

Pollard Middle School Project

PPBC/ SBC

**Monday,
July 13, 2026**

Agenda:

- Background
- Cost
- Timeline
- Geothermal Systems
- Thermal System Option Comparison and Life Cycle Cost Analysis (LCCA)
- LCCA definitions and explanations
- Schematic Design Schedule

How did we get here?

The Schools Master Plan, completed in 2020 and revised in 2022, studied all of Needham's schools and identified **three schools in serious need of renovation or replacement** due to infrastructure and/or space issues.

It was determined that rebuilding Pollard for grades 6-8, followed by the rebuilding of Mitchell, was the **fastest and least expensive** way to resolve the issues at all three schools.

School	Building Conditions	Space Conditions
POLLARD	X	X
HIGH ROCK	✓	X
MITCHELL	X	X



What will a new Pollard School Provide?

Educational Benefits

- **Right-sized classrooms and educational spaces.** Many are currently undersized, curtailing some curriculum and programming.
- **Greater enrichment choices starting in 6th grade**, including World languages, engineering and design, video production and theater, technology and coding, writing and literacy.
- **Space for all of our special education programs.** Some SPED students skip High Rock due to lack of program space.

Social/Emotional Benefits

- **Eliminates multiple transitions** between schools that many students struggle with.
- Allows 6th graders to **develop skills and maturity** as modeled by older peers.
- Preserves the middle school transition experience with a **separate 6th grade wing**.

Practical and Financial Benefits

- Eliminates need for **addition at High Rock**
- Eliminates need to build a **temporary school for Mitchell project**



Total Project Cost:

New construction at Pollard Site, Grades 6 - 8

	Preferred Schematic Report (PSR) (12/18/2025 - rev 1/8/2026)	Schematic Design (6/25/2026)
Square foot (sf)	257,872 sf	265,572 sf
Construction Cost Estimate	\$258,693,479	\$259,862,265 (with VE)
Construction Cost per sf	\$1,003.19/sf	\$978.50/sf
Total Project Cost Estimate	\$336.3M	\$325.4M (with VE) (\$322.7M future funding)

Schematic Design Comments:

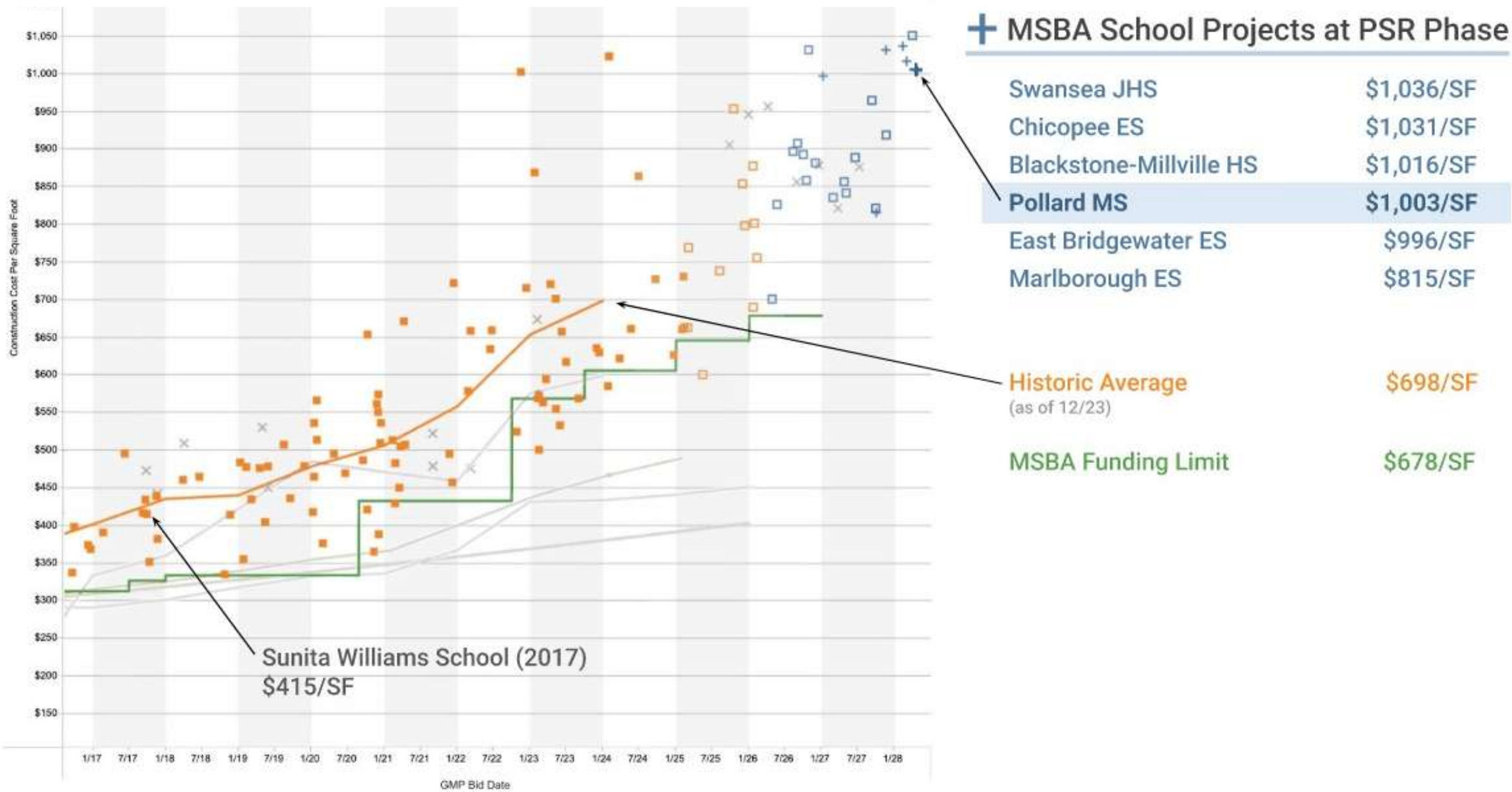
***Anticipated 20 – 25% MSBA reimbursement of Total Project Cost.**

***Includes Owners Construction Contingency of 7%**



MSBA School Construction Costs

<https://info.massschoolbuildings.org/TabPub/TableauCostData.aspx>



Anticipated Reimbursement Rate

Needham Reimbursement Rate <i>before Incentives</i>	36.89%
Total Incentives:	5.85%
Maintenance (1.85%)	
Indoor Air Quality (1.0%)	
Energy Efficiency (3.0%)	
Anticipated MSBA Reimbursement Rate <i>with Incentives</i>	*42.74%

*only eligible costs

Anticipating **20 – 25%** range of potential reimbursement for **\$65M – \$81M.**

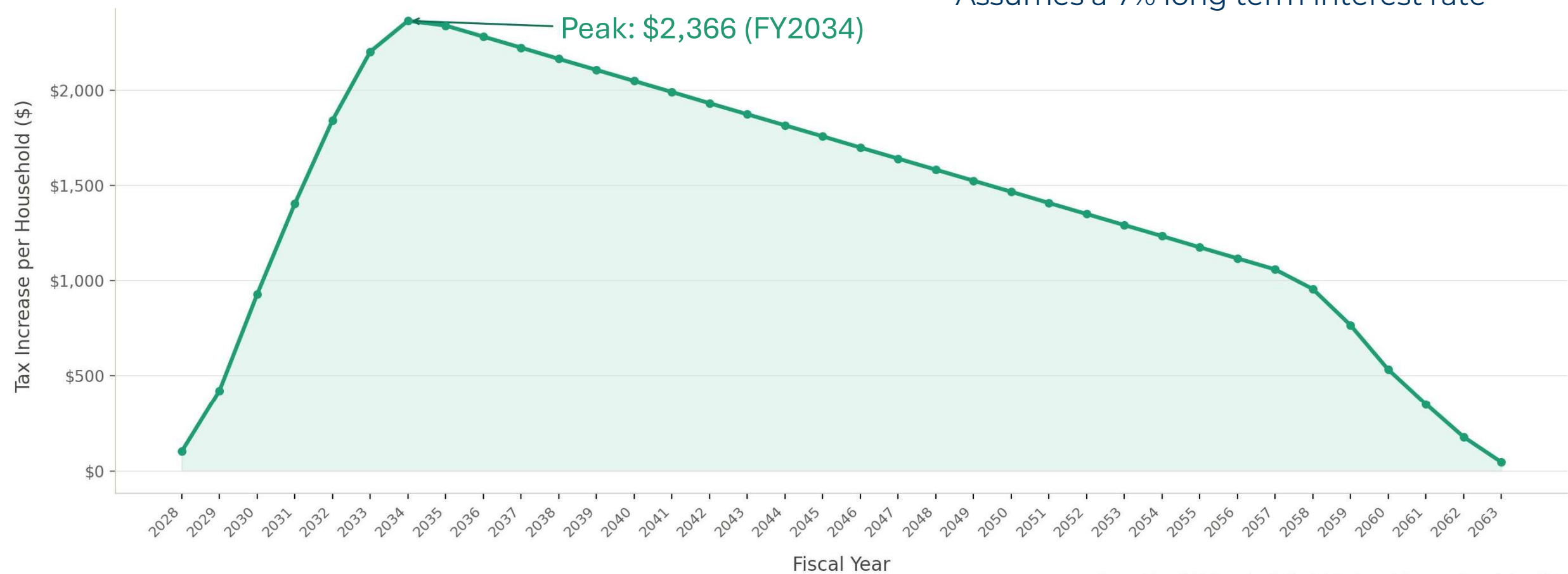
Actual reimbursement determined end of August by MSBA.



Estimated Tax Impact

Tax calculator available mid-summer on Town website

- **Based on Dec. 2025 PSR Cost of \$336M.** Current June 2026 estimate is \$325.4M.
- Assumes single tax rate based on the FY2026 Average single-family house (ASFH) assessment of \$1,541,061.
- Assumes a 7% long term interest rate



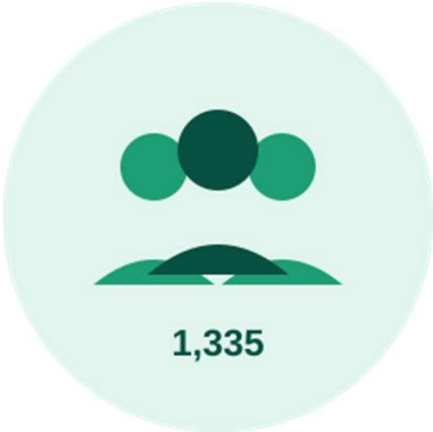
Source: Town Debt Financing Outlook & Tax Impact Summary Report, June 2026

Established Project Scope

Grades 6 – 8



1,335 students



Pollard Site



\$325.4M maximum

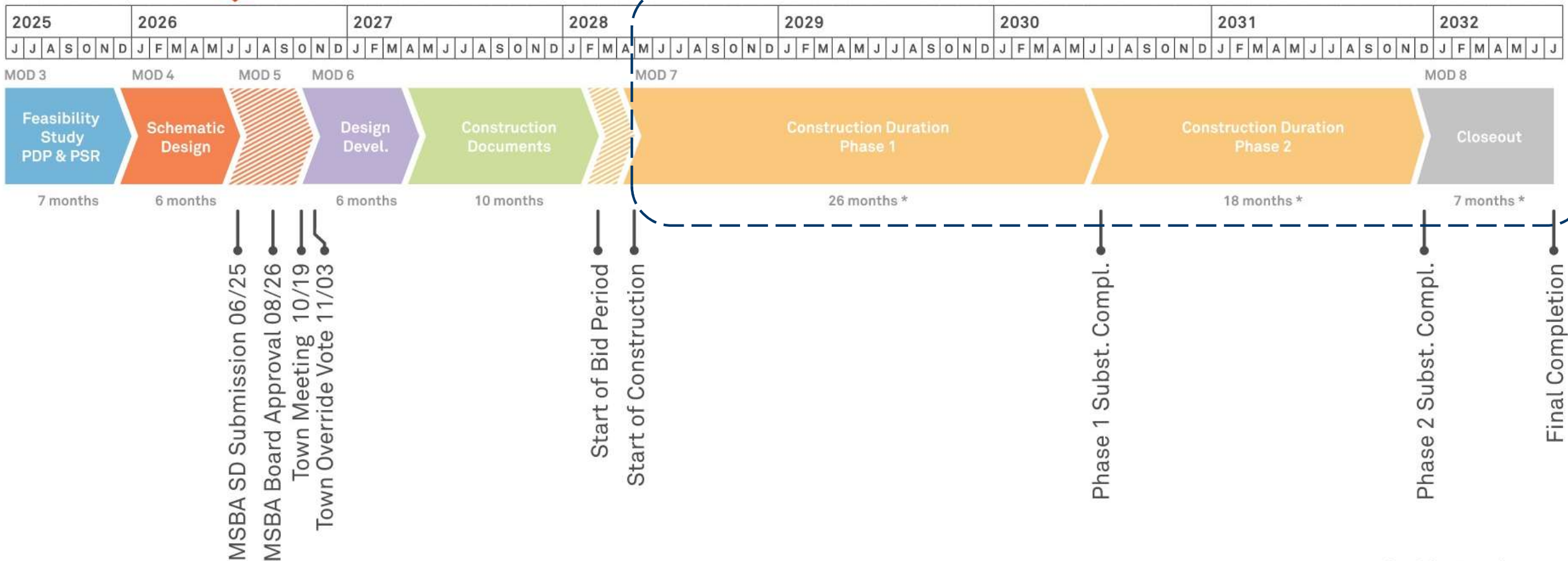
\$978.50/sf



Project Timeline

today

See next slide for
Construction Timeline

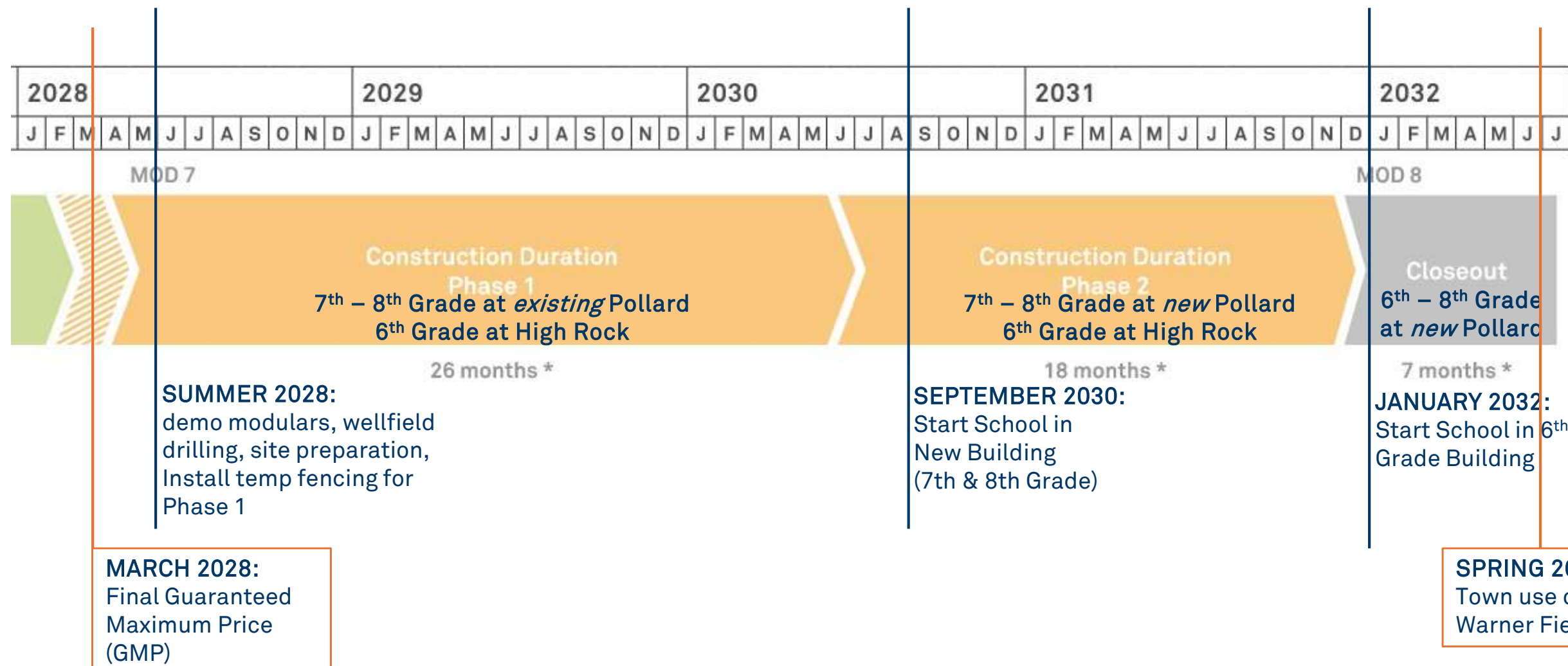


* subject to change

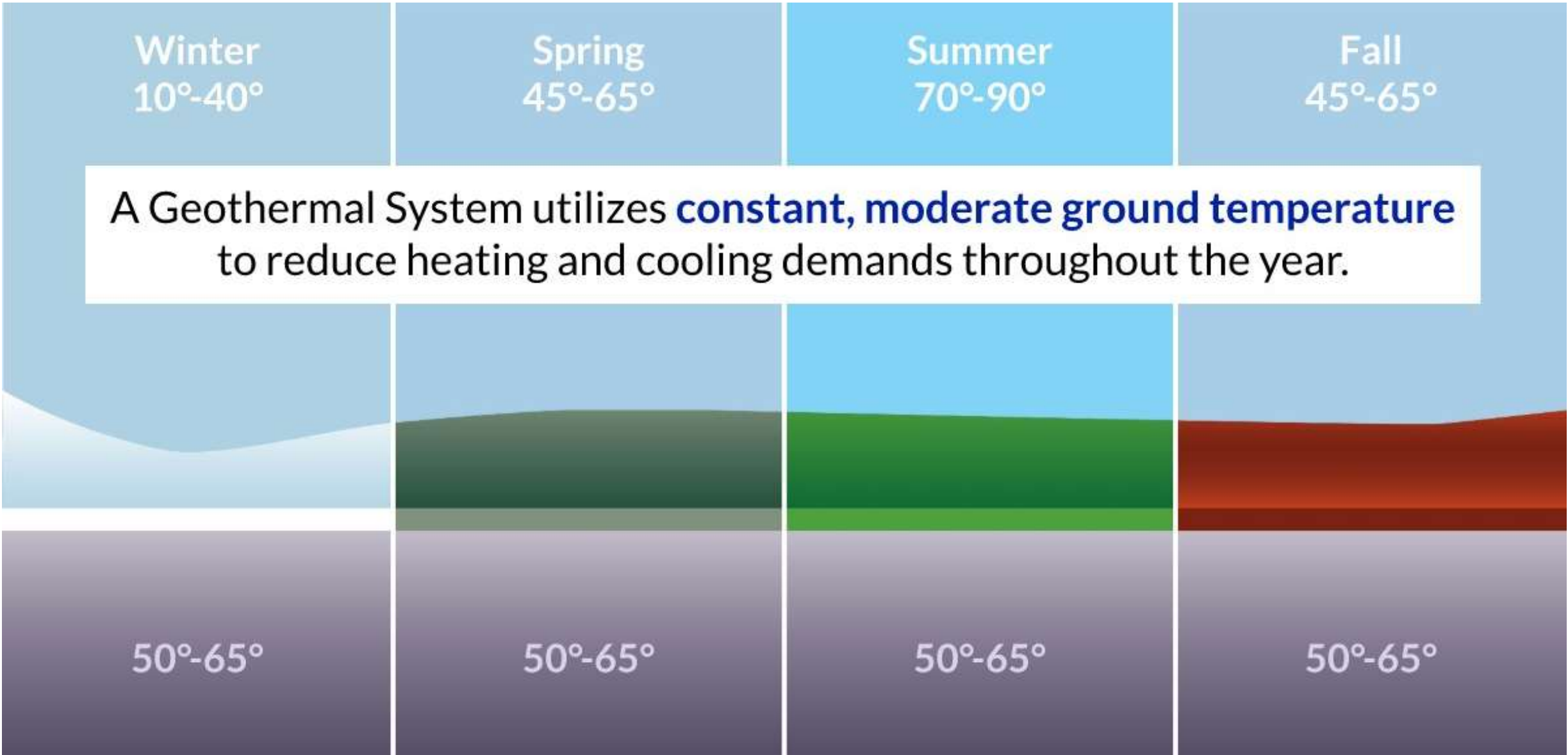


Construction Logistics Timeline

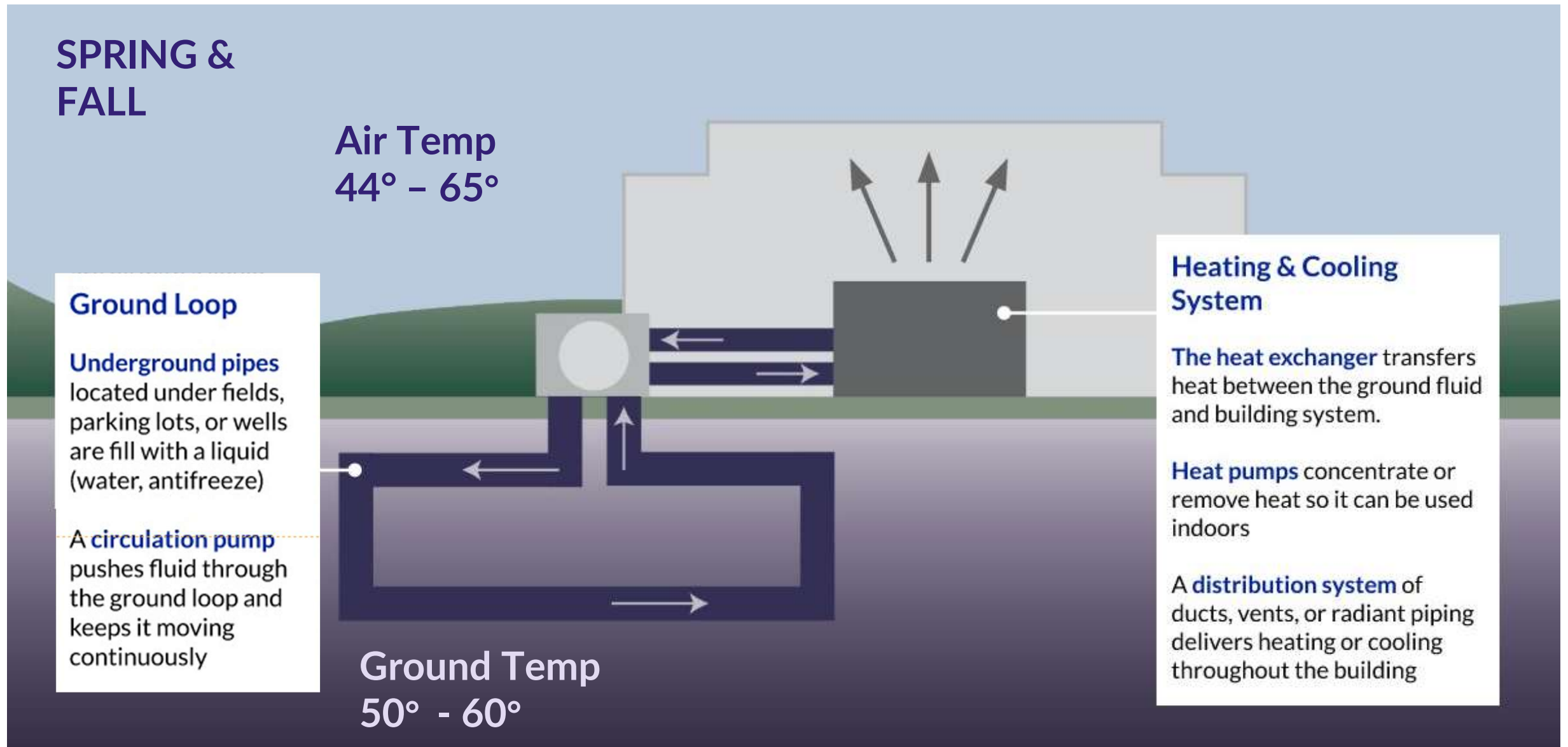
*Dates subject to change



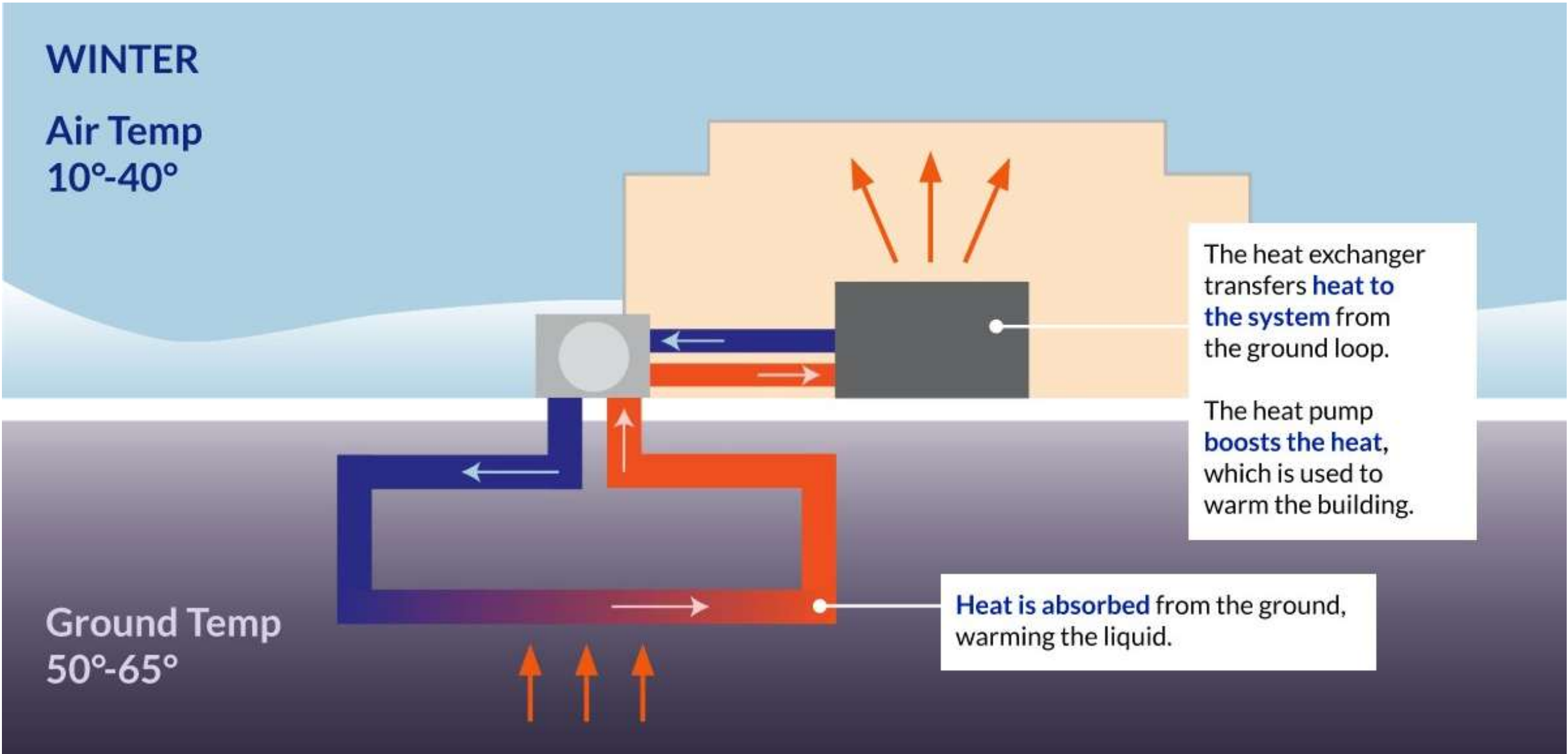
How a Geothermal System works



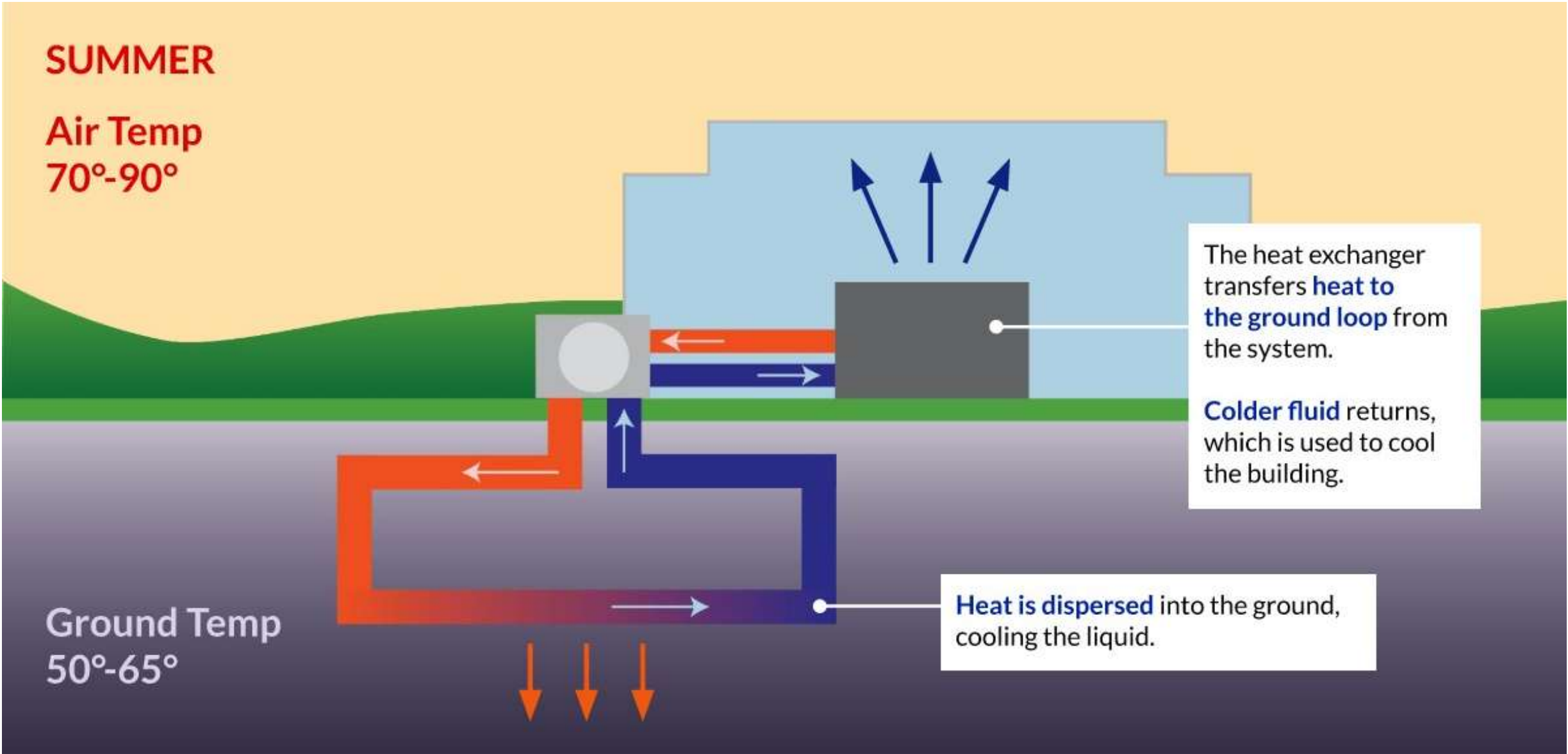
How a Geothermal System works



Geothermal Heating



Geothermal Cooling



Thermal System Option Comparison and Life Cycle Cost Analysis

GSHP: Ground Source Heat Pump = geothermal system

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GSHP: Ground Source Heat Pump
AWHP: Air to Water Heat Pump

AWHP: Air to Water Heat Pump
EB: Electric Boiler

NG-CB: Natural Gas Condensing Boiler
ACC: Air Cooler Chiller

	Thermal System Option	Option #1a: GSHP - Path 1	Option #1b: GSHP - Path 2	Option #2: GSHP/ AWHP Hybrid	Option #3: AWHP + EB	Option #4: NG-CB + ACC
1	Energy Use Intensity (EUI) (kBtu/sq.ft./yr.)	22.0	24.5	27.0	29.5	34.5
2	Annual CO ₂ Emissions (metric-tons)	404	450	496	542	593
3	HVAC/Electrical Distribution Systems Capital Cost	\$50,490,000	\$50,490,000	\$46,398,000	\$43,754,000	\$43,271,000
4	MassSave Program Incentive	\$2,489,000	\$2,039,000	\$1,153,000	\$697,000	\$0
5	25-Year Maintenance Costs (\$)	\$1,105,000	\$1,105,000	\$1,481,000	\$1,658,000	\$1,812,000
6	25-Year Utility Costs (\$)	\$9,484,000	\$10,562,000	\$11,639,000	\$12,717,000	\$9,985,000
7	25.5% IRA Tax Credit (High Estimate)	\$6,713,000	\$6,713,000	\$2,186,000	\$0	\$0
8	25-Year Present Value Life Cycle Cost (High IRA Tax Credit Estimate) *	\$51,017,000	\$52,529,000	\$55,839,000	\$57,424,000	\$55,069,000
9	25-Year Present Value Life Cycle Cost (Low IRA Tax Credit Estimate) *	\$54,464,000	\$55,977,000	\$56,705,000	\$57,424,000	\$55,069,000
10	25.5% IRA Tax Credit (Low Estimate)	\$2,984,000	\$2,984,000	\$1,249,000	\$0	\$0

Definitions on the following pages

Definitions and Explanations

1	Energy Use Intensity (EUI) (kBtu/sq.ft./yr.)	- EUI - Defines the energy use per square foot per year within the building - EUI is a metric to make an “apples to apples” comparison of the options #1- #4 - The existing Pollard School has an EUI of 78. - Option #1 is about 3.5 times as efficient as the existing building - Option #1 Path 1 – with an EUI of 22 would maximize the MassSave rebate incentive - Geothermal system is the most energy efficient means of heating and cooling a building
2	Annual CO₂ Emissions (metric-tons)	- The Specialized energy code allows the use of Natural Gas boiler, but requires the installation of solar PV to offset the operational carbon - Options 1 - 3 are required to be “solar ready” per MSBA requirement
3	HVAC/Electrical Distribution Systems Capital Cost	- Includes the total capital construction costs for each heating/ cooling system - Option #4 includes the capital cost and operational benefit of the required Solar PV - The GSHP cost of \$6M-\$7M account for most of the cost increase over Option #4.
4	MassSave Program Incentive	- Option #1 has the highest MassSave incentive because of the 22.0 EUI - Option #4 has no MassSave Incentive because it relies on Natural Gas - - MassSave design and heat pump incentives are received immediately - MassSave post-occupancy incentives are received after a full year of operation
5	25-Year Maintenance Costs (\$)	- Estimate of the annual maintenance cost of each system including replacement during the 25-year period. - Natural Gas boilers are replaced every 10 to 15 years. - The geothermal wells have a life expectancy of 50-years

Definitions and Explanations

6	25-Year Utility Costs (\$)	- Total estimated cost of electricity (all options) and natural gas (Option #4 only) over the 25-year LCCA period - Assumes industry standards for cost escalation during the 25-year period
7	25.5% IRA Tax Credit (<u>High</u> Estimate)	- The Inflation Reduction Act (IRA) tax credit currently provides a 25.5% direct payment to municipalities for geothermal systems - The high estimate accounts for the cost of the geothermal wells, distribution piping, heat exchanges plus the HVAC systems within the building that utilize the geothermal energy to heat or cool the building. - There are no IRA tax credits for Natural Gas boilers (option #4) or Air Source Heat Pumps (Option #4) - The Town will need to hire a tax consultant to complete the filing as a part of this project - The IRA Tax Credit has been claimed by other communities for similar projects - The IRA Tax Credit is scheduled to expire in 2033
8	25-Year Present Value Life Cycle Cost (<u>High</u> IRA Tax Credit Estimate)	- Option #1 is the <u>lowest</u> Life Cycle Cost of the options over a 25-year study period- but has the <u>highest</u> initial capital cost - Option #3 is the <u>highest</u> Life Cycle cost - Option #4 has a 25-year life cycle cost about \$4M greater than Option #1- but has the <u>lowest</u> initial capital cost - IRA Tax credits are received after two years of post-occupancy

Definitions and Explanations

9	25-Year Present Value Life Cycle Cost (Low IRA Tax Credit Estimate)	• If the low IRA tax credit estimate is used Option #1 has a 25-year estimated saving of \$500K compared to Option #4. • IRA Tax credits are received after two years of post-occupancy
10	25.5% IRA Tax Credit (Low Estimate)	• The low estimate accounts for the cost of the geothermal wells, distribution piping, heat exchanges but <u>not</u> the HVAC systems within the building • This is a very conservative reading of the IRA regulation.

- Present Value Life Cycle Costs are not additive as they are affected by the 4% discount rate - MassSave, IRA Tax credits, and wellfield residual value
- Geo-exchange wellfield residual value is assumed to be \$3,686,000 (present value) or \$1,383,000 (future value) when discounted to the end of the 25-year study period

Conclusion

- **Option #1 has an estimated \$4 million savings over a 25-year period compared to Option #4.**
- **Option #1 Ground Source Heat Pump (GSHP) – Path #1 with an EUI of 22.0 is the recommended mechanical system for the new Pollard School.**



*Schematic Design Schedule - 2026

July	August	September	October	November
7/13 and 7/27 SBC - Update on MSBA review comments - Update on MSBA FAS presentation 7/21 Select Board SB votes to place debt exclusion question on 11/3 ballot 7/22 Summer Community Meeting At Pollard and hybrid 7/29 MSBA Facility Assessment Subcommittee Meeting	8/10 SBC Review MSBA SD review comments and responses 8/12 (TBC) MSBA Scope and Budget Conference 8/26 AM MSBA Board Approval of Project Scope and Budget 8/26 PM Summer Community Meeting At Pollard and hybrid	9/14 SBC (<i>*partial draft agenda</i>) Discussion on preparation for Special Town Meeting for Town Override 9/19 Open House - Tours and Q&A (Saturday)	10/17 Open House - Tours and Q&A (Saturday) 10/19 Special Town Meeting	11/3 Town Election debt exclusion ballot question before voters 11/17 Certificate of Vote/ Funding issued 11/18 – 12/16 Project Funding Agreement Process

*Draft – subject to change



Pollard Middle School Project

**Project
Website:**



Summer Community Meetings:

Wednesday, July 22, 6:00pm

Hybrid at Pollard Middle School Auditorium
(200 Harris Ave) & via Zoom

Wednesday, August 26, 6:00pm

Hybrid at Pollard Middle School Auditorium
(200 Harris Ave) & via Zoom

Fall Open Houses, Tours, and Q&A:

Saturday, September 19, 9:00am – 11:00am

Saturday, October 17, 9:00am – 11:00am