

## INTRODUCTION & BACKGROUND

The Needham Public School District serves approximately 5,322 students in grades, Pre-K thru 12. There are eight schools in the district: Newman Elementary School (Pk-5), Broadmeadow Elementary School (K-5), John Eliot Elementary School (K-5), Hillside Elementary School (K-5), Mitchell Elementary School (K-5), High Rock School (grade 6), Pollard Middle School (grades 7-8) and the Needham High School (grades 9-12).

Following a Town-wide Facilities Master Plan Study completed in 2006, the Permanent Public Building Committee (PPBC) along with the Town of Needham and the School District, determined that a Comprehensive Facilities Assessment should be completed for the Pollard, Mitchell and Hillside Schools as these were identified as the schools with the greatest physical needs in the school district.

The Assessment report for the Pollard Middle School is presented here as a separate report from the Hillside and Mitchell Schools due to the focus of the study. The Pollard Middle School is intended to remain in its current use as a 7<sup>th</sup> and 8<sup>th</sup> grade middle school through the next decade and repairs or improvements are viewed as long term investments.

This Comprehensive Facilities Assessment provides the following:

1. Documentation of existing conditions and physical assessment of the building and site with recommendations to address deficiencies.
2. A Capital Improvement Plan that summarizes the recommendations and organizes them into 7 categories, and prioritizes those into two columns, near term (2011-2015) and long term (beyond 2015). The process used to determine each of the items in the Capital Improvement plan and their placement within the report is outlined below:
  - a. Each item in the capital improvement plan was identified through on site visits and meetings with D&W, their consultants, principals and staff of each of the schools, and town facilities managers and their staff;
  - b. Meetings were held with a working group comprised of the school principal, superintendent of schools, members from the Town Public Facilities Dept. and Town Finance dept. to determine which items could be addressed in the near term or may be included in existing capital improvement budgets and schedules, and which items would be included in the long term improvements of the facilities;
  - c. The items were categorized into 1. Health, Safety & Welfare, 2. Code Compliance, 3. Functional Use of the Building, 4. Handicap Accessibility, 5. Maintenance- Extending the Life of the Building, 6. Energy Efficiency/Energy Saving, and 7. Hazardous Materials Abatement.
  - d. Some items fell into multiple categories and were placed in the category deemed most appropriate. Hazardous Materials abatement is an integral component to some of the

work noted and as such, is partially carried in the cost of those items. Other costs may be encountered in the scope of the work; these costs were carried as a line item allowance in Category 7 "Hazardous Materials Abatement".

- e. Cost estimates were provided and placed into one of two columns: CIP 2011-2015 and Long Term Building Renovations. These cost estimates are for budgetary purposes only. Once a full scope of work is determined, a detailed review and re-assessment of the costs should be performed.
3. Recommendations for energy-efficient measures by upgrading or replacing equipment, systems, or building components that can reduce energy related operating costs or even reduce its carbon footprint.
4. A review of space deficiencies of the science and administrative areas (based on MSBA standards) and possible concepts for improvements is included.
5. A review of the continued use of the building facility as it relates to building systems and equipment, safety of building occupants, changes in educational programs, space use and technology in education is outlined in the report. Long term building renovation recommendations support the integration of sustainable design components including, energy efficiency, recycling of materials, water conservation, renewable energy technology and environmentally friendly materials to the extent feasible.

## Documentation

This report is based on information gathered by visual observations of the building and site reviewed by Dore & Whittier Architects, Inc. and its consultants, existing building drawings and documents provided by the Town of Needham, discussions with school staff, administration, and local officials.

## **EXECUTIVE SUMMARY**

### **Introduction**

This Comprehensive Facilities Assessment provides an independent architectural and engineering assessment for the Pollard Middle School in Needham, Massachusetts. This study serves as a tool to assist the Town of Needham with identifying and prioritizing capital improvements as well as providing space use recommendations regarding the Science classrooms, and administrative spaces. Through the course of this study, Dore and Whittier Architects worked closely with the school and town officials through an iterative and collaborative process. The result of this effort is a working document that should serve as a tool for improvements to be made over the next five years as well as a guide for future building systems upgrades and renovations to the school.

### **Facility Overview and Future Considerations**

The Pollard Middle School has been maintained well; roofing replacement is occurring this summer (2011); windows appear to be in very good condition; exterior doors were recently replaced; Town Facilities Dept has an on-going list of improvements that are in-progress.

The result of this study found that while the facility has been and continues to be maintained well; a number of health, life safety and welfare improvements are recommended to meet current codes and for the continued use and functionality of the facility. In addition, expansion, renovation, and improvements to the Science classrooms are identified as an area of need in the near-term.

Dore & Whittier understands that the Pollard school is to be used as a Middle School for the next decade, however based on the information resulting from this study we recommend that decisions be made for a period of approximately 40 to 50 years as the extent of needed renovations and improvements carry significant dollar figures associated with them. Prior to investing significant funds for future improvements, it is recommended that consideration be made with respect to pro's and con's for the continued use of the school as a Middle School:

1. The building overall appears to be structurally sound. While the building is in need of code-related and functional use improvements, as well as localized repairs, the condition of the building as a whole is good.
2. The general layout of the building appears to work well. The library is ideally situated in a prominent location at the center of the building. The cafeteria, gymnasium and

auditorium are all of a suitable size for a middle school program in the range of the current enrollment and grade structure.

3. Auditorium: This space should be treasured as an excellent space for the performing arts, guest lectures, large group assemblies, plays, etc, as there are many middle schools that do not have access to such a space. It is however highlighted as one of the spaces that is in need of significant upgrades as it has not changed since original construction in 1958.
4. Gymnasiums: There are two gymnasium/physical education spaces with dividers allowing for potentially four teaching stations. While there is no space for spectators, there is adequate space for physical education instruction. These spaces are also in need of upgrades, particularly the flooring, sound and lighting systems, venting, as well as investigation into cracks observed in exterior and interior wall surfaces.
5. Administration: The location of the main entrance into the building does not allow proper visibility from the administration office; for this reason after the start of school visitors are required to enter the building via the side door of the administration office. The location of this side door is difficult for visitors to identify the main entrance, and doesn't allow the school personnel to view visitors as they approach the building. Additionally, there is a lack of administrative space; this is evidenced by the tight quarters that the administrative personnel are located, and the use of the lobby space as additional work and copy layout space. When reviewing the amount of space by MSBA standards for 880 students (current enrollment), the standards call for an additional 1,000 sf+/- of space the current administration office space is approximately 1,400 sf.
6. Improvements to the Science classrooms are identified as a priority; these classroom spaces are well below MSBA standards for size ranging from 560 sf to 1000 sf vs. 1400 sf per current MSBA standards. The current science classrooms do not have adequate prep rooms or storage spaces, and the built-in lab casework and plumbing fixtures are in poor condition.
7. Improvements made to address the Science classrooms will more than likely trigger code-required upgrades for expanding the sprinkler system, handicap accessibility improvements and seismic design as well as require infrastructure upgrades for plumbing and electrical systems.
8. Modular Classrooms: Modular classrooms (constructed in 2002) are not designed as permanent, long-term facilities. They are constructed of inexpensive materials, in fast-production style construction techniques and are not energy efficient; a long-term solution will be required within the next 10 years (expected lifespan for modular classrooms is 20 yrs).

9. Consideration to “21<sup>st</sup> Century Learning” should be made as it relates to Middle School learning-teaching methods. Changes in education have occurred over the last 50 years, including technology integration, project-based learning, team-teaching, multi-disciplinary collaboration, and special education delivery methods. These concepts should be reviewed in relation to the school’s educational program and vision in context with the school’s existing classroom layout.

## **Educational Programming and Enrollment Projections**

Upon review of the Capital Improvement Plan, taking into consideration space limitations of the Science and Administration areas, there are several items that should be considered before making decisions on the future direction for capital improvements for the Pollard Middle School.

- 1. Consider Holistic Approach to Educational Programming:** There is significant value in understanding how a school as a whole functions; it plays an important role in how the individual spaces and the programs assigned to each space in the building work together. To be consistent with the approach that the Town of Needham has established with other schools in the district, a holistic approach which defines the educational programming and vision for the entire school is recommended as part of any renovation and addition study.
- 2. Consider Updating Enrollment Projections:** The enrollment projections noted in the 2006 Facilities Master Plan extended to 2012. These should be updated for the next ten years to provide a basis for future planning in the school district.

		Pollard Middle School - DRAFT REPORT 7/15/11				CIP 2011-2015	CIP 2011-2015	CIP 2011-2015	Long Term Improvements	Auditorium Reno
<b>1 Health, Safety &amp; Welfare</b>			w/ Sci. Option 1	w/ Sci. Option 2	w/ Sci. Option 3			w/Auditorium Reno		
	1.01	Demolish the condemned bridge. Provide new concrete pad and stairs at two exit locations (one from corridor and one from boiler room). Provide new exterior door and hardware -two locations. Provide new fire rated door and hardware. Add new exit signage	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
*	1.02	Create egress paths at two longer (63' +/-) dead-end corridors located in the 1958 building : create egress path to exterior by extending corridors to the outside, reconfigure classrooms, with new corridor walls, ceilings, flooring, finishes, exterior and interior doors and hardware. This work is not required if the building is fully sprinklered. (*ADD \$130,000 if 2.03 is not completed in CIP 2011-2015)	alt to 2.03	alt to 2.03	alt to 2.03					
	1.03	Replace existing corridor and stairway doors with fire-rated doors and hardware. Doors to latch and magnetic hold opens to be connected to fire alarm system	\$104,000	\$104,000	\$104,000					
	1.04	Provide additional LED exit signs in several locations (estimate 5 new)	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
	1.05	Provide new fire extinguishers in corridors throughout school, properly mark locations and remove signs where extinguishers do not exist	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
	1.06	Investigate and address fungal growth on brick at exterior of Gym- Allowance. Source of fungal growth to be addressed during roofing project of 2011 - value shown is for brick cleaning only	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
	1.07	Address Rainleaders and clean/repair damaged brick at corners of building	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
	1.08	Investigate and address cracks noted on exterior and interior of Gyms- several locations- Allowance - may be address in summer 2011	\$26,000	\$26,000	\$26,000					
	1.09	After completion of re-roofing project, replace all damaged / stained ceiling tile	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011					
*A	1.10	Replace two existing stairs: from stage to seating and from auditorium to exterior. This work should be done in conjunction with the work noted in <b>3.08</b>	\$23,000	\$23,000	\$23,000			\$23,000	\$23,000	
	1.11	Remove thumb locks at group bathroom and locker room doors - provide key locks	\$6,000	\$6,000	\$6,000					
	1.12	Provide lockable cabinets approved for use with Science chemicals	\$17,000	Incl. in 3.01.2 and 3.01.3 costs	Incl. in 3.01.2 and 3.01.3 costs					

	1.13	Remove items stored in room with electrical distribution panels and provide separate wall and door enclosure around electrical panels	\$9,000	\$9,000	\$9,000	
*	1.14	Install oil detection interlock to boiler room sump pumps with level alarm to contain fuel oil spill event - not required if school is converted to gas (*see 3.04)	\$21,000	\$21,000	\$21,000	
	1.15	Re-balance all mechanical ventilation systems to ensure all ventilation rates are per latest mechanical code.			\$117,000	
	1.16	Test all emergency light battery units for 90 minute capacity	\$4,000	\$4,000	\$4,000	
	1.17	Provide renovations to exit corridors near Band Room; widening corridor.	\$120,000	\$120,000	\$120,000	
<b>2</b>	<b>Code Compliance (items not noted above)</b>					
	2.01	Remove and Replace stair guardrails and handrails at each stairway			\$45,000	
	2.02	Remove borrowed lites (interior clear story windows) at corridor/classroom walls in 1958 building and build new abuse resistant sheetrock walls with tack boards			\$43,000	
*	2.03	Provide sprinkler coverage at remaining areas of building- estimated at 70% of building (* see note in 1.02)	\$1,480,000	\$1,480,000	\$1,480,000	
<b>3</b>	<b>Functional Use of Building (Impact on Learning - below MSBA standards)</b>					
	3.01.1	Renovate existing science rooms with upgraded floor, ceiling, lighting/electrical, HVAC, plumbing, and built in casework. (No expansion of classrooms are included) - total of 9,700 sf Option 1 - (Does not meet MSBA space standards nor does it address educational program function requirements)	\$2,800,000			
	3.01.2	Expand existing science classrooms with in the footprint of the existing building, complete renovation of each space (total of 18,500 sf). Option 2 - (Cost does not include renovation of modulars as required to maintain current number of classrooms)		\$5,020,000		
	3.01.3	Add New additions; science 14,500 sf, renovate existing spaces for science 3,000 sf, provide light renovations to existing science classrooms (9,700 sf) to become standard classrooms. Demo enclosed glass connection bridge / corridor, provide new corridor connection to classrooms, provide egress modifications related to courtyard - estimate is based on design sketch Option 3			\$6,160,000	
*	3.02	Relocate existing administrative areas to classrooms near entry courtyard and convert existing admin into classrooms-(+/-4,600 sq.ft.) heavy renovation (*consider phasing this work after science room addition to provide flexible space for classroom relocation)				\$1,300,000

*A	3.03 and 6.01)	Provide new multi-stall toilet rooms and single toilet rooms near Auditorium - construct new addition for this- consider combining this work with other renovation/expansion work, sprinkler system work, and plumbing work see 5.15					\$870,000	\$870,000
*	3.04	Work with Utility Co. to provide new gas main on Harris Ave to accommodate consistent and reliable gas boiler service - pending review with utility company (*coordinate with 1.14, and 5.23 for gas conversion)					\$9,000	
	3.05	Provide minor adjustment and reconfiguration of site circulation and parking to accommodate 7-8 grade structure (after Newman project is completed). Allowance provide visitor spaces and additional parking and drainage after the Newman at Pollard project is completed. Includes lighting, stormwater, landscaping, sidewalk (allowance)	\$35,000	\$35,000	\$35,000			
	3.06	Replace existing telephone, PA, bell and clock system	\$230,000	\$230,000	\$230,000			
*A	3.08	Renovate auditorium including hvac system, electrical upgrade for lighting and power, audio and visual equipment, new flooring, new seating, HC accessibility - includes demo and re-build of slab to modify slope/flat areas for HC access (This estimate expects that the building, including this space, is already fully sprinklered)					\$2,185,000	\$2,185,000
	<b>4</b>	<b>Handicap Accessibility (includes only items not noted above)</b>						
*	4.01	Accessible route to/from building Provide new paved path from parking area to main entrance. Provide accessible route from parking to the northeast side of the building (consider timing work to coincide with 3.05 or 4.02 or other site work)	\$26,000	\$26,000	\$26,000			
	4.02	Provide accessible route from the building to the playing fields						
	4.03	Provide renovations to 5 Toilet rooms throughout school (i.e. door entry reconstruction/new toilet partitions/grab bars/replace lavatories, water closets, urinals and finishes)						



*A	4.04	There are a number of items to address auditorium accessibility that would normally be included here; cost is included in 3.08 above						
	4.05	Relocate existing signage at 25% of existing rooms to be compliant - provide 20 new ADA compliant room signs	\$4,000	\$4,000	\$4,000			
	4.06	Replace existing water fountains with compliant high-low type- patch to match finishes		\$28,000	\$28,000			include cost if not done with sci. renovations
	4.07	Upgrade elevator controls to be compliant with current guidelines		\$40,000	\$40,000			include cost if not done with sci. renovations
	4.08	Provide accessibility improvements to Choral Room and Lecture Hall- Allowance	\$18,000	\$18,000	\$18,000			
<b>5</b>		<b>Maintenance - Extending the Life of the Building</b> (includes only items not noted above)						
*A	5.01	Replace Auditorium seating (combine this work with handicap accessible improvements) - cost is included in item 3.08 above						
	5.02	Replace Lecture Hall seating (combine this work with hc improvements)						\$27,000
	5.03	Replace carpeting in classrooms if 1969 wing- estimate 10 classrooms	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011			
	5.04	Remove gym folding partition- Install fold down type curtain instead- both gyms						\$98,000
	5.05	Provide light reno improvements to locker rooms- (address moisture in slab issues- replace flooring)						\$117,000
		Remove existing rubber flooring in both gyms, provide moisture-resistant primer and provide new cushioned rubber sports flooring-vinyl coating-welded seams.						\$325,000
*	5.06	(Work should be coordinated to follow work in item 5.28)						
	5.07	Replace door hardware at gym doors						\$14,000
	5.08	Infill missing interior brick at corner of gym at roof drain	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011			
	5.09	Address slab cracking at exterior of band room- Patch and repair concrete and provide stainless steel cap (estimate 16" wide by 75' long by 16" high						\$35,000
	5.10	Sell or Demolish Modular Classrooms- re-grade area for additional grass play space						\$9,000
	5.11	Remove VCT and VAT flooring in 1958 wing. Prepare slab and install new VCT and vinyl base	In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011			

		In Progress Summer 2011	In Progress Summer 2011	In Progress Summer 2011	
5.12	Remove VAT in lower level. Address moisture issues in slab with application of primer- provide new VCT and vinyl base				
5.13	Provide central Htg/Ventilation system for computer room (where make-shift box is on top of unit ventilator)			\$18,000	
5.14	Correct cause of excessive flow noise through gas-service meter			\$1,000	
5.15	Replace water distribution piping (including piping to all drinking fountains) during significant renovation project (the scope is divided between CIP-Science and Long Term Reno)	\$200,000	\$200,000	\$380,000	
5.16	Re-pipe kitchen waste system and provide new grease interceptor			\$18,000	
5.17	Replace all classroom sinks with new fixtures- provide handicap accessibility improvements to counters at this time as well. Provide atmospheric vacuum breakers on all faucets	\$70,000	\$70,000	include cost if not done with sci. renovations	
5.18	Replace domestic water heater			\$44,000	
5.19	Remove existing pneumatic control system and existing ddc system. Replace pneumatic actuators with electronic. Provide new DDC front-end to replace the existing system. (This is proportioned to address only Science related scope in one column and remaining changes in Long-Term Imp)		\$300,000	\$637,000	
5.20	Re-pipe hydronic heat piping configuration to allow for simultaneous operation of both boiler rooms and sequencing of boilers. Convert piping to a heat/cool system with seasonal changeover. Normally this item would be in Long-Term Improvements but is recommended to be done with Science Renovations	\$703,000	\$703,000	include cost if not done with sci. renovations	
5.21	At classrooms, replace unit ventilators with new heat/cool fan-coil units and energy recovery ventilators with CO2 sensor-based occupancy sensors- demo thru-window A/C units and roof-top exhaust fans. Install new insulated glass unit where AC unit was removed. Include patch to match flooring and wall areas where units are removed. Infill roof openings and patch roof. Include all related demo and replacement of finishes required to complete the work. Include structural reinforcing for any new RTU's (See Footnote #5)			\$603,000	
5.22	At core or assembly areas, replace with VAV packaged heat/cool RTU's and terminal units. Provide structural reinforcing for each new unit- include all related demo and new finishes associated with this work.			\$930,000	\$100,000
5.23	Remove and abate fuel-oil UST-infill with clean fill and finish with similar materials			\$96,000	

									include cost if not done with other renovations
*	5.24	Any expansion of electrical needs or addition to the building will require service upgrade as follows: Upgrade exg 2000 Amp service to 3000 Amp. 208Y/120 Volt, 3-phase, 4-wire (includes new switchboard, utility company pad mount transformer, and 2000 Amp back-feed to exg switchboard. Add four electric panels per floor fed from new distribution panels. New distrib. panels should be 400 Amp, 208Y/120 Volt, 3-phase, 4-wire panels fed from the new switchboard.	\$910,000	\$910,000	\$910,000				include cost if not done with sci. renovations
*	5.25	Any expansion of zones or system, will require replacement of fire alarm control panel and three (3) remote panels. Existing devices do not require replacement	\$44,000	\$44,000	\$44,000				include cost if not done with sci. renovations
*	5.26	Any expansion or major reconfig of school will require a replacement of PA system head end and some re-zoning of the system	\$52,000	\$52,000	\$52,000				include cost if not done with sci. renovations
*A	5.27	Replace auditorium sound and lighting systems( include in 3.08 above)							
	5.28	Provide new site drainage structures and pipe including water quality structures- replace 50+ yr old drainage pipe						\$166,000	
	5.29	Provide new sewer and water line connections (more than 50 yrs old)						\$140,000	
<b>6</b>		<b>Energy Efficiency / Energy Saving (includes only items not noted above)</b>							
*	6.01	Replace water closets, urinals, janitor sinks with newer more water efficient models (to be done during toilet renovation upgrades coordinate with 5.15)		\$380,000	\$380,000				include cost if not done with other renovations
*	6.02	If replacing hot water boilers, replace with high efficiency natural gas fired condensing type boilers of similar output heating capacity (coordinate with 3.04)						\$287,000	
	6.03	Reprogram DDC System to reduce interior space temp's during school vacation and off hrs						\$9,000	
	6.04	Replace classroom lighting with direct-indirect pendant mounted fixtures with two rows of two lamp fixtures (included with Science Renovations because ceilings are removed due to Sprinkler System installation)			\$440,000				
	6.05	Replace existing HID (metal halide) gym lights with high efficiency pendant mounted T5 fluorescent fixtures, with multiple switching						\$73,000	
	6.06	Provide new lighting controls and occupancy sensors for all "support" spaces						\$84,000	

7	Hazardous Materials Abatement			
	For any renovation project, include an allowance to address abatement of asbestos			
	7.01 containing materials and pcb's, lead containing paint renovation requirements	\$30,000	\$150,000	\$130,000
				* Auditorium Work
	<b>TOTALS</b>	<b>\$4,953,000</b>	<b>\$9,860,000</b>	<b>\$8,953,000</b>
				* does not include items expected to be done with science renovations
<b>FOOTNOTES</b>				
* Indicates that item is related to or must be done in combination with other items listed				
* A. Notes work in the auditorium, this work should be scheduled to coincide with other * A work				
1. Cost Estimates have been prepared by PM&C. Costs are conceptual in nature, are for comparison purposes only and are not intended for use in construction. They are based on current market conditions in June 2011 and must be adjusted for inflation and construction market conditions for each year beyond this date. No cost for phasing or portable classrooms has been included.				
2. An Allowance has been provided for Hazardous Materials abatement (asbestos, lead, pcb). The actual cost depends on the scope and extent of the work performed as well as any additional testing that may be necessary as part of the scope of the work.				
3. GC Overhead & Profit and estimated Soft Costs and Owner's Contingency have been included in these figures.				
4. Refer to each section of the Report for more detailed information. Before moving forward with a specific project, a detailed review of the scope of work and a re-assessment of the cost estimate for that scope should be performed.				
5. Due to the conceptual nature of these recommendations and estimates and the complexity of existing conditions, several solutions may be provided to achieve the end result. Existing conditions in some areas may limit the ability to fully implement the proposed scope of work. Once a determination is made to move forward with a specific improvement line item, a mini study specific to the scope of work should be done to confirm the scope of work, prepare sketches as necessary and prepare a refined cost estimate.				
6. A number of items are listed in CIP 2011-2015 columns that might normally be included in the Long-Term Improvements column but have been triggered to be completed in the CIP column due to the renovation of the Science Classrooms. It is emphasized that these costs are conceptual and that a detailed estimate be prepared based on more detailed plans and scope of work prior to developing a final project cost budget estimate.				