



THE PUBLIC SCHOOLS OF BROOKLINE
BROOKLINE, MASSACHUSETTS
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Meeting Notice
Driscoll School Building Advisory Committee Meeting

Meeting Date: Friday, October 1st 2021
9:00am – 10:30am

Access the Meeting:

Log on: <https://brooklinema.zoomgov.com/s/1604340147?pwd=N0dSRW15djRwRkU1NDJmRVo2eXJrdz09>
Passcode: P5qwr21N
Call In Number: +1 669 254 5252
Webinar ID: 160 434 0147
Access Code: 77688302

Agenda:

1. Approval of SBAC Meeting Minutes – May 20, 2020
2. Construction Update
 - 3 Week Look Ahead
 - Progress Photos
3. Geothermal Update
4. Upcoming Meetings
 - Building Commission Meeting – October 12, 2021, 6:00 PM

To receive meeting notifications, please sign up and select Driscoll School Building Committee.
<https://www.brooklinema.gov/list.aspx>

DRISCOLL ELEMENTARY SCHOOL – BROOKLINE, MA	MEETING MINUTES DRAFT
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DRISCOLL SCHOOL BUILDING ADVISORY COMMITTEE		May 20, 2020
Location:		Online GoToMeeting
Time:		7:30 AM
Name	Assoc.	Present
Susan Wolf Ditkoff	Town of Brookline, Co-Chair SBS, PSB	Y
Heather Hamilton	Town of Brookline, Co-Chair SBC, TOB Board of Selectmen	Y
Karen Breslawski	Building Commission	N
Ken Kaplan	Town of Brookline, Building Commission	Y
David Pollak	Advisory Committee	Y
Ali Tali	Transportation Board	N
Nancy O'Connor	Parks and Recreation Commission	Y
Dan Deutsch	Community Representative	Y
Victor Kusmin	Community Representative	Y
Linda Monach	Community Representative / Special Education Parent Advisory Council	Y
Arjun Mande	Community Representative	Y
Lakia Rutherford	Parent Representative / METCO	Y
Sara Stoutland	Community Representative	N
Mel Kleckner	Town Administrator	N
Dr. Jim Marini	Interim Superintendent of Schools	N
Matt Gillis	Director of Operations	Y
Michelle Bartley	Driscoll School Vice Principal	N
MaryEllen Normen	Deputy Superintendent for Administration and Finance	Y
David Youkilis	Interim Driscoll School Principal	N
Helen Charlupski	School Committee	N
Tony Guigli	Project Manager, Town of Brookline	Y
Dan Bennett	Building Commissioner	Y
Charlie Simmons	Director of Public Buildings	Y
Jim Rogers	LEFTFIELD	Y
Lynn Stapleton	LEFTFIELD	Y
Jen Carlson	LEFTFIELD	Y
Matt Casey	LEFTFIELD	Y
Adam Keane	LEFTFIELD	Y
Jonathan Levi	Jonathan Levi Architects	Y
Philip Gray	Jonathan Levi Architects	Y
Carol Harris	Jonathan Levi Architects	Y
Walt Kincaid	Gilbane Building Company	Y
Lynda Callahan	Gilbane Building Company	Y
Robert Braga	Gilbane Building Company	N

The meeting was called to order at 7:30 AM.

The April 1, 2020 meeting minutes were approved by the SBC contingent upon a change suggested by Nancy O'Connor to add commentary she made after a member noted the building is a permanent structure and should take priority over the landscape that has the ability to change over time. She

followed the comment with an explanation on the thorough public process that led to the current site design and that the school's park and playground amenity should not suffer as a result of any value management changes to the project as it is a community amenity.

Leftfield provided an update on the project, explaining that the first round of bids came in \$5.6 million over budget. To get the scope back in line with the budget, the team made some changes to the exterior of the building. The changes were presented to the planning board.

Jonathan Levi Architects provided an update on changes made to the building design. JLA briefly reviewed the value management changes previously decided on by the SBC that have since been made by the project team. The building's educational program was not affected by the updates, and the building continues to be Fossil Fuel Free as the Brookline mandate dictates.

JLA explained that the open pagoda on the west side of the plan was removed and replaced with a series of tables. The 150 new trees proposed for the site were maintained. Changes planned were reviewed in depth with the park and recreation department to ensure standard practices were followed and that the site could still easily be maintained. JLA is confident that the overall concept of the landscape of the building remains intact.

JLA presented visuals of the changes to the exterior of the building that were submitted to and accepted by the Planning Board. Of note are the deletion of the sunshades at the Washington Street side of the building which will be replaced by banners, the shortening of the building by 2 feet, and the removal of the trellis and terrace at the media center balcony. At the Washington Street entrance to the building, there was a glass canopy that was removed from the project – there is an overhang in that location regardless.

JLA noted that the Planning Board decided that the changes were minimal enough that the approval process did not require an additional meeting. Leftfield emphasized that the changes did not affect the educational program or the Fossil Fuel Free aspect of the building.

A member of the committee asked to confirm that the project no longer includes the geothermal wells. It was confirmed. The member asked if the synthetic turf field was maintained through the VM process, this was also confirmed.

A member of the committee asked if there are shades for light control on the interior of the building in lieu of the exterior sun shades that were eliminated from the project. This was confirmed.

Leftfield provided an update explaining that the project went out in the middle of February for the middle of bidding with bids coming back in \$5.6 million over budget. To ensure the project came back within budget in a second round of bidding, the project team identified \$7 million in value management opportunities. Of that \$7 million, \$1.6m was realized in filed sub bid category with \$2.8m with non-filed sub bid categories. It was noted that the target for filed sub bid trades was \$2m savings and the target for non-filed sub savings was \$5m. The project still was \$1.6m over the budget target, but there have been soft costs that were identified that could be moved around to ensure the uptick in bidding can be absorbed by the budget.

Leftfield presented the Total Project Budget as it relates to hard and soft costs. The original soft costs for the project were \$22.4m, with hard costs totaling \$92.9m. The project team is proposing that of the soft costs are reclassified as hard costs resulting in \$21.1m in soft costs and \$94.2 in hard costs for the project. Leftfield explained the budget line items that changed in order to allow for this increase in construction cost. Given there are not a lot of soft cost unknowns at this stage in the project, the team felt comfortable reclassing some of the owner's contingency line to cover the change in budget. The sum of the reclasses totaled \$1,255,201, which allows the project to move forward. Leftfield noted that there are two contingencies on the project, the owner's contingency and the construction contingency that total around 6% when combined. It was noted that this is beyond what is typically carried at this stage in the process.

Leftfield explained that the GMP contingency and construction contingency are two different budgets – GMP contingency is carried by the CM while construction contingency is part of the owner's contingency that covers construction issues that may arise in the way of change orders.

A member of the committee noted the volatility of the construction market at the moment, based on his professional experience. He asked if the Town and Gilbane are comfortable with the proposed budget number. Gilbane responded that the \$94m that the project team is driving towards will cover the bids received to date. Once Gilbane is authorized to proceed, they will lock the pricing in with their subs via contracts.

Leftfield provided a schedule update as it relates to next steps. The GMP is expected to be issued for approval on Monday, May 24th and a small group will meet with the team on Tuesday morning to review the draft. On May 26th the team will meet with the Building Commission and School Committee and then will follow up to meet with the Select Board. Once approval is obtained, Gilbane will begin executing contracts with their subcontractors to lock in pricing. This timeline will get the project to a construction start date of June 15th which allows for a September 2023 open date for the new school.

Tony Guigli, the Project Manager for the Town Building Department noted that the project team has done an excellent job getting the project to this point. If the SBC is satisfied with the presentation, then the team will move forward to present to the three boards for approval.

Nancy O'Connor motioned that the SBC approves sending the project forward to the Building Committee, School Committee and Select Board for consideration and approval in signing the GMP. Arjun Mande seconded. The motion passed unanimously.

The meeting was adjourned at 8:25am.

Driscoll School - Gantt Project Report

Plans: All Plans Selected

Start Date: Wednesday September 29 2021

Roles: All Roles Selected

End Date: Thursday October 21 2021

Locations: SOE/ Drain Selected (Including Location-less tickets)

Task Description	Days	Crew Size	Planned Start	Planned Finish	Actual Start	Actual Finish	Project Role	Week Of Wed Sep 29					Week Of Wed Oct 06					Week Of Wed Oct 13					Week Of Wed Oct 20						
								29	30	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Ready for Steel ⚡	276		2021-06-12	2022-03-14				8	8	12			14	18	16	16	18			18	16	16	18	18			16	16	16
Additional LSP Review	36	0	2021-08-12	2021-10-01			Derenzo																						
Shotcrete 0-5	10	4	2021-09-22	2021-10-05			Derenzo																						
Set up & Maintain Dewatering	50	4	2021-09-29	2021-12-09			Derenzo																						
Drill SNs 0-5	5	4	2021-10-01	2021-10-07			Derenzo																						
Preload BLDG SN 0 - 5	2	2	2021-10-04	2021-10-05			Derenzo																						
Shotcrete 5-10	6	4	2021-10-05	2021-10-12			Derenzo																						
BASEMENT CUT 5-10 for SOE	6	4	2021-10-06	2021-10-13			Derenzo																						
Drill SNs 5-10	6	4	2021-10-08	2021-10-15			Derenzo																						
Preload BLDG SN 5-10	2	2	2021-10-08	2021-10-11			Derenzo																						
<i>Need Final LSP Review - Chicopee/Fitchburg</i>			2021-10-13	2021-10-13			Derenzo																						
Shotcrete 10-15	6	4	2021-10-13	2021-10-20			Derenzo																						
BASEMENT CUT 10-15	5	4	2021-10-14	2021-10-20			Derenzo																						
Preload BLDG SN 10-15	2	2	2021-10-14	2021-10-15			Derenzo																						
Drill SNs 10-15	6	4	2021-10-18	2021-10-25			Derenzo																						
Crew Size By Role								Week Of Wed Sep 29					Week Of Wed Oct 06					Week Of Wed Oct 13					Week Of Wed Oct 20						
			Total	Complete	Promised Incomplete	Remaining	Project Role	29	30	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
			244	0 (0%)	156 (64%)	88 (36%)	Derenzo	8	8	12			14	18	16	16	18			18	16	16	18	18			16	16	16

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Italic indicates a constraint.



Michael Driscoll School Progress Photos



Ground Ceremony held September 13, 2021



Drill rig installing wells for Dewatering to support the Support of Excavation



Drill rig installing Piles
at SE Corner as part of
the Support of
Excavation



First 5' excavation



Spraying Shotcrete in preparation for Soil Nails all part of the Support of Excavation

Re-Adding Ground-Source Heat Pumps to the New Driscoll School Project

— STM3 - October 5, 2021 —
Warrant Article 2

Updated 10/3/2021

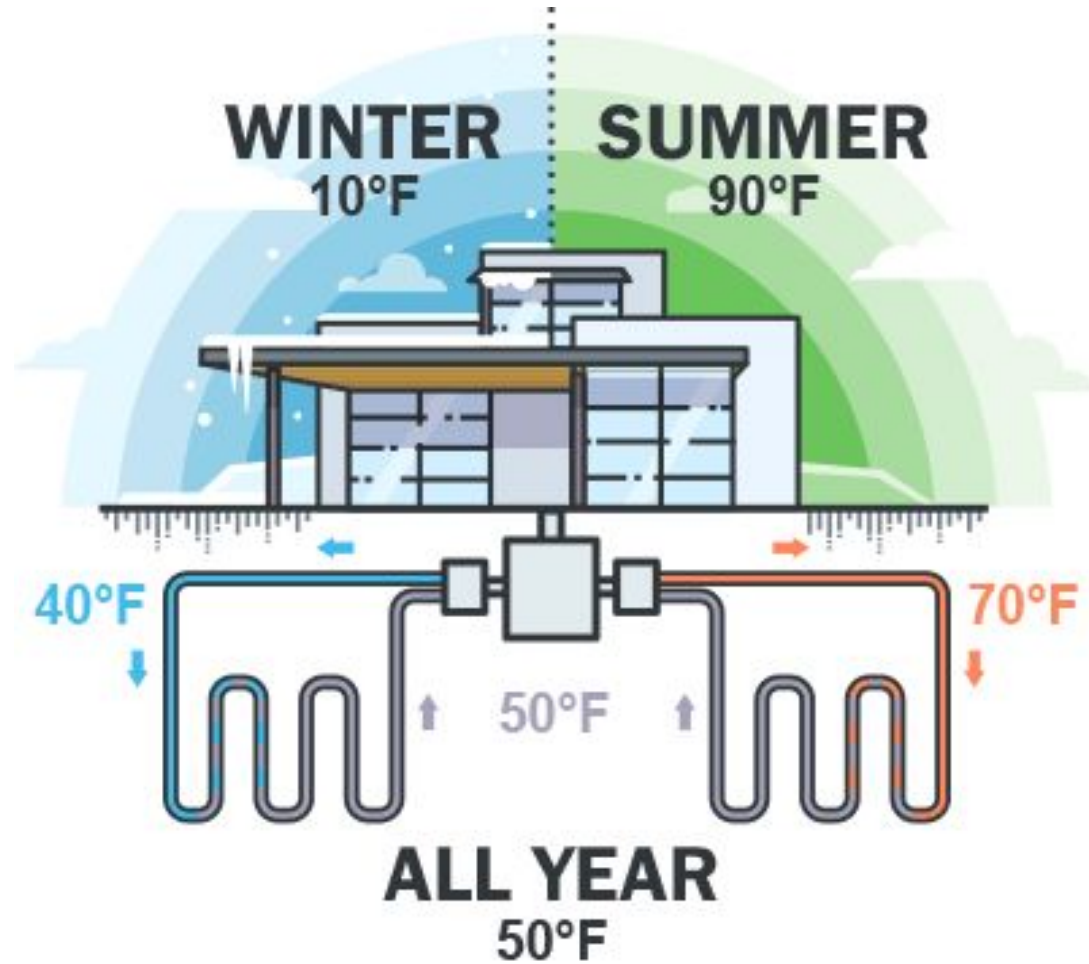
Why We Should Vote Yes on WA2

- For an **added investment of \$4.8 million**, we can change the heating and cooling system of the new Driscoll from air-source heat pumps (ASHP—the current Base Bid) to **ground-source heat pumps (GSHP)**
- This change is projected to **cut the building's electricity consumption by 25%** each year and **cut its monthly demand by up to 87%**—significant improvements in carbon emissions and sustainability
- This change is **expected to pay for itself (and more)** over the building's expected useful lifespan—potentially up to 4x, and offset debt payments
- **Now is our only chance** to make this investment

In sum: to reduce BOTH cost AND carbon emissions over the project's life span!

What is a GSHP?

- A Ground-Source Heat Pump uses electricity to move heat between building and ground.
- It operates like an air conditioner or freezer.
- Heats and cools a building in a highly efficient manner.
- Relies on moderate ground temperature



The Up-Front Investment

- **Add \$4,779,293 to project cost**, with **no material delay** expected in project completion timing (might add ~1 month to field readiness)
 - Driller cost = \$2.96mm
 - Added sitework = \$621k
 - Added HVAC equipment = \$373k
 - Added plumbing work = \$63k
 - Mark-ups (10% sub, insurance, etc.) = \$438k
 - Save \$8,000 in electrical work
 - Added design cost = \$30k
 - Added contract allowance costs = \$50k
 - Contingency = \$250k

The Direct Economic Pay-Back

- **Somewhat lower projected maintenance costs:** ~5% reduction (~\$3k per year in current dollars, but grows over time with inflation)
- **Materially lower projected capital replacement costs:** ~60% reduction (~\$36k per year in current dollars, but grows over time with inflation)
- **Markedly lower projected electricity costs:** ~52% reduction (~\$246k per year in current dollars, but grows over time with inflation)
- **Reduced electricity price risk:** Price risk on the electricity *not purchased* is altogether eliminated
- **Potentially adds a revenue stream:** sale of Alternative Energy Certificates (AECs), should the Town decide not to retain them

Who Ran the Numbers?

- Garcia Galuska DeSousa Consulting Engineers (GG&D) projected the electricity usage and demand figures.
- The project team, led by Jonathan Levi Architects and Left Field LLC, projected the maintenance and capital repair/replacement savings.
- Deputy Town Administrator Melissa Goff provided the bond financing schedule.
- Scott Englander TMM-6 refined the electricity cost and savings analysis, and the project team's numbers are now in agreement.
 - Scott is a career energy consultant who advises clients in electricity market economics, regulatory policy, and energy procurement

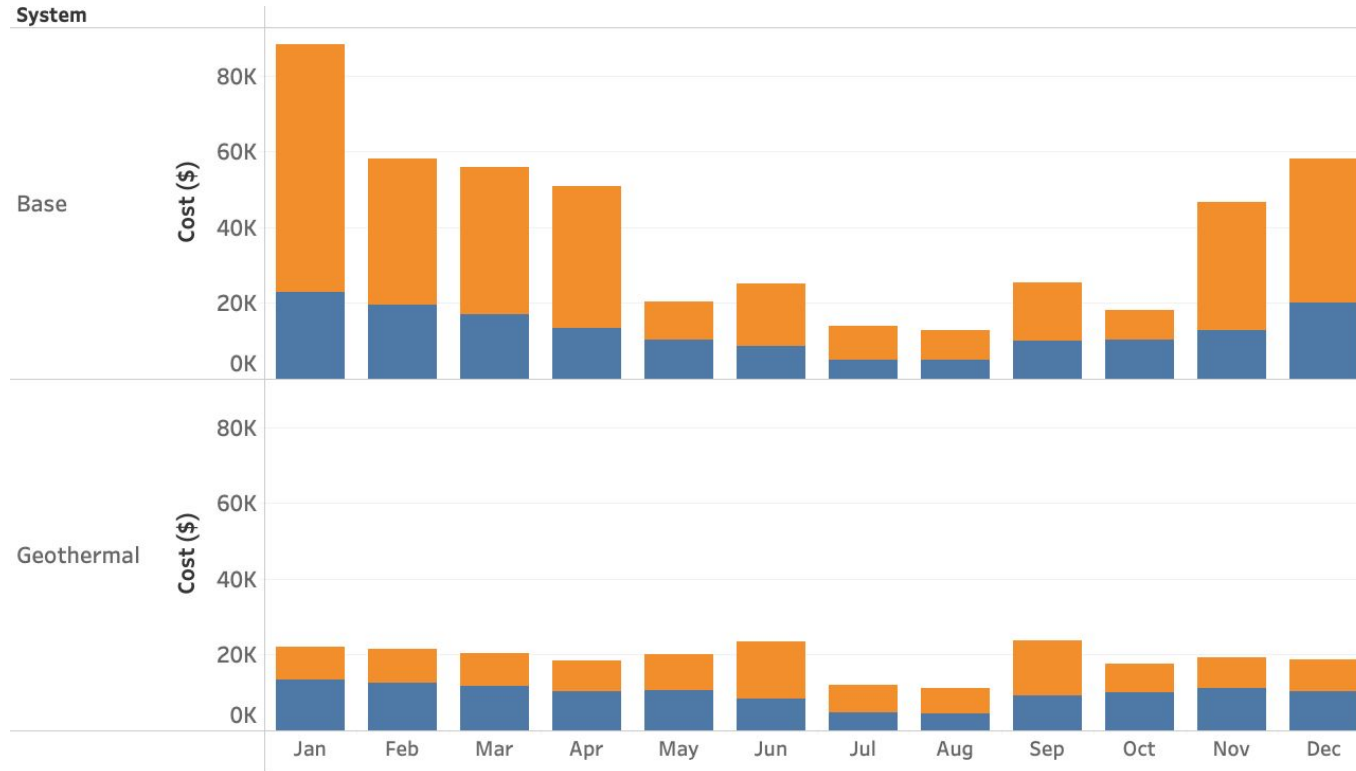
Projected Difference in Annual Electricity Demand

Month	Electricity Consumption (kWh)			Electricity Demand (kW)		
	Base	GSHP	Savings	Base	GSHP	Savings
January	183,271	107,365	75,906	2,840	374	2,467
February	155,626	101,340	54,286	1,681	378	1,303
March	135,834	94,010	41,824	1,689	369	1,319
April	108,048	83,575	24,473	1,615	347	1,268
May	82,853	83,977	-1,124	433	421	12
June	70,209	66,422	3,787	505	474	31
July	41,208	37,205	4,003	274	230	43
August	39,242	35,333	3,909	247	207	40
September	80,937	74,708	6,229	475	448	28
October	81,918	80,068	1,850	340	328	12
November	103,332	89,852	13,480	1,461	349	1,112
December	160,823	83,396	77,427	1,654	359	1,294
Total / Average	1,243,301	937,251	306,050	1,101	357	744

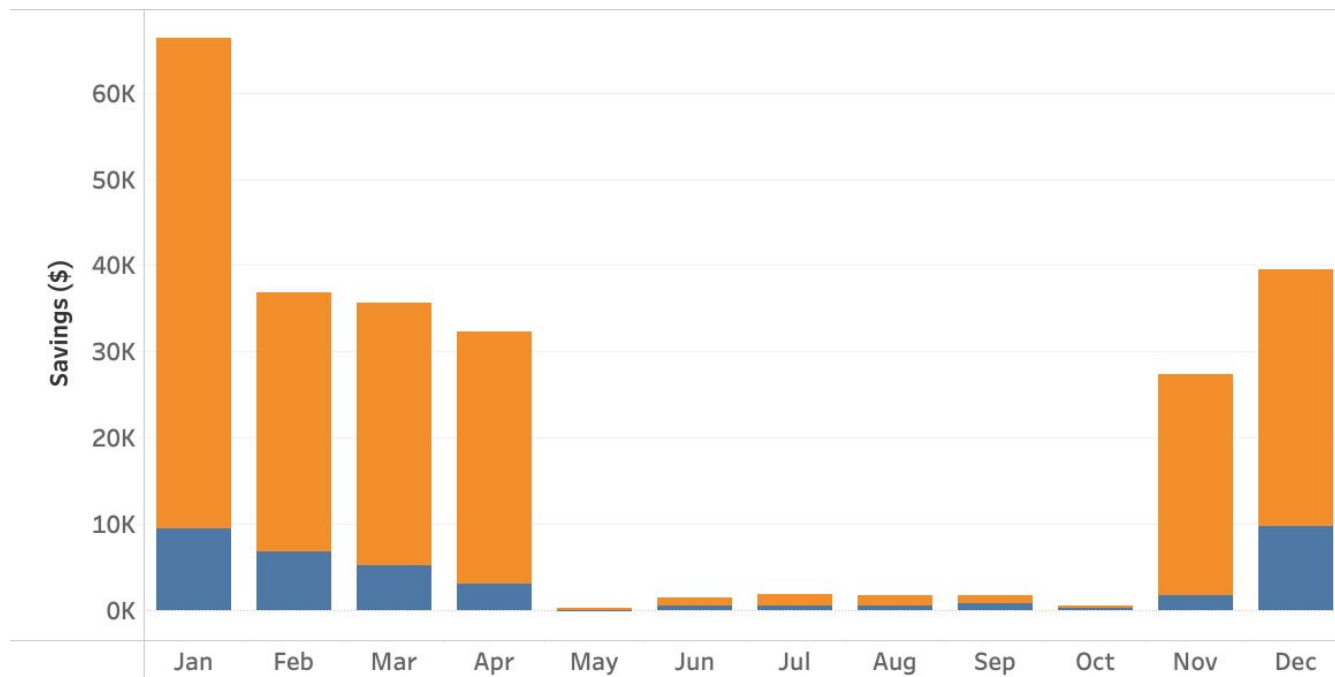
Today's marginal emissions rate for New England generation: 0.719 lb CO₂/kWh →

Switch to GSHP could **eliminate 108 metric tons of CO₂ emissions per year** at today's emissions rate

Driscoll Projected Electricity Costs by Component



Projected Electricity Cost Savings for GSHP



Cost Component

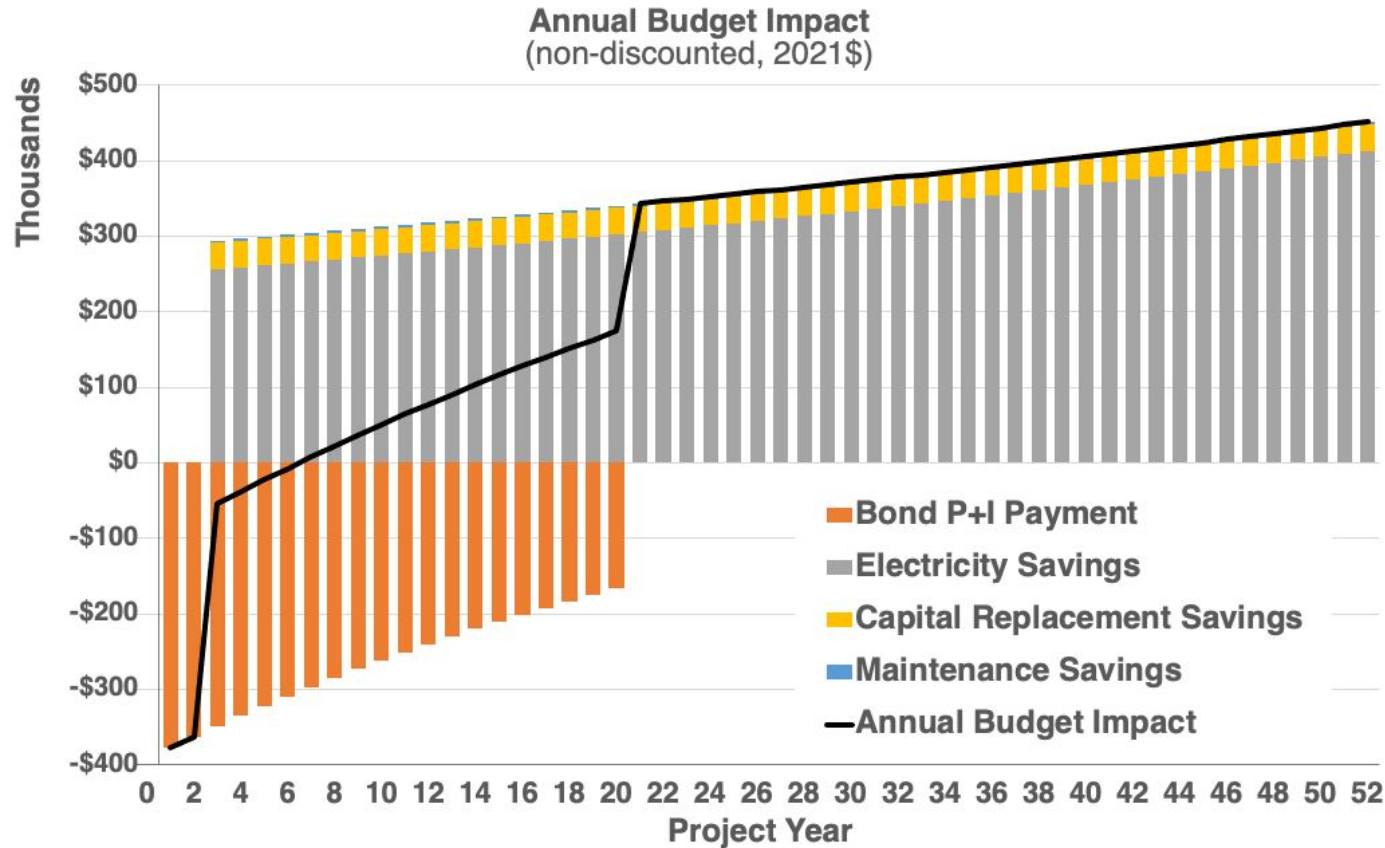
- Demand Cost
- Energy Cost

Bonding the Capital Cost Makes The Right Choice Even Clearer

Project Year	Bond P+I Payment (3.0% int.)	Total Annual Projected Savings	Annual Budget Impact	Cumulative Budget Impact	Discounted Annual Impact (3.0%)	Discounted Cumulative Impact
1	\$384,000	\$0	-\$384,000	-\$384,000	-\$372,816	-\$372,816
2	\$376,800	\$0	-\$376,800	-\$760,800	-\$355,170	-\$727,986
3	\$369,600	\$312,234	-\$57,366	-\$818,166	-\$52,498	-\$780,483
4	\$362,400	\$321,196	-\$41,204	-\$859,370	-\$36,609	-\$817,093
5	\$355,200	\$330,419	-\$24,781	-\$884,151	-\$21,376	-\$838,469
6	\$348,000	\$339,910	-\$8,090	-\$892,241	-\$6,775	-\$845,244
7	\$340,800	\$349,677	\$8,877	-\$883,363	\$7,218	-\$838,026
8	\$333,600	\$359,729	\$26,129	-\$857,234	\$20,627	-\$817,399
9	\$326,400	\$370,074	\$43,674	-\$813,560	\$33,473	-\$783,927
10	\$319,200	\$380,720	\$61,520	-\$752,040	\$45,777	-\$738,150
18	\$261,600	\$477,859	\$216,259	\$421,796	\$127,030	\$12,476
19	\$254,400	\$491,650	\$237,250	\$659,046	\$135,300	\$147,776
20	\$247,200	\$505,844	\$258,644	\$917,690	\$143,205	\$290,981
21	\$0	\$520,452	\$520,452	\$1,438,142	\$279,768	\$570,749
25	\$0	\$583,281	\$583,281	\$3,674,758	\$278,578	\$1,686,833
50	\$0	\$1,192,882	\$1,192,882	\$25,273,003	\$272,105	\$8,563,854
75	\$0	\$2,451,073	\$2,451,073	\$69,567,789	\$267,033	\$15,297,967

- Annual projected savings exceed annual debt service around Y7-Y8
- Cumulative break-even reached around Y16-Y18
- Discounted value of cumulative impact over 75 years is roughly \$15 million in the Town's favor!
- Sale of AECs *not* included here-- would add more revenue, speeding break-even point and increasing total long-term value

GSHP Investment Would Start to Pay for Itself Within a Few Years and Would Save the Town Money for Decades



How We Will Pay the Debt Service

1. **Very small increase in tax bills:** Town will seek MA Dept of Revenue approval to cover this additional amount under the December 2019 debt exclusion vote for the Driscoll project (adding ~4% to total debt-excluded amount)
2. If MA DOR were to reject that request, **out of annual operating budget/CIP**
 - a. Projected operating/capital repair/replacement savings will offset after first few years
 - b. Select Board would also have the option of putting a further debt exclusion question to voters
3. Also **possible** that further federal infrastructure \$\$ may become available, but we are **not** relying on that

This Change Will Not Hinder Project Completion

- Change back to GSHP right now will not delay building completion, and will only push back field readiness by ~1 month, per project team
- Given specific nature of this change, project team is not worried about this change causing other problems in the design and construction
- But this is our last realistic chance--making this change later would cost much more and likely raise much bigger delay/second impacts issues

Let's Not Forget the Major Climate Pickup

- Projected 25% reduction in electricity consumption and up to 87% monthly demand reduction every year over the the service life of the school
- Considerable demand savings occur during the coldest weather, when natural gas supplies are tight and polluting diesel generators are running to meet peak electricity demand
- Lowest-impact way to provide effective indoor cooling for the community as climate change continues to increase the severity and frequency of summer heat waves

Could Brookline Get More Carbon Reduction/Climate “Bang for Our Buck” By Using These \$\$ Elsewhere?

- Wrong question (respectfully)
- As shown above, this is a carbon reduction investment that is reasonably projected to **cost us nothing** over the long term—indeed, to **save us more \$\$ than it costs**.
- This is the **only** opportunity we’ll have within a meaningful timeframe to make this decision for the Driscoll School—it won’t be feasible or economical to retrofit a geothermal system in the next year, in 5 years, or in 15 years
- That aside, how much carbon emissions reduction is enough? When have we done enough? Are we even close to that point now? **Given the immediacy and enormity of the climate change crisis, we don’t have the luxury of picking and choosing our battles.**

Is the reduction in energy use from switching to geothermal equivalent to purchasing renewable energy?

- To meet our climate goals we need to reduce electrical demand and power what's left with renewables - in short we need to go to **NET-ZERO**
 - GSHP system uses much less electricity than ASHP system because it draws heat from, and sinks heat to, constant temperature earth (~50° F year-round)
- Reducing consumption also reduces transmission/distribution losses and need for storage to cover cloudy/windless days
- GSHP also drastically reduces max. monthly instantaneous use—a driver of the need for dirty peaking plants
- Could use some of the out-year savings to speed Brookline's transition to purchase of 100% renewable source electricity

In Line with Brookline's Green and Fiscal Prudence Values!

- If asked whether society should spend **more** public and private \$\$ to reduce energy consumption and carbon emissions, most Brookline residents would emphatically say YES!
- This change would allow us to further those goals by spending **FEWER \$\$!**
- In short, do we want to reduce carbon emissions AND save money?

Aligned in Support of Reinstating GSHP at Driscoll

- A unanimous Select Board
- A unanimous School Committee
- A nearly-unanimous Advisory Committee (24-1-0)
- The Driscoll School Building Advisory Committee
- The Green Caucus
- Climate Action Brookline

Summary: Please Support Favorable Action on WA2

- This is our last realistic chance to make this change before we build this public building that will operate for 75 years or more.
- We all agree we need urgent action to reduce energy consumption and carbon emissions. Here's a tailor-made opportunity.
- And this change pays for itself--probably several times over in the projected useful life of the building and system.