FY2021-2026 Capital Improvement Projects

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Classroom Capacity

The Public Schools of Brookline has experienced K-8 Elementary enrollment increases for the last decade. K-8 Elementary enrollment has grown by 1,440 students (37%) between FY05 and FY15. There are now 5,326 K-8 students compared with less than 3,900 in FY05. In order to address this serious issue, various mitigation measures have been taken, the most significant being the Runkle School Renovation/Addition, the Heath School Addition, and the project to add four new classrooms at the Lawrence School. Other mitigation measures have primarily consisted of the careful remodeling and renovation to internal spaces within each of the schools, with the goal being the creation of the highest quality space within available constraints

Included in the $2.25 million request for FY16 is $550,000 for the lease costs of temple spaces for the Brookline Early Education Program (BEEP), Maimonides Lease.

FY 20	$570,000	Plus Repairs and Utilities
FY 21	$1,120,000	Plus Repairs and Utilities
FY 22	$1,155,000	Plus Repairs and Utilities
FY 23	$1,190,000	Plus Repairs and Utilities
FY 24	$1,225,000	Plus Repairs and Utilities
TOTAL	$5,260,000	Plus Repairs and Utilities

FY 21	$2,400,000
FY 22	$2,400,000
FY 23	$2,500,000
FY 24	$2,000,000
FY 25	$2,100,000
FY 26	$2,100,000
FUTURE	$2,100,000
TOTAL	$15,600,000

Climate Control

These monies would be used to install HVAC equipment in various school buildings that have areas where there is a large solar gain.

Through FY17 to the present, requests have come to the Director to ass air conditioning and improve climate control in various buildings and for a variety of spaces. Requests have come from parents, staff and PTO members. Some requests stem from a documented medical need the school department must accommodate, and others stem from maintaining an environment that is conducive to teaching and learning. The buildings are designed and built to hold heat in, and bring fresh air per code. The heat rises and then gets contained, even with windows being opened. On days where the outside temperature is in the 80s or 90s tops floors that also receive direct sunlight in the afternoons can often have room temperatures in excess of the outside temperatures and that distracts teaching and learning.

This equipment would be used to primarily dehumidify and remove excessive heat due to solar gains and the air – similar to what has been done at other schools previously (Old Lincoln School, Coolidge Corner School) but on a smaller scale to meet immediate needs due to uncomfortable conditions based on other parts of the building. This equipment would be smaller split heat pump units connected to the energy management system.

Units were previously installed at the Heath School (B Wing by parking lot), New Lincoln (top floor), and Lawrence (top floor).

The next building would be the Baker School (10 classrooms).

The School Administration would like to have all of their buildings to have climate control/dehumidification.

FY 21	$150,000	Baker 1950 Wing
FY 22	$150,000	Heath B Wing – Street Side
FY 23	$150,000	Lawrence – 2nd Floor
FY 24	$150,000	Lawrence – 1st Floor
FY 25	$150,000	New Lincoln – 2nd Floor
FY 26	$150,000	New Lincoln – 2nd Floor
FUTURE	$150,000	Pierce Primary
TOTAL	$1,050,000	

Driscoll School Renovations

The Driscoll School is in desperate need for a new HVAC system.

Parts of the existing system dates back to 1910. There are no more spare parts available for the controls.

The Driscoll School is in need of a new HVAC system with temperature controls.

The building presently uses steam to heat the building. The steam HVAC system dates back to 1910 in the main section, 1928 and 1953 with the additions.

It is extremely difficult to find parts to maintain the systems. The system as it is now is hard to maintain, sometimes overheats or under heats parts of the building and there is a concern of proper ventilation and cooling air. The boilers were replaced in 1995. They are fully functional and operate well. The plan would be to convert them from a steam to a forced hot water system. This would allow better heating control plus save energy.

A new all electric HVAC system (equipment, piping, ductwork and controls) would be installed to replace the existing equipment. The work would be done over two years (primarily in the summer months). Phasing would allow the building to remain occupied.

This project was proposed and designed before the Driscoll Schools was chosen as part of the plan to address the enrollment growth in the K-8 elementary schools and therefore plans for construction of the system have been put on hold. Should the new building project described above pass, and the building makes it through the winter, the Town plans to rescind this bond authorization a the May 2020 Town Meeting.

These monies would be used to install a new all electric HVAC system. This system had been previously designed.

<u>Plans/Specs</u>

FY 21		$250,000
	TOTAL	$250,000

<u>Construction</u>

FY 21		$4,750,000
	TOTAL	$4,750,000
	TOTAL	$5,000,000

Public Building Fire Alarm Upgrades

Upgrades for existing fire alarm systems.

The Town engaged with Garcia, Galuska & DeSousa to conduct a study to assess the existing fire alarm and fire protection systems. The funding below will allow the Building Department to address the recommendations in the study to properly maintain and upgrade these systems

FY 21	$350,000	Unified Arts Building
FY 22	$400,000	Heath School
FY 23	$450,000	Phys. Ed. Building
FY 24	$500,000	Eliot Recreation Center
FY 25	$550,000	Swimming Pool
FY 26	$600,000	Health Building
FUTURE	$650,000	Senior Center
	TBD	Lawrence School
	TBD	Public Safety Building
	TBD	Baker School
	TBD	Pierce School
	TBD	Pierce Primary
TOTAL	$3,500,000	

High School Interior Improvements

These monies would be used on those parts of the High School Building that are not part of the renovation.

Work would include new flooring, painting, ceiling tiles, window treatments and other interior improvements.

There are 115 classrooms presently in use at the High School. At approximately 1,000 sq. ft. per room – (115,000 sq. ft. total). Approximately 30,000 sq. ft. would be support areas, hallways, etc. Using sq. ft. units costs based on present costs.

Please see list below

	High School		Proposed
1	Painting is major parts of the building		$450,000
2	Mezzanine and Fitness Center Improvements		$15,000
4	Hallway area by Café, replace flooring		$14,725
5	Schluntz Gym - install carpet tiles at entrance		$7,450
9	Ramp 3A - install new rubber tiles		$5,555
11	Room 350 - install new sheet vinyl		$17,276
12	Room 342 - install new sheet vinyl		$16,625
14	3A ramp - near, install new rubber tiles		$6,100
15	UA 11 - modify dust collection system		$25,000
16	Install ac in auditorium		$400,000
17	Install ac in café		$100,000
18	Replace door to gym 2, change door direction		$4,500
19	Replace door to gym 1, open away from closet		$4,500
20	Extend Lowell Rd loading dock another 10 ft. widen door		$20,000
21	Install slop sink in women's room near 124		$10,000
22	Build out old trophy cases in Schluntz Gym		$25,000
23	Replace doors/frame dr 25		$6,500
24	Replace door sets 46/47		$6,500
25	Replace door sets 48/49		$6,500
26	Replace door in café overflow		$4,200
27	Replace door set 44/45		$6,000
28	Remove flagpole from side of building in quad		$3,000
30	Replace Lockers in PE building		$35,000
31	Replace Ramp Treads by room 274		$12,500
32	Replace Ramp Treads by Schluntz (Nurse's office side)		$15,000
36	sq. ft.	floor	$2,443,750
37	sq. ft.	window treatment	$275,000
38	sq. ft.	white boards	$93,000
39	sq. ft.	toilet	$750,000

40	sq. ft.	science room	$587,000
41	Add AC to ten rooms		$150,000
			$5,515,681

Plan/Specs

FY 21		$400,000
	TOTAL	$400,000

Construction

FY 21		$5,000,000
FY 22		$5,000,000
	TOTAL	$10,000,000
	TOTAL	$10,400,000

School Rehab/Upgrades

This is an on-going town-wide program for the repair and upgrade of School facilities in between major renovation projects. Items funded under this program include large scale painting programs, new flooring, ceilings, window treatments and toilet upgrades. This program avoids more expensive rehabilitation that would be necessary if these items were left to deteriorate.

FY 21	$200,000	List of School Building – Matt Gillis
FY 22	$225,000	
FY 23	$250,000	
FY 24	$275,000	
FY 25	$300,000	
FY 26	$325,000	
FUTURE	$350,000	
TOTAL	$1,925,000	

Solar/Renewable Energy- Installation and Replacement

These monies would be used to replace the existing solar panel systems that have been installed at the Putterham Library and Health Department. Also, new solar systems would be installed.

The existing systems are 15 years old. Their life span is expected to be 20 years. Existing conduit, wiring and supports will be reused. Newer controls, convertors and more efficient solar panels would be installed, in kind. (FY26)
Estimates of 50% more efficient have been reviewed.

New solar panels would be installed at various sites:

Coolidge Corner School
Heath School
Runkle School
Phys Ed Building
Main Library

FY 21	$1,500,000	Coolidge Corner School
FY 22	$1,500,000	Heath School
FY 23	$1,500,000	Runkle School
FY 24	$1,500,000	Phys. Ed. Building
FY 25	$1,500,000	Library - Main
FY 26	$2,500,000	Health Building
FUTURE	$2,500,000	Library - Putterham
TOTAL	$12,500,000	

Sustainability Migration Remediation

These funds would be used to primarily replace the larger, more expensive parts up to and including the entire unit for air conditioners, HVAC equipment and chillers.

A majority of the money would be used for ac compressor replacements. There are presently 253 permanent air conditioning systems in both Town and School buildings. Their sizes range from 2 tons to over 100 tons. The equipment age goes from 1975 up to 2019, with 100 units 10 years or older. In present day prices, it would cost approximately $ 1,750,000 to replace only the compressors and associated equipment in these 112 HVAC units.

Typically, air conditioning compressors last only 5 - 10 years. Depending on the size, costs can range from $3500 to $150,000. Instead of being proactive, there is presently a reactive response when there is a failure, usually in very hot weather. The cost to repair is bourne out of the operations and maintenance budget. However, with the large increase in installations of AC equipment over the years, the O&M would not be able to handle a large cost such as this.

Over the last 10 years, the amount of air conditioning has tripled - as has costs. The plan would be to do upgrades in the off season, based on age and conditions.

Instead of replacing these units with air conditioning units, the plan would be to install heat pumps instead. The upcharge for heat pumps is relatively minimal. The benefit would be better localized control for heating in the space(s) and through modifications of the energy management systems controls, the units can be run into the cold winter months to reduce our gas usage.

The monies would also be used to replace gas fire equipment with no fossil fuel equipment in all buildings which would include hot water and heat.
This would allow a start to achieve zero emissions by 2050. Emissions would be reduced over a number of years.

The first to be replaced would be gas fire hot water heaters with hybrid electric hot water heaters. Then phase in heat pumps units.

FY 21	$300,000
FY 22	$350,000
FY 23	$400,000
FY 24	$450,000
FY 25	$500,000
FY 26	$550,000
FUTURE	$600,000
TOTAL	$3,150,000

Sustainability/Feasibility Long Term Planning

The purpose of these funds would be to hire a consultant/firm to look at all town and school buildings and develop a long term sustainability plan, phasing and complimenting that plan with other existing (or new) other CIP projects.

The primary goal would be to reduce and eliminate emissions, greenhouse gases and our overall carbon intensity in all the buildings by 2050. Carbon neutrality would also be reviewed. There would also be planning put in place beyond the 2050 goal. To maximize the long term benefits, planning would be put into place for building modifications. Budgets would be prepared to include capital costs, operational costs and maintenance costs, plus ROI. This would also include future costs.

Some of the ways this could be achieved are through new HVAC equipment (Heat Pumps/Wells), renewables (solar, geothermal, wind), power purchasing agreements, purchasing renewable energy credits, electricity supply be procured such that the energy would be 100% clean, investment in energy conservation and modifications of existing CIP programs (roofing, windows, HVAC, up to and including renovations).

By having this long term road map, with a written policy, staff can better prepare, plan and budget for long term projects.

The scope of work would include but not limited to:

Review of all energy usage on a building level.

<u>Feasibility</u>

FY 21		$250,000
	TOTAL	$250,000

Town/School Building – ADA Renovations

This annual program of improvements is requested in order to bring Town and School buildings into compliance with the Americans with Disabilities Act (ADA), which requires that the Town make public buildings fully accessible to all.

FY 21	$80,000
FY 22	$85,000
FY 23	$85,000
FY 24	$90,000
FY 25	$90,000
FY 26	$95,000
FUTURE	$95,000
TOTAL	$620,000

Town/School Building - Elevator Renovations

The Town presently has 47 elevators, LULAs, and wheelchair lifts throughout all the building.

When a building is renovated, most elevators are upgraded (new controls, motors, cables, refurbishment of the car, etc.). Some elevators are also partially upgraded to meet the requirements of the existing building codes.

The buildings that have not been renovated have elevators that are close to 30 years old. Maintenance is an issue and parts are increasingly difficult to find. The elevator's controller is basically a computer. The controller needs to be upgraded or replaced as technology progresses and older technology is not supported. This project would upgrade those cars and lifts with new equipment.

In addition to this an elevator is typically completed modernized every 20-25 years. Modernization typically includes all new controllers, safety equipment, doors, cables, motors, pumps and related equipment. Based on a rough estimate of costs and time, if one elevator per year was addressed of the present allotment of elevators and that elevator is either upgraded and/or modernized, the costs would be over $15,000,000 and take 46 years.

On schedule and presently fully funded is the modernization of the elevators and the UAB and Lynch Rec Center.

Future elevators on the schedule include:

	Age
Pierce (SEC) (On hold pending renovation plans)	24
Municipal Garage	22
Water Department	20
Baker School	18
Senior Center	18
Soule Recreation Center	18
Putterham Golf Course	17
Driscoll	17
Main Library	16
Public Safety Building	16
Health Building	16
Lawrence School	15
Old Lincoln School	14
Eliot Recreation Center	12
Runkle School	7
Heath School	7
Town Hall	2
New Lincoln School	2
Coolidge Corner School	1

All elevators at the High School would be addressed during a renovation.

			Age
FY 21	$100,000	Municipal Garage	22
FY 22	$150,000	Water	20
FY 23	$200,000	Baker	18
FY 24	$250,000	Baker	18
FY 25	$300,000	Senior Center	18
FY 26	$350,000	Soule Recreation Center	18
FUTURE	$3,300,000		
TOTAL	$4,650,000		

Town/School Building - Energy Conservation

It is imperative that monies be invested to decrease energy consumption in Town and School buildings. Programs include, but are not limited to, lighting retrofit and controls, energy efficient motors, insulation, and heating and cooling equipment. In addition, water conservation efforts are explored. This program augments existing gas and electric utility conservation programs along with Green Communities Grant Funding.

Most recent work includes retrofitting all lighting in all buildings to LEDs. LEDs have a lifespan of upwards 10 years.

Another investment has been with variable frequency drives (VFDs). These VFDs control the speed of motors for pumps and fans. They slow the motor down using inputs from the energy management system based on the needs of the space.

FY 21	$190,000
FY 22	$195,000
FY 23	$200,000
FY 24	$205,000
FY 25	$210,000
FY 26	$215,000
FUTURE	$220,000
TOTAL	$1,435,000

Town/School Building - Energy Management System

This project is to upgrade the energy management systems in Town and School buildings. Existing (new) systems now date back 13 years. The work would include software upgrades, servers (virtual or box) field panel controller replacements and software upgrades of those controllers, NAE replacements and various other control related equipment. EMS support and programming of software would also be included. The Building Department will continue to work with the Information Technology Department on these projects.

FY 21	$465,000
FY 22	$205,000
FY 23	$180,000
FY 24	$260,000
FY 25	$205,000
FY 26	$170,000
FUTURE	$215,000
TOTAL	$1,700,000

Town/School Building - Envelope/Fenestration Repairs

In FY12, $250,000 was appropriated for costs associated with repairs to the outside envelope of all Town and School buildings, including a visual inspection of the exterior of all buildings that will help prioritize these repairs. The outside envelope of facilities includes masonry, bricks and mortar, flashing, dental work, coping stones, metal shelves, and tower work. Some of these structures are over 100 years old and have never had exterior work done to them. A number of buildings have windows, door entrances, and other wall openings (fenestration) that are in need of repair/replacement. This causes water to penetrate into buildings behind walls and ceilings, causing security and safety problems. Also included in this program is any required chimney inspection and repairs, if appropriate, or the installation of new metal liners to connect to the gas burning equipment in the building.

A master plan was prepared by a consultant and includes a priority list and schedule and that calls for $27.45 million over a 30-year period.

Added to this plan is the replacement of the Old Lincoln retaining wall and support structures. The work must be completed in the next 5 years at an estimated cost of $1,240,000 The schedule has been reassessed by the Building Department and accounts for prior year savings with $6.35 million required within the six-year period of this FY21 – FY26 CIP. Facilities addressed within this time frame include the following:

At the Old Lincoln School there is a large retaining wall that surrounds the property. This wall has in recent years, started to noticeably move. CBI Consulting was contracted to review the existing conditions and status. It is their recommendation that the wall is safe but must be addressed within the next 5 years. They also felt that drainage at the plaza level must also be addressed. There is a substantial cost for this work.

FY 22	$700,000	Fire Station 4, Larz Anderson Toilets, New Lincoln
FY 23	$1,250,000	Lawrence, Old Lincoln, Heath
FY 24	$1,400,000	Health, Lynch, Pierce, Town Hall
FY 25	$2,000,000	Phys. Ed. Building, Old Lincoln
TOTAL	$5,350,000	

Town/School Building - Roof Repair/Replacement Program

A master plan for repair and replacement of roofs on all Town and School buildings was prepared by a consultant. The plan includes a priority list and schedule and calls for $29.3 million over a 20-year period. The schedule has been reassessed by the Building Department and accounts for prior year savings with $5.5 million required within the six-year period of this FY20 – FY25 CIP. Facilities addressed within this time frame include the following:

FY 21	$1,310,000	Heath, Skating Rink, Pierce Primary, New Lincoln
FY 22	$1,610,000	Lawrence
FY 23	$720,000	Lawrence
FY 25	$1,800,000	Municipal Service Center, Phys. Ed. Building
TOTAL	$5,440,000	

Note: Final List, due to recent upcoming projects may change based on funding and projects applicability.

Town/School Building - Security/Life Safety Systems

Over the last number of years, several large capital projects have been undertaken that included security improvements in Town and School buildings. This program will extend the effort and improve areas where security may be lacking. In general, the plan calls for making all doors around the perimeter of a building more secure by replacing the doors, frames, door handles, and locks with electronic locks that may only be opened with a keypad and/or on a specific schedule. Only the front main entrance of the building would allow for general access. At the front door, a speaker and doorbell will be added to connect to the building's existing intercom or phone system for use by visitors. The lighting around each building will be improved and placed on a timer. A small camera system connected to a computer will be added at the main entrance to monitor access to the building.

School buildings will be a priority.

These funds would also be used to continue the on-going process of replacement and installation of new and upgraded burglar alarms, camera systems and keycard systems.

FY 21	$425,000
FY 22	$375,000
FY 23	$400,000
FY 24	$400,000
FY 25	$400,000
FY 26	$400,000
FUTURE	$400,000
TOTAL	$2,800,000

Underground Oil Tank Removal

These funds would be used to remove underground fuel oil tanks, some almost 25 years old. The tanks came with a 30 warranty. There are 26 tanks at various school and town sites.

New tanks would be installed inside of the buildings (1000 gallon or less) to replace larger (5000-15000 gallon) tanks. Also small 275 (typically) gallon tanks would be replaced with new tanks of the same size.

The boilers are set up for dual fuel. There is no reason to remove and replace the boilers or burners as they function well. By installing a small, above ground tank, inside, we can have the back up function of using oil to heat the buildings in case of an emergency or gas shortage.

Some funding may come from the Underground Storage Tank (UST) state fund. It is estimated that 50% of the costs would be reimbursed for the tank removals. Typical costs for tank removals would be in the $50,000 range. If the tank leaks, the costs could be up to 10 times this amount.

FY 21	$100,000	Old Lincoln School, Baldwin
FY 22	$100,000	Unified Arts Building (High School)
FY 23	$100,000	Baker School, Driscoll School
FY 24	$100,000	Heath school, Town Hall
FY 25	$100,000	Health Building, Main Library
FY 26	$100,000	Public Safety, Lawrence School
FUTURE	$200,000	Putterham Golf, Pierce, Runkle
TOTAL	$800,000	