance

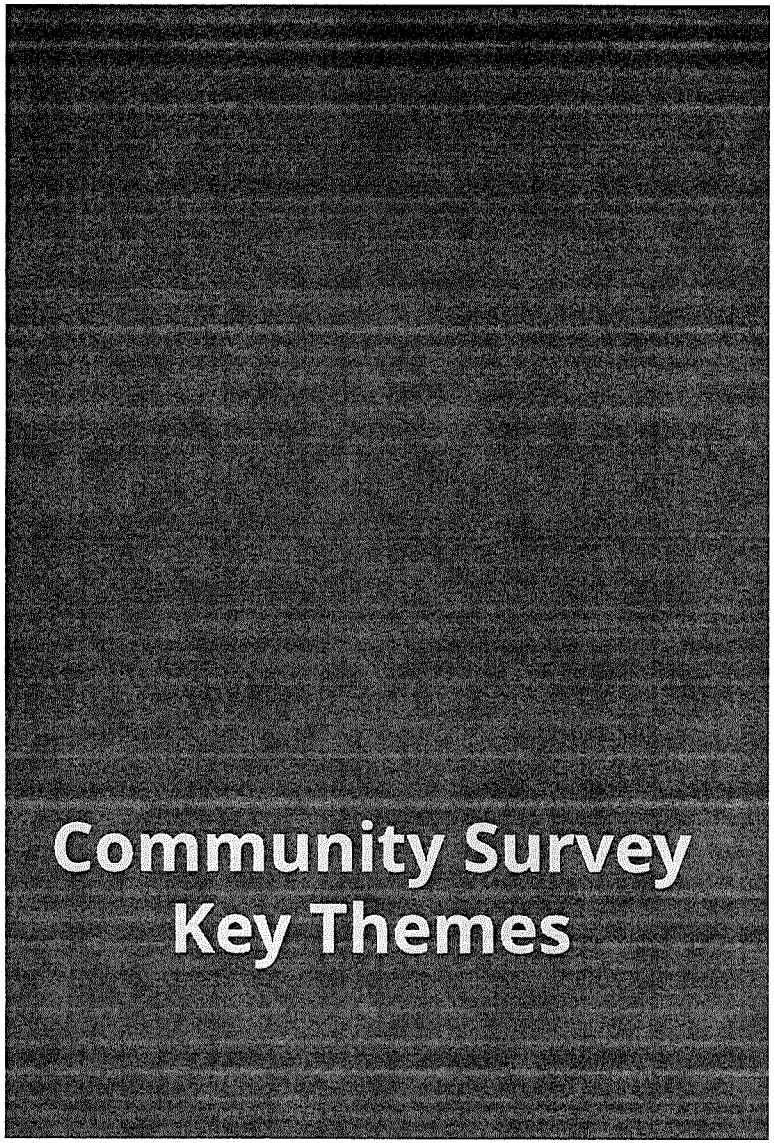
Several responses mention that consolidation is **essential** or crucial. This suggests that a number of participants believe that merging or consolidating services, resources, or initiatives is important for the future, possibly to increase **efficiency** or improve outcomes.

2. Long-term Solutions

Responses mention the need for solutions that are sustainable in the long run. This indicates a preference for approaches that may require more cost or effort now but are seen as providing more stable or **lasting benefits**.

3. Alignment with Goals

A notable theme is the idea that certain solutions, particularly consolidation, are seen as aligning well with the overall goals for education and the community. These goals might include efficiency, cost savings, or better service delivery.

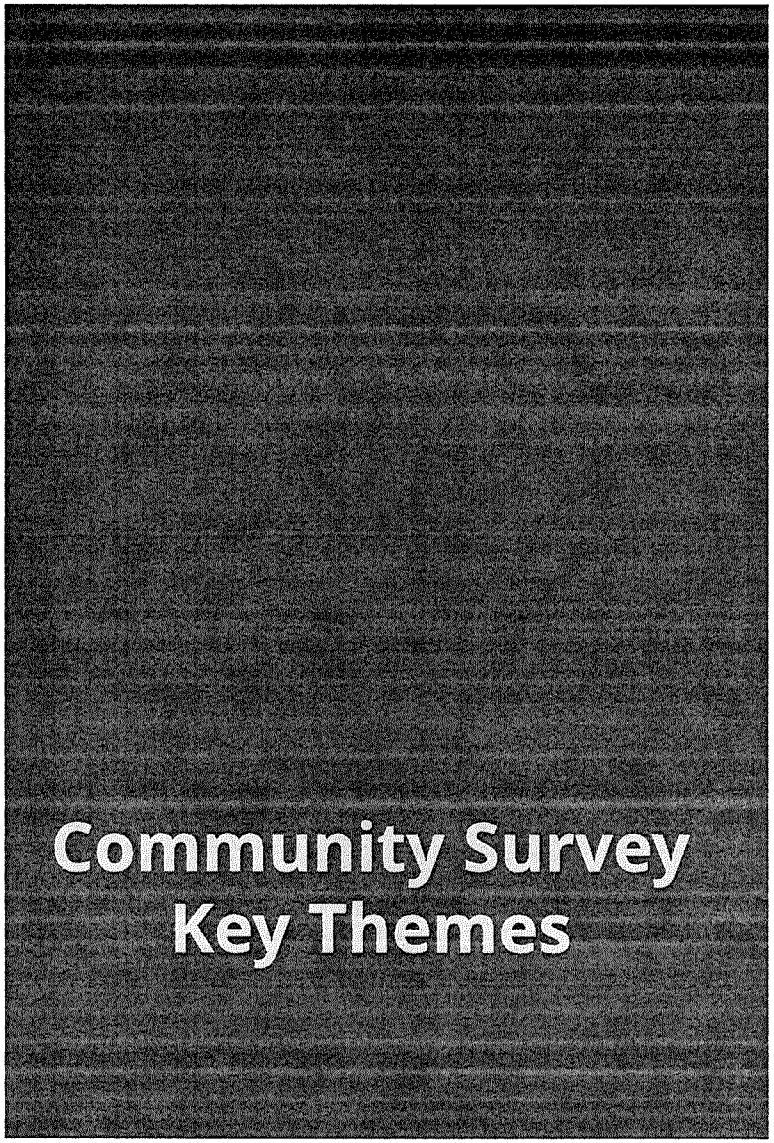


4. Tax and Financial Considerations

There are several mentions of **tax implications** and the impact on **taxpayers**. Participants seem concerned about how changes will affect the financial burden on the public or organization. Some respondents express support for new projects or structures, but only if the costs are manageable.

5. Support for New Structures

While there is some caution around tax and costs, there is also support for new structures or initiatives that could improve long-term prospects, provided they are well-aligned with the broader goals and come with an acceptable financial impact.



In Summary:

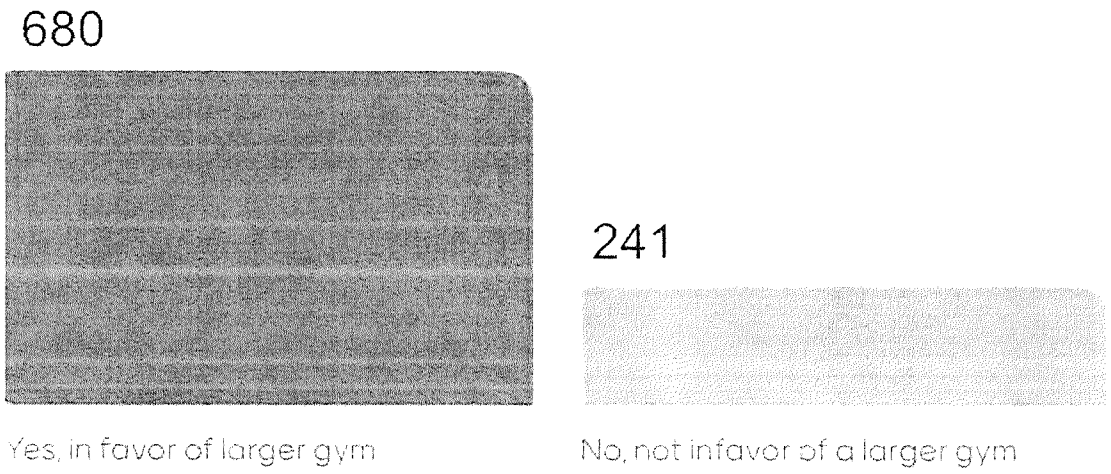
Consolidation is viewed positively by many, seen as necessary for future success.

Long-term thinking is emphasized, with respondents looking for sustainable, goal-aligned solutions.

Financial and tax implications are significant concerns, and there is a general willingness to support new projects if they lead to greater efficiency or stability.

Mentimeter

Are you in favor of a 12,000SF gymnasium with partial reimbursement from MSBA for 6,000SF? The Town would cover the cost for the remaining 6,000SF.



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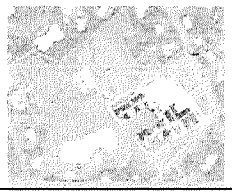
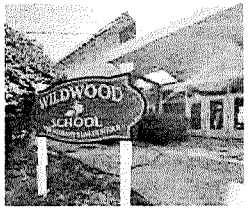
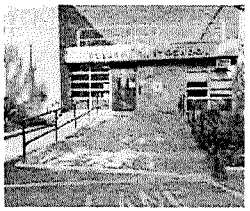
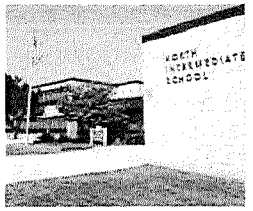
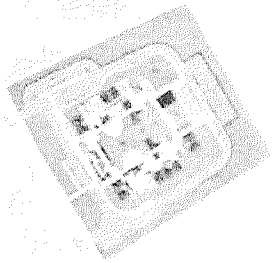
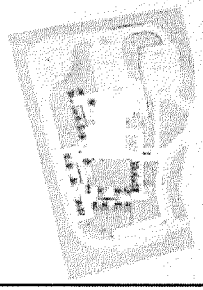
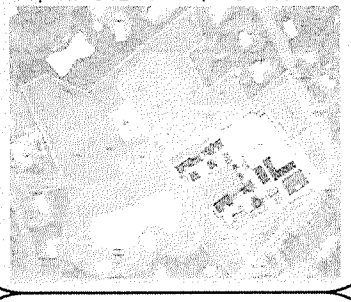
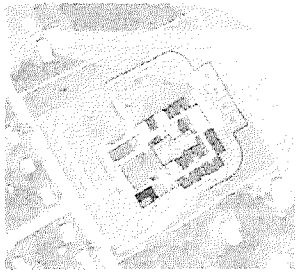
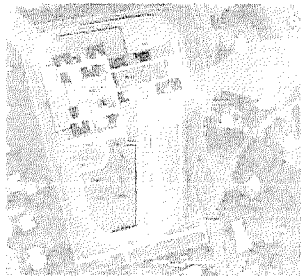
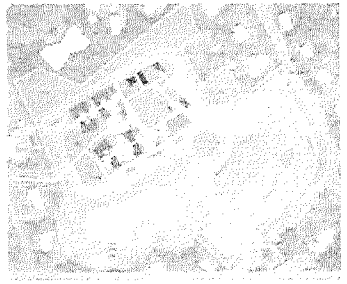
Potential Local Share

	PK-5 755 students + PK		
			PK-5 New with 6,000 SF Gymnasium
	North Intermediate Site		
	Add/Reno 163,573 GSF	New 163,573 GSF	New 154,573 GSF
Estimated Project Cost (PSR midpoint) *full price before eligible MSBA reimbursement	$185.6M	$187.0M	$180.2M
Estimated Local Share *Cost to Town after eligible MSBA reimbursement	$129.1M	$132.1M	$125.7M
Annual Debt Payment	$9.5M	$9.7M	$9.2M
Annual Tax Increase on Average SF Home	$710	$730	$690
Monthly Impact	$59	$61	$58

Notes and Assumptions:
All Costs are estimates; All Values are FY24 Values; 30 year Fixed Principal Debt; 4.00% Interest Rate; Av. SF Value = $683,790

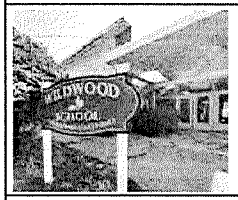
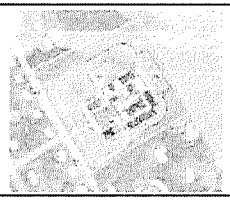
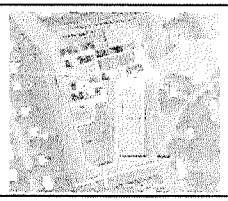
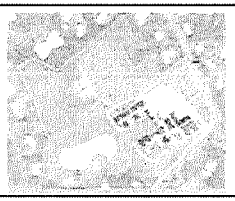
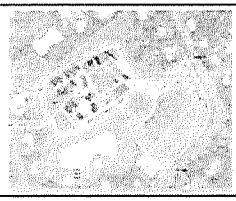
Public Relations Working Group Update

Preferred Schematic Report - Project Costs

	Pre-K-K: 130+ Students	Pre-K-3: 510+ Students	Pre-K-5: 755+ Students
REPAIR	PK-K R.1 $27.9M - $30.8M 	PK-3 R.1 (Woburn only) *Cost Comparison $39.3M - $43.5M 	PK-5 R.1 (North only) *Cost Comparison $32.4M - $35.8M 
RENO/ADD	PK-K AR.1 *Cost Comparison $81.1M - $89.7M 	PK-3 AR.1 *Cost Comparison $127.8M - $141.3M 	PK-5 AR.1 $176.3M - $194.9M 
NEW	PK-K N.1 $84.2M - $93.1M 	PK-3 N.1 $139.3M - $154.0M 	PK-5 N.1 $177.6M - $196.3M 

PSR Project Costs

Potential Local Share

	PK-K 130 students + PK		PK-3 510 students + PK	PK-5 755 students + PK	
					
	Wildwood Site		Woburn Street Site	North Intermediate Site	
	Repair 29,302 GSF	New 64,935 GSF	New 115,294 GSF	Add/Reno 163,573 GSF	New 163,573 GSF
Estimated Project Cost (PSR midpoint) *full price before eligible MSBA reimbursement	$29.3M	$88.6M	$146.7M	$185.6M	$187.0M
Estimated Local Share *Cost to Town after eligible MSBA reimbursement	$29.3M	$66.3M	$106.1M	$129.1M	$132.1M
Annual Debt Payment	$2.2M	$4.9M	$7.8M	$9.5M	$9.7M
Annual Tax Increase on Average SF Home	$160	$370	$590	$710	$730
Monthly Impact	$13	$31	$49	$59	$61

Notes and Assumptions:
All Costs are estimates; All Values are FY24 Values; 30 year Fixed Principal Debt; 4.00% Interest Rate; Av. SF Value = $683,790
PK-K cost estimates do not include any work at Woburn St. and North Int. Schools. PK-3 cost estimates do not include any work at North Int. School. Refer to previous slide.

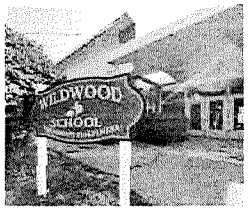
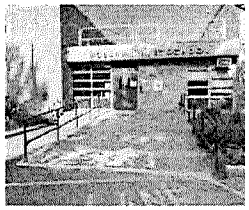
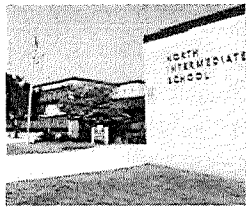
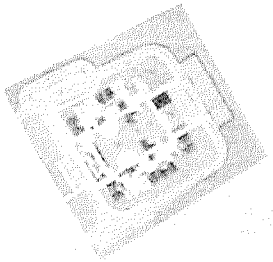
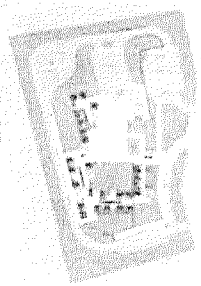
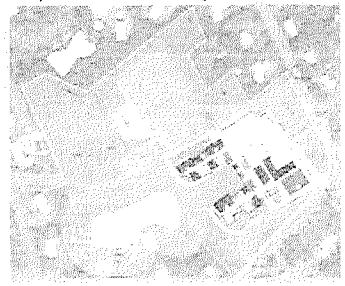
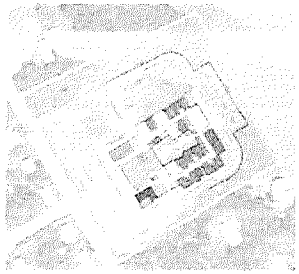
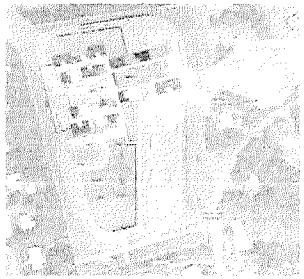
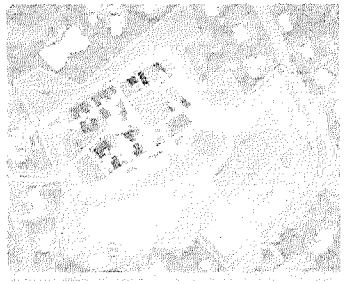
Public Comment

Discussion/ Committee Questions

Correspondence

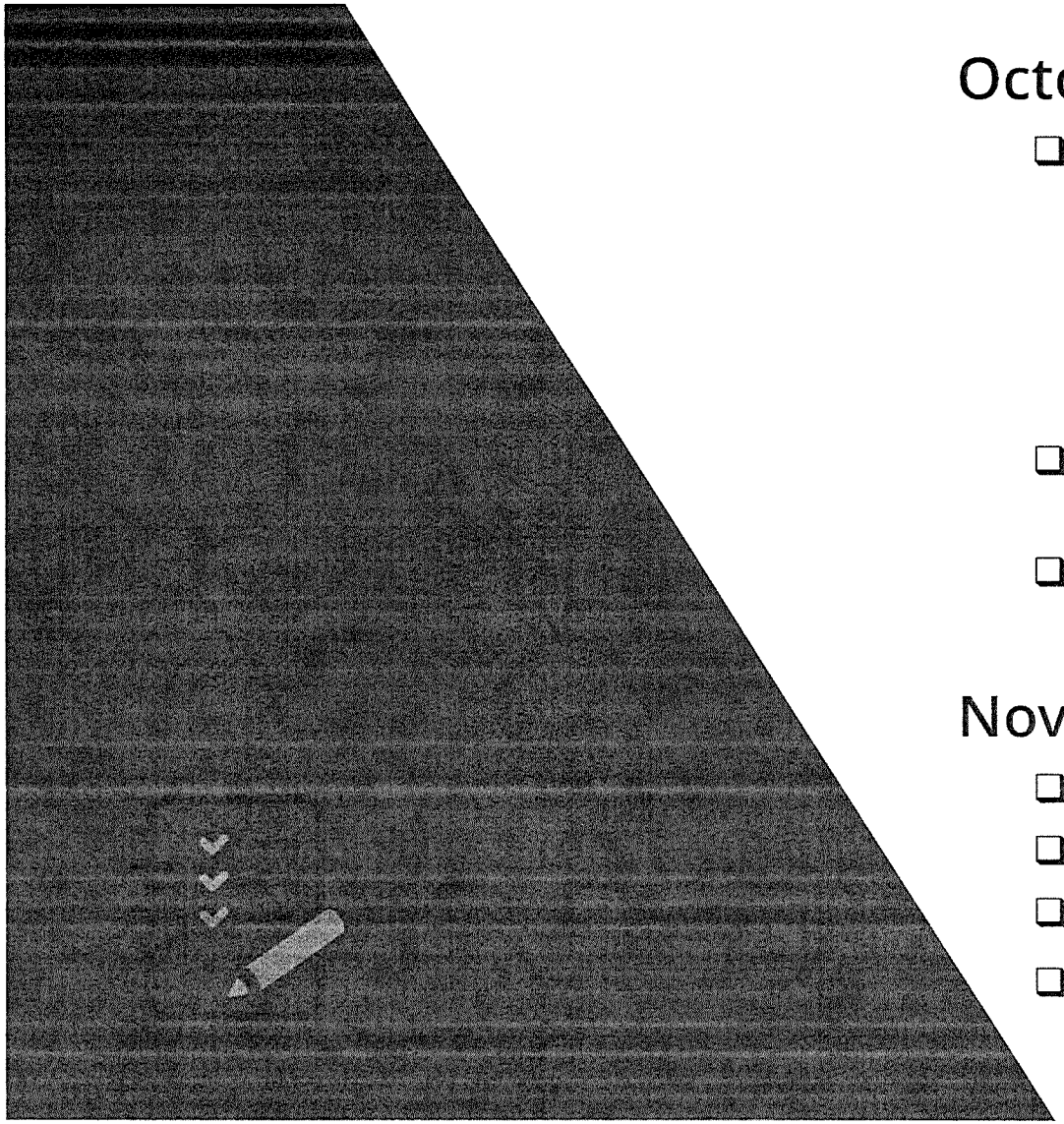
Vote for Preferred Option

Preferred Schematic Report - Project Costs

	Pre-K-K: 130+ Students	Pre-K-3: 510+ Students	Pre-K-5: 755+ Students
REPAIR	PK-K R.1 $27.9M - $30.8M	PK-3 R.1 (Woburn only) *Cost Comparison $39.3M - $43.5M	PK-5 R.1 (North only) *Cost Comparison $32.4M - $35.8M
			
RENO/ADD	PK-K AR.1 *Cost Comparison $81.1M - $89.7M	PK-3 AR.1 *Cost Comparison $127.8M - $141.3M	PK-5 AR.1 $176.3M - $194.9M
			
NEW	PK-K N.1 $84.2M - $93.1M	PK-3 N.1 $139.3M - $154.0M	PK-5 N.1 $177.6M - $196.3M
			

PSR Project Costs

Next Steps



October:

- ❑ Authorize site investigation:
  - ➢ Site Survey
  - ➢ Traffic Study
  - ➢ Geotechnical
  - ➢ Geo-environmental
- ❑ SBC Meeting – Oct 21st or 22nd (proposed - virtual only)
- ❑ PSR Submission to MSBA – Oct 24th

November:

- ❑ MSBA FAS Meeting – Nov 6th or 13th
- ❑ SBC Meeting – Nov 12th (scheduled)
- ❑ SBC Meeting – Nov 19th (proposed)
- ❑ User Group Meetings - TBD

Schematic Design Phase Overview

NOVEMBER:

MSBA FAS Meeting; User Group Meetings; Site investigation; Design updates (massing, elevations, sections, room data, interior design)

DECEMBER

Monthly Design and Sustainability updates
12/13/24 – MSBA Board Meeting to approve PSR

JANUARY

Monthly Design and Sustainability updates

FEBRUARY

DESE Submission

Finalizing Cost Estimating Package

MARCH

Cost Estimating and Reconciliation

APRIL

Submit Final Project Scope and Budget to MSBA

Schematic Design Package to MSBA


Thank
You