

Sergio Modigliani  
Bernard Greene, SB  
Valerie Frias  
Sadaf Kazmi  
Cliff Brown, AC



Virtually via Zoom  
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Meeting ID: 161 360 9533

**Expenditures & Revenues Study Committee Agenda  
Monday, November 17, 2025 at 7:00 PM**

1. **Roll Call**
2. **Miscellaneous**
  - 2a. Question of approving the minutes from November 12, 2025
3. **Discussion of Development and Revenue Enhancement revised Memo by B. Greene**
  - 3a. Draft on Commercial Development
4. **Town-owned Solar Initiative Presentation by Sustainability Division's A. Vecchio and ZEAB's Vikram Aggarwal**
  - 4a. Brookline Municipal Solar Initiative Presentation
5. **Review First Draft on Inflation Impacts and Prop 2-1/2 by S. Modigliani**
  - 5a. Inflation and Brookline Budget
  - 5b. Overrides and Sustainability
  - 5c. Annual Debt Service - Level Principal Bond
6. **Discussion of Futures subcommittee Report content to full E & RSC**
7. **Matters not reasonably foreseeable by the Chair**

[Expenditures & Revenues Study Committee Webpage](#)

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## **Expenditure & Revenue Committee**

Futures Subcommittee Meeting of 11.12.25

DRAFT MINUTES

By S. Modigliani

### **Roll Call and Attendance**

The meeting began with Sergio taking a roll call, confirming the presence of subcommittee members:

Bernard Greene

Val Frias

Sadaf Kazmi

Sergio Modigliani, Chair

Cliff Brown - Absent

and Lincoln Heineman, Town Director of Finance, and one member of the public.

### **Quick recap**

The Futures Subcommittee of the Expenditure and Revenue Study Committee met to discuss various initiatives, including increasing revenue opportunities, legal questions about parish houses, and a Town-owned solar initiative that would reduce operating budget expenditures. The group reviewed classroom space utilization, educational equity issues, and healthcare costs, with plans to address these topics at upcoming meetings and presentations. The subcommittee outlined the timeline for their Futures report and discussed school planning, budgeting, and state-level advocacy issues, with several work products expected to be completed or reviewed in the coming weeks.

### **Next steps**

- Bernard to finalize and send out the conclusion of the development revenue memo for incorporation into the report
- Sadaf to reach out to Karen Shmukler to discuss in-house programs for out-of-district placements
- Bernard and Val to prepare agenda for Town School Partnership meeting
- Lincoln Heineman to provide feedback from Hilltop on solar bond financial modeling and interest rates
- Town and School chairs to provide summary of current status at full committee meeting [tomorrow](#)
- Bernard to add state aid lobbying discussion to Town School Partnership agenda
- Val and Bernard to discuss state aid lobbying approach with Tommy Vitolo and other state representatives
- Sadaf to provide update on school educational model discussion at school subcommittee meeting

- Val to facilitate sharing of classroom utilization documents through Nicole when available
  - Town School Partnership to meet [Monday, 11.17.25](#) to discuss healthcare costs and benefits
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### **Futures Subcommittee Prior Meeting Minutes**

The Futures Subcommittee of the Expenditure and Revenue Study Committee held a meeting on [November 12th](#), with Sergio chairing and Nicole handling the recording. The meeting began with a roll call, noting the absence of Cliff Brown, and then the approval of Minutes from [November 3rd](#) and 7th. All members present voted to approve the Minutes (4-0 and 1 absent).

### **Brookline Solar and Revenue Updates**

The group discussed updates on various initiatives, with Bernard reporting on a memo regarding revenue opportunities and legal questions about taxing parish houses, confirming they cannot be taxed. Sergio confirmed a presentation on the Town-owned solar initiative for the 17th, highlighting the work of ZEAB and the Sustainability Director in partnering with a national player to analyze potential solar sites in Brookline. Sergio, having earlier written to the Town's Finance team, also discussed the need for their guidance on appropriate financial modeling for a bond issue. Lincoln confirmed receipt of that inquiry and that feedback from Hilltop, the Town's financial advisor, is expected to be available in time for assembling the planned [Monday](#) presentation.

### **Classroom Space and School Model**

Val mentioned that a space utilization report would be discussed at the PSB Finance Subcommittee meeting later that afternoon.

The group discussed classroom space utilization and seating capacity, with Val explaining that some classrooms serving programs like RISE may have more limited capacity due to adult presence and room configurations. Sadaf provided an update on the middle school model, which she is analyzing to identify potential cost savings, and mentioned plans to meet with Karen Shmukler to discuss in-house programs for out-of-district placements. Sadaf also proposed moving the school model discussion to the school subcommittee meeting to better manage her time, which Sergio agreed made sense, but noting the expected timeframe to discuss and implement may bring the subject back to the Futures subcommittee as well.

### **Healthcare Costs and Educational Equity**

The group discussed the PSB team's ongoing work on educational equity issues, which Sergio noted would likely take several years to resolve. They also addressed healthcare costs and their impact on town revenue, particularly the rapid increase in

health insurance expenses outpacing Prop 2-1/2 growth and other sources of new revenue. Bernard and Lincoln explained that while health insurance costs are a significant concern, they will be discussed at the upcoming Town School Partnership meeting on **Monday** the 17th, where Val and Bernard will prepare the agenda.

### **School Space Planning and Budget Review**

The subcommittee discussed several topics related to school planning and budgeting. Sergio expressed doubts about the feasibility of completing certain subcommittee PSB initiatives due to lack of information and dependency on prior steps that the PSB has not as yet formulated. Sadaf suggested that the subcommittee could make recommendations to evaluate the current share of healthcare premiums (currently 83% born by the Town), which would ultimately be a collective bargaining matter. The group also discussed the upcoming PSB budget presentation, with Val planning to review bottom line numbers and a 5-year forecast in the coming weeks. The 5-year forecast was noted as expected to be rough in the out years due to unknowns like collective bargaining outcomes and enrollments.

### **Committee Work Products and Timeline**

The meeting then focused on the timeline for the Futures subcommittee report, which is expected to be completed around **December 1st** for the full E & RS Committee's review, with the final report to the Select Board due by **December 15th**. Bernard noted that the Schools subcommittee work might be delayed. Sergio outlined his view of the status of the Futures initiatives, and the subcommittee discussed the status of its planned work products. Of the 8 planned Initiatives, it appears that two items are likely to be completed (Development Memo, Inflation write-up), one as a "maybe," (Solar initiative, which depends on the subcommittee's response at the **November 17th** meeting), and the other 5 initiatives concerning PSB items unlikely within the current timeframe. They agreed to address the revised timeline and recommendations at the full E & RS Committee meeting the next day (Thursday, 11.13.25), with Bernard and Chas guiding the discussion. Val and Bernard expressed interest in discussing State aid and legislative advocacy, with Bernard suggesting they consult Tommy Vitolo about the likelihood of legislative action. The group decided to bring up these State-level issues at the Town-School Partnership meeting on **Monday**.

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## **FUTURE SUBCOMMITTEE OF E&R STUDY COMMITTEE**

### **DRAFT DISCUSSION MEMO**

**Task:** Evaluation of commercial development opportunities and potential for new growth.

This task is roughly related to bullet #3 in the Committee's charge: "Examining the revenues of the Town and PSB to determine whether other sources of funding beyond or in addition to an operating override can close the community's projected structural budget gap."

The Town has consistently had a goal of increasing tax revenue from new growth in commercial properties in order to take some of the tax burden off of residential properties. Our tools are limited, and the benefits may not be realized within in a time horizon that will be relevant to voters in the May 2026 election but may be useful to address the long-term structural budget deficit.

New growth can come from:

- (a) New large commercial developments, which typically do not impact revenues for years – e.g., Chestnut Hill West – and develop in fits and starts because of market conditions and other externalities – e.g., Waldo Durgin.
- (b) Expansion of existing large commercial developments– e.g., filling ground floor commercial space at Brookline Place.
- (c) New small to medium size commercial businesses – e.g., ground floor commercial spaces in 40B projects or filling in vacant storefronts.
- (d) Expansion of small to medium size commercial businesses – e.g., expansion of restaurants and other commercial uses at St. Mary's.
- (e) Auditing nonprofit properties to capture tax revenue from for-profit uses – e.g., pay parking or garage spaces.
- (f) Obtaining PILOTs from nonprofit properties that do not pay PILOTs, by persuasion, public exposure of the benefits nonprofits get from Town services – e.g., number of police and fire calls – or incentives such as membership in the Brookline Purchasing Collaborative and other benefits given to nonprofits that pay PILOTs.
- (g) New personal property located in Brookline – e.g., equipment and other tangible assets used in a trade or business that are acquired after submitting form 3ABC or not listed on the form and new growth from utility equipment and cable and wireless services, like cellphone towers.

The commercial real estate market is currently in a lull because of high interest rates compared to historical rates, high construction costs, and uncertainty in economic policy at the federal level.

Tools. Other than wait out the market, the tools that the Town can muster to move commercial new growth along include streamlining zoning and permitting, making political and neighborhood engagement with proposed projects more rational.

Impediments. These include (1) Town’s requirement for Tax Certainty agreements to protect tax revenues if a site is taken over by a tax-exempt use, (2) minimum percentage commercial space and ground floor commercial requirements, (3) building department’s capacity and resources to do inspections to move a project along, (4) parking restrictions that undermine traffic to businesses.

Future Sites. In addition to Waldo Durgin and Chestnut Hill West, there are a few sites that the Planning Department is keeping an eye on and in some cases having quiet conversations with owners. Those sites are Stop and Shop, TJ Maxx, Star Market on Beacon, Walgreen on Harvard, and CVS on Washington.

It may not be politically possible to make sufficient changes in these areas to make a difference, but voters should understand the limitations that the Town has in competing for and completing large commercial projects and the limited, but important, tax benefits from smaller projects that are always being undertaken.

## **CONCLUSION**

The Town has consistently had a goal of increasing tax revenue from new growth in commercial properties in order to take some of the tax burden off of residential properties. Our tools are limited, and the benefits may not be realized within a time horizon that will be relevant to voters in the May 2026 election. Those long-term benefits, however, may be useful to address the long-term structural budget deficit. The Committee urges the following steps to provide improved revenues in future fiscal years.

Large Town Projects. Only large developments like Chestnut Hill West and Waldo-Durgin will on their own generate the amount of tax revenue that could significantly help reduce or eliminate the need for an override in any period. Chestnut Hill West zoning is expected to be presented to Town Meeting in the spring of 2026 but completion of the project is optimistically estimated at 7 years with tax revenue coming in up to 18 months thereafter.<sup>i</sup> Waldo-Durgin is more complicated, but the optimistic estimate is the project will be completed in six years and tax revenue from the project will come in up to 18 months thereafter.<sup>ii</sup> The Subcommittee recommends that the Town continue to aggressively pursue such projects, in addition to working on bringing commercial businesses of all sizes. Large projects are no quick fix for our revenue concerns.<sup>iii</sup> And when our revenue increases, rising costs are also not far behind.

Personal Property. The Subcommittee applauds the Assessors office’s increased focus on auditing personal property, using an outside consulting firm, Real Estate Research Consultants, Inc., that has enabled the Town to identify unreported personal property resulting in an additional \$200,000 in tax revenue in FY 2026 over FY 2025. This will have an immediate impact on revenues and continuing impact into the future. The approximately \$15,000 that the Assessor will be seeking in the FY2027 budget will be money well spent.

Streamline Business Regulation. To make it easier to develop a business in Brookline, we recommend that the Town continue to work to reduce or eliminate the difficulty and complexity of development in Brookline, for both large developments and small. The Planning and Economic Development Department is currently working on various ways to streamline and rationalize zoning and permitting, and identifying smaller projects (e.g., porch additions) that can be developed by-right and having the Planning Board be the special permit granting authority, instead of the ZBA, while at the same time not

limiting the reasonable rights of abutters.<sup>iv</sup> The Subcommittee thinks that these efforts will pay significant dividends over the medium term and will ease the Town's finances within a time-frame that will positively impact voters.

Tax Exempt Entities. The Subcommittee encourages the Assessors Division to continue to encourage nonprofit entities to pay PILOTs to help cover the cost of the services they receive from the Town. We suggest looking at both positive incentives, such as access to the Brookline Purchasing Collaborative, and negative incentives such as restricting some non-mandatory Town services and benefits to nonprofits that participate in the PILOT program, to the extent such restrictions are permitted by law or regulation. The Town should also consider attaching additional benefits to the purchasing collaborative or establishing additional similar benefit programs. The Subcommittee also urges the Assessor's Office to budget sufficient resources to enable it to aggressively audit nonprofit uses to make sure that uses such as pay parking or non-mission-based buildings or residential properties that do not meet all the requirements for receiving the exemption. Educational institutions' residential properties, such as the Boston University President's House,<sup>v</sup> are taxed as non-exempt property if they are not contiguous to the university parish houses or similar religious residences do not have to be contiguous to the church under Gen. Laws, c. 59, §5, clause Eleventh.<sup>vi</sup>

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<sup>i</sup> Kara Brewton: City Realty is at least 7 years away and we started talking about it with Town Meeting Members a year ago. The Attorney General takes at least six months to approve the zoning after Town Meeting, which takes us to January 2027 to begin special permitting. Then add everything in the Waldo Durgin description.

<sup>ii</sup> Kara Brewton: Waldo Durgin is at least 6 years away and we started talking about it with Town Meeting Members 14 years ago. Once they are ready to proceed (interest rates, etc.) it will likely be a year to get a special permit, a year for them to develop construction documents and bid the project and get a building permit, and probably 3 years to construct. Then, depending on the timing of what time of year the project is completed, it can be up to another 18 months for the property tax to fully capture the total value of the project.

<sup>iii</sup> Kara Brewton: A reminder of timing for all large EDAB-sponsored projects:

- Kendall Crescent, 1010 Commonwealth Avenue, 10 Brookline Place addition, and Circle Cinema took 6 years.
- The Webster St. Marriott hotel and the hotel at Brookline Avenue took 7 years.
- Red Cab site took 10 years.
- 2 Brookline Place took 16 years.

<sup>iv</sup> Kara Brewton: Separate from revenue-raising initiatives, Polly is working with the Planning Board and ZBA to see whether they would support some types of smaller projects (think porch additions) to have the Planning Board be the special permit granting authority instead of the ZBA. This would reduce volunteer Board member burn-out, shorten the time for smaller-scale applicants, and cut staff time in half.

<sup>v</sup> *See, Trustees of Boston University vs. Board of Assessors of Brookline, 11 Mass. App. Ct. 325 (Dec. 12, 1980) (because the President's house was not "contiguous" to the university's "principal location," the residence was, therefore, not entitled to exemption from taxation under Gen. Laws. c. 59, § 5, Third (e), as amended by St. 1974, c. 811, § 2).*

<sup>vi</sup> Gen. Laws, c.59, §5, clause Eleventh. Notwithstanding the provisions of any other general or special law to the contrary, houses of religious worship owned by, or held in trust for the use of, any religious organization, and the pews and furniture and each parsonage so owned, or held in irrevocable trust, for the exclusive benefit of the religious organizations, and including the official residences occupied by district superintendents of the United Methodist Church and the Christian and Missionary Alliance and of the Church of the Nazarene, and by district executives of the Southern New England District of the Assemblies of God, Inc., Unitarian-Universalist Churches and the Baptist General Conference of New England, and the

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official residence occupied by the president of the New England Synod of the Lutheran Church in America, Inc., and the official residence occupied by a person who has been designated by the congregation of a Hebrew Synagogue or Temple as the rabbi thereof, but such exemption shall not, except as herein provided, extend to any portion of any such house of religious worship appropriated for purposes other than religious worship or instruction. The occasional or incidental use of such property by an organization exempt from taxation under the provisions of 26 USC Sec. 501(c)(3) of the Federal Internal Revenue Code shall not be deemed to be an appropriation for purposes other than religious worship or instruction.

# Brookline Municipal Solar Initiative

Discussion with Futures Subcommittee

Alexandra Vecchio, Director of Sustainability & Natural Resources

Vikram Aggarwal, ZEAB Member

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# Agenda

1. Context & Background
2. Existing Solar PV Installations
3. Case Study: Driscoll School
4. Evaluating Solar PV
5. Proposed Plan of Action
6. Initial Solar Cost-Benefit Analysis
7. Q&A and Next Steps
8. Appendix:
  - About Vikram Aggarwal
  - Basic Unit Economics of Solar
  - Driscoll School Solar Analysis

# Climate Action & Resiliency Plan

9,831 MTCO<sub>2</sub>e

Currently Drafting - 10 year plan that targets net zero emissions by 2050  
Anticipated Plan Completion - April 2026

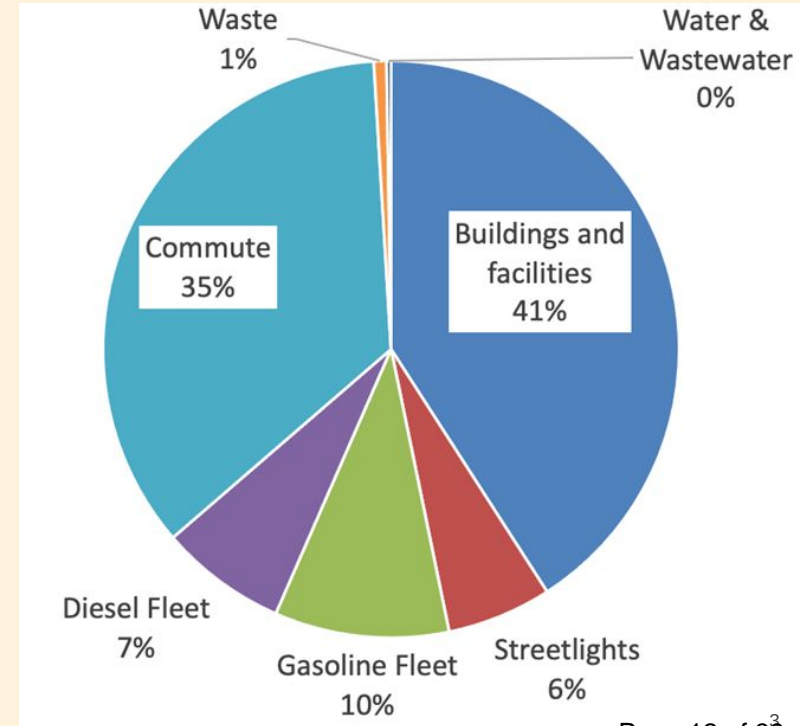
## Focus Areas:

- Buildings & Energy
- Resource Conservation & Management
- Sustainable Transportation & Mobility
- Natural Systems & Community Well-Being
- Resilience, Adaptation & Risk Reduction

Draft Goal: *Maximize renewable and resilient electricity for municipal operations by 2036 through solar PV installation and storage, geothermal sources, and a microgrid*

Draft Goal: *Leverage increased efficiency and decarbonization projects to cut gas emissions from both municipal buildings and streetlights 60% by 2036*

## Municipal Operations



# Brookline's Solar Installations

<b>Project</b>	<b>kW(dc)</b>	<b>Install Date</b>	<b>Contract Type</b>
Health Building	25	2006	Town-owned
Putterham Library	80	2010	Town-owned
Ridley School	250	2021	PPA (i.e. lease)
Brookline High School	150	2021	PPA
Runkle School	173	2021	PPA
Kirrane Aquatics	257	2022	PPA
Municipal Service Center	273	2022	PPA
<i>Driscoll School (coming soon)</i>	200	2026	<i>Town-owned</i>

# Context & Background

- In FY'27, Brookline will spend \$3.7M for electricity
  - Town currently consumes ~13 million kWh (kilowatt hours) of electricity at an average cost of \$0.25 per kWh
- Assuming 3% annual electricity price inflation over the next 25-years, we will pay \$100M+ for electricity
  - U.S., Energy Information Administration (EIA), the pre-eminent Federal Agency is currently projecting 4%-6% annual inflation in the upcoming years, primarily driven by rising demand due to data centers and AI
- Additionally, as Brookline is increasing its electrification plans to reduce carbon emissions, its expected that our electricity consumption could increase by up to [50%] over the next [5-10] years

# Driscoll Solar - Cost-Benefit Evaluation

- Earlier this year, ZEAB conducted an analysis whether to own or sign a Power Purchase Agreement (PPA) for a solar energy system at Driscoll School
- The analysis indicated that owning the solar energy system will deliver superior financial returns to the town
- The next two slides show the summary analysis and a detailed analysis is included in the appendix.
  - The final numbers have since changed due to increase in size of the system and small reduction in installation cost

# Results of Initial Analysis - Buy vs. Lease/PPA

Results of Financial Analysis - 10-Year Loan						
	Purchase - 20 years		PPA - 20 Years		Purchase - 25 Years	
	Smart 2	Smart 3	Smart 2	Smart 3	Smart 2	Smart 3
<b>Total cost to the town</b>	\$389,680	\$389,680	\$473,899	\$175,262	\$414,680	\$414,680
<b>Cost per kWh</b>	\$0.10	-\$0.01	\$0.17	\$0.06	\$0.08	-\$0.03
<b>Total Savings</b>	<b>\$529,772</b>	<b>\$829,236</b>	<b>\$321,904</b>	<b>\$620,540</b>	<b>\$758,544</b>	<b>\$1,128,300</b>
<b>Purchase vs PPA (10-year Loan)</b>	<b>\$207,868</b>	<b>\$208,696</b>			<b>\$436,641</b>	<b>\$507,760</b>

## Assumptions:

- Utility rate = \$0.25/kWh; Actual cost ranges from \$0.27-\$0.45/kWh driven by hefty demand charges
- Projected utility inflation rate = 1.5%/year

# Results of Initial Analysis - Buy vs. Lease/PPA (No ITC)

Results of Financial Analysis - No ITC / 10-Year Loan						
	Purchase - 20 years		PPA - 20 Years		Purchase - 25 Years	
	Smart 2	Smart 3	Smart 2	Smart 3	Smart 2	Smart 3
<b>Total cost to the town</b>	\$514,000	\$514,000	\$473,899	\$175,262	\$539,000	\$539,000
<b>Cost per kWh</b>	\$0.14	\$0.03	\$0.17	\$0.06	\$0.11	\$0.00
<b>Total Savings</b>	<b>\$405,452</b>	<b>\$704,916</b>	<b>\$321,904</b>	<b>\$620,540</b>	<b>\$634,224</b>	<b>\$1,003,980</b>
<b>Purchase vs PPA (10-year Loan)</b>	<b>\$83,548</b>	<b>\$84,376</b>			<b>\$312,321</b>	<b>\$383,440</b>

## Assumptions:

- Utility rate = \$0.25/kWh; Actual cost ranges from \$0.27-\$0.45/kWh driven by hefty demand charges
- Projected utility inflation rate = 1.5%/year

**We recommend Brookline considers installing Solar PV systems and/or Batteries across municipally owned buildings, parking lots and other suitable spaces could provide substantial financial savings, hedge against rising energy costs, and meet town's carbon reduction targets**

- Additionally, we recommend that the town consider contracting all quality sites within one contract to achieve economies of scale and improve economics by >[10-15%]

# Plan of Action

- **Step 1:** Determine initial business case for solar and/or batteries [Current step]
- **Step 2:** Engage with Engineering & Design firms to validate, verify and update initial estimates of size of installations, costs and ROI
- **Step 3:** Prepare recommendation for budget approval
- **Step 4:** Issue RFP
- **Step 5:** Contract & Install

**At each step, review progress with key stakeholders & decision makers, and seek approvals to move forward**

# Step 1: Evaluating Solar PV Options & Business Case

- We are currently evaluating how much solar the town could install at:
  - ~70 town owned buildings
  - ~15 town parking lots
  - ~5 parking lots at schools
  - Town Transfer station & Skyline Park
- Initial determination of cost of installations and return on Investment
  - Assuming that we will not qualify for Federal Investment Tax Credits (ITC)

# Step 1: Initial Results

- The town potentially could install ~9MWs (Megawatts) of solar panels on its buildings, parking lots and transfer station, potentially generating 90%+ of all of town's electricity usage
  - ~2 MWs on building rooftops
  - ~6 MWs on town transfer station & [non-recreational open spaces] at Skyline park
  - ~1.2 MWs of solar on town parking lots (as solar canopies)
- We have two options to finance this investment
  - Sign a Power Purchase Agreement (PPA), similar to what we have done for ~5 installations on our schools
  - Fund the installations using town's capital, similar to what we are currently doing at Driscoll School
- Earlier this year, ZEAB conducted a financial assessment in partnership with [Driscoll School Committee] and determined that financial savings for the town are significantly higher if the town owned and operated the systems rather than signing a PPA
  - **Refer to Appendix 3** for results of that analysis

# Step 1 (cont.): Initial Cost-Benefit Analysis

WORKING DRAFT

	Total System Size (kW)	Annual Output (kWh)	Install Cost Per Watt	Total System Cost (No ITC)	Annual Savings	Lifetime Savings - Low	Lifetime Savings - High	Annual Loan Payments (10 Year @ 3.5%)
15 Rooftops & 2 adjacent Parking lots	2,067	2,890,000	\$3.41	\$7,050,880	\$693,600	\$14,118,108	\$14,118,108	\$830,640
Town Transfer Station - Ground Mount	1,560	2,060,000	\$1.74	\$2,714,400	\$494,400	\$7,136,971	\$12,768,252	\$321,600
Town Transfer Station - Carport	2,150	2,490,000	\$3.24	\$6,958,260	\$597,600	\$4,207,628	\$11,014,370	\$830,640
Skyline Park - Ground Mount	2,670	3,540,000	\$1.74	\$4,645,800	\$849,600	\$12,848,287	\$21,948,083	\$552,000
Other Parking lots - Carport	1,186	1,562,650	\$3.50	\$4,151,000	\$375,036	\$3,509,840	\$7,205,141	\$492,000
<b>Total</b>	<b>9,633</b>	<b>12,542,650</b>		<b>\$25,520,340</b>	<b>\$3,010,236</b>	<b>\$41,820,835</b>	<b>\$67,053,954</b>	<b>\$3,026,880</b>

- Assuming the town will own the systems, it will cost **\$[25]Million** over the next 2-3 years to install solar at the identified sites
  - Economies of scale achieved if all feasible sites are contracted at the same time. Could reduce costs by 10-15%.
- Town will save **Net \$[40-65]Million** in electricity bills over the next 25 years. These savings are after paying for system costs.
- Will reduce town's carbon emissions by **[4,500] metric tons**, or **[XX%]** of town's total emissions. It is equivalent of planting 100,000+ trees or taking ~1,000 cars off the road every year
- Enables town to show its leadership on climate action - the town is encouraging its residents and businesses to invest in climate mitigation and would be great to show that the town can follow its own lead.
- Lower electricity costs will enable increased electrification of town's transportation and building infrastructure, thus accelerating progress towards its climate goals

# Step 1 (cont.): Uncertainties, Open Questions and To Do's

- The initial analysis has been conducted by leveraging satellite imagery. Site visits by experts would result in more precise numbers
- Determine Net metering allowances for municipal-owned solar projects
- Timing of installation and commissioning of the projects. For projects completed and commissioned prior to 12/31/2027, the town will qualify for 30% ITC and 40% if use domestic content equipment
- Grid's ability to tie into off-site solar installations
- Equipment and installations costs are currently quite volatile as commercial entities are rushing to sign deals before July 4, 2026. Post that date, its highly likely that installation costs decline significantly for projects that do not qualify for Federal ITC
- Determine which roofs might need to be replaced or reinforced to enable solar installations
- Public review process for carport & ground-mounted systems
- Evaluate ballast install (i.e., no holes dug into the ground) vs. penetrating installs on the transfer station ground mount
-

# Q&A and Next Steps

- Q&A
- Next Steps
  - Continue to fine-tune and refine analysis

# Appendix

# Appendix 1: About Vikram Aggarwal

- Brookline resident since 1996
- Member of ZEAB since Fall 2023
- Founder & former CEO, EnergySage, Inc.
  - EnergySage is the leading marketplace for solar PV, batteries, community solar, heatpumps, EV chargers, etc.
  - Company was acquired by Schneider Electric in 2021
- Board Member, Conductor Solar, Inc., a marketplace platform to buy/sell commercial solar projects with a signed PPA
- Recognized expert & thought-leader in solar and broader ClimateTech
- Quoted & mentioned in hundreds of articles and new stories in leading publications such as NY Times, Washington Post, BusinessWeek, Consumer Reports, Newsweek, CBS News, etc.
- Partnered with leading climate organizations at the Federal and State level, including U.S. Department of Energy & NREL, Massachusetts Clean Energy Center, NYSERDA, California Public Utilities Commission

# Appendix 2: Solar economics - an introduction

- The table below summarizes the basic unit economics of solar installed at the same location where power is being consumed (also referred to as Behind-the-Meter installations):

	<b>Per Watt</b>				
Initial Solar Installation Cost (per Watt)	\$2.00	\$2.50	\$3.00	\$3.25	\$3.50
Total Cost (including interest payments) over 10 years @ 3.5% interest rate	\$2.40	\$3.00	\$3.60	\$3.90	\$4.20
Electricity produced Year 1 (kWh)	1.25	1.25	1.25	1.25	1.25
Electricity generated over 25 years (in kWh) (Net of panel degradation)	28	28	28	28	28
Total value of Electricity produced over 25 years	\$10.10	\$10.10	\$10.10	\$10.10	\$10.10
Total value of Electricity produced + SMART Incentives	\$12.35	\$12.35	\$12.35	\$12.35	\$12.35
Unit cost of Solar electricity (Including loan)	\$0.09	\$0.11	\$0.13	\$0.14	\$0.15
Less: SMART 3.0 Incentive	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09
Net Cost to town per kWh of electricity	-\$0.005	\$0.02	\$0.04	\$0.05	\$0.06
Average Electricity Rate per kWh over 25 years (assuming 3% inflation)	0.365	0.365	0.365	0.365	0.365
Average per kWh Savings for the town over 25 years	0.369	0.348	0.326	0.316	0.305
Average Annual Return on Investment (ROI)	24.7%	19.8%	16.5%	15.2%	14.1%

# Appendix 3: Driscoll School Solar Installation Evaluation

- The following slides were prepared and shared on May 7, 2025
- Since the analysis was conducted, some of the numbers were updated, including:
  - Size of the installation from 131 kW to close to 200kw
  - Cost of installation decreased from \$2.61/Watt to \$2.55/Watt
  - SMART 3.0 incentives were finalized by the State in Q3, 2025 and now are likely to be about \$0.09 vs. \$0.15 assumed in the analysis

# Initial Proposal - Solect

- Proposal to install a 131kW DC system on the roof of Driscoll School
- System will product ~144,000 kWh of electricity every year; ~15% of usage of the school
- Town can either:
  - Sign a 20-year PPA and pay ~0.17/kWh [SMART 2] or \$0.06/kWh [SMART 3]; Additionally,
    - Solect will collect ~\$0.045/kWh [SMART 2] or ~0.15/kWh [SMART 3] from the utilities
    - In total, Solect will collect ~\$0.22/kWh from its solar installation
  - Buy the system for \$2.61/Watt or for ~\$343,000
    - The town will receive an ITC (a 30% Investment Tax Credit) of ~\$103,000 in cash reimbursement from IRS. It's possible that this provision may be removed by Congress as part of the next budget currently under negotiation. Timing and results of next budget negotiations are highly uncertain.
    - Net Cost to town will be ~\$240,000

# Key Questions

- Should Driscoll School install solar? Does it make financial sense?
- Should Driscoll Lease (i.e., sign a PPA) or buy the system outright?
- What are the benefits / risks associated with each choice?
- What are the next steps?

# Results of Initial Analysis - Buy vs. Lease/PPA

Results of Financial Analysis - 10-Year Loan						
	Purchase - 20 years		PPA - 20 Years		Purchase - 25 Years	
	Smart 2	Smart 3	Smart 2	Smart 3	Smart 2	Smart 3
<b>Total cost to the town</b>	\$389,680	\$389,680	\$473,899	\$175,262	\$414,680	\$414,680
<b>Cost per kWh</b>	\$0.10	-\$0.01	\$0.17	\$0.06	\$0.08	-\$0.03
<b>Total Savings</b>	<b>\$529,772</b>	<b>\$829,236</b>	<b>\$321,904</b>	<b>\$620,540</b>	<b>\$758,544</b>	<b>\$1,128,300</b>
<b>Purchase vs PPA (10-year Loan)</b>	<b>\$207,868</b>	<b>\$208,696</b>			<b>\$436,641</b>	<b>\$507,760</b>

## Assumptions:

- Utility rate = \$0.25/kWh; Actual cost ranges from \$0.27-\$0.45/kWh driven by hefty demand charges
- Projected utility inflation rate = 1.5%/year

# Results of Initial Analysis - Buy vs. Lease/PPA (No ITC)

Results of Financial Analysis - No ITC / 10-Year Loan						
	Purchase - 20 years		PPA - 20 Years		Purchase - 25 Years	
	Smart 2	Smart 3	Smart 2	Smart 3	Smart 2	Smart 3
<b>Total cost to the town</b>	\$514,000	\$514,000	\$473,899	\$175,262	\$539,000	\$539,000
<b>Cost per kWh</b>	\$0.14	\$0.03	\$0.17	\$0.06	\$0.11	\$0.00
<b>Total Savings</b>	<b>\$405,452</b>	<b>\$704,916</b>	<b>\$321,904</b>	<b>\$620,540</b>	<b>\$634,224</b>	<b>\$1,003,980</b>
<b>Purchase vs PPA (10-year Loan)</b>	<b>\$83,548</b>	<b>\$84,376</b>			<b>\$312,321</b>	<b>\$383,440</b>

Assumptions:

- Utility rate = \$0.25/kWh; Actual cost ranges from \$0.27-\$0.45/kWh driven by hefty demand charges
- Projected utility inflation rate = 1.5%/year

# Benefits & Risks

	<b>Lease / PPA</b>	<b>Purchase</b>
<b>Benefits</b>	<ul style="list-style-type: none"> <li>● Solect owns &amp; maintains the system for 20-years</li> <li>● No upfront capital investment required by the town</li> <li>● No risk associated with termination of ITC</li> </ul>	<ul style="list-style-type: none"> <li>● Solar energy system can operate for 25-30 years with minimal maintenance</li> <li>● Town has access to low-cost capital</li> <li>● Even if ITC is not available, town still can save more by owning the system</li> </ul>
<b>Risks &amp; mitigation</b>	<ul style="list-style-type: none"> <li>● If Solect/PPA provider exits the solar business, PPA might be taken over by another, less responsive financial entity, who may not maintain the system</li> <li>● Significant opportunity cost associated with PPA cost</li> </ul>	<ul style="list-style-type: none"> <li>● Town will be responsible for maintaining the system.               <ul style="list-style-type: none"> <li>○ Solar installers will provide 20-25 year warranty</li> <li>○ Equipment carries 10-25 year warranties</li> <li>○ May hire an expert “solar manager”, to oversee &amp; maintain all solar installations;</li> <li>○ Leverage solar installers who do business in Brookline to perform repairs, if needed.</li> </ul> </li> </ul>

# Next Steps

- Verify & validate initial financial analysis and underlying assumptions; review analysis with industry experts
- Opportunity to further improve the economics of both PPAs & Ownership models:
  - Get 3-5 proposals from high-quality solar installers. We might be able to improve economics by another 10-15%, ensure high-quality equipment installation, and pay lower O&M costs.
  - Some installers are installing "Domestic Content" equipment that would qualify for 50% ITC.
  - Solect is proposing ~\$50/kW/year for Maintenance (O&M). Based on initial research, annual O&M contracts are priced between \$12-\$20/kW/Year.
  - Ensure that proposals include a 20-25 year warranty.
- Consult with experts to ensure School is on the appropriate utility rate plan based on our usage pattern and impact of solar power generation, one that could reduce hefty demand charges

# Appendix: Results of Initial Analysis - Buy vs. Lease/PPA

Results of Financial Analysis						
	Purchase - 20 years		PPA - 20 Years		Purchase - 25 Years	
	Smart 2	Smart 3	Smart 2	Smart 3	Smart 2	Smart 3
<b>Total cost to the town</b>	\$446,800	\$446,800	\$473,899	\$175,262	\$471,800	\$471,800
<b>Cost per kWh</b>	\$0.12	\$0.01	\$0.17	\$0.06	\$0.09	-\$0.01
<b>Total Savings</b>	\$472,652	\$772,116	\$321,904	\$620,540	\$701,424	\$1,071,180
<b>Buy vs PPA - 20-yr loan</b>	<b>\$150,748</b>	<b>\$151,576</b>			<b>\$379,521</b>	<b>\$450,640</b>
<b>Buy vs PPA - 10-yr loan</b>	<b>\$207,868</b>	<b>\$208,696</b>			<b>\$436,641</b>	<b>\$507,760</b>

**Town of Brookline**

prepared by Sergio Modigliani 11.2.25

**Budget Data 2000-2026**

2007 Page I-2 states: Brookline budgets grew by 1.0% annually between 1985 and 2005 on a per capita basis when adjusted for inflation; School spending has grown at a rate higher (1.4%) than basic Municipal services (0.6%) since 1987

**Amount Available for Appropriation**

FY Year	Budget Book Nominal Amount	Budget Book Nominal Dollar Change, Y/Y	Budget Book Nominal Percent Change, Y/Y	Boston CPI Inflation Factor	Real Amount for Appropriation	Annual Dollar Reduction Due to Inflation	Real Percentage Change, Y/Y
FY2000	\$143,298,057			4.290%			
2001	\$155,932,977	\$12,634,920	8.817%	4.430%	\$149,025,146	\$6,907,831	4.387%
2002	\$147,333,324	-\$8,599,653	-5.515%	2.550%	\$143,576,324	\$3,757,000	-8.065%
2003	\$149,351,237	\$2,017,913	1.370%	3.700%	\$143,825,241	\$5,525,996	-2.330%
2004	\$156,086,404	\$6,735,167	4.510%	2.870%	\$151,606,724	\$4,479,680	1.640%
2005	\$167,971,050	\$11,884,646	7.614%	3.170%	\$162,646,368	\$5,324,682	4.444%
2006	\$167,193,206	-\$777,844	-0.463%	3.190%	\$161,859,743	\$5,333,463	-3.653%
2007	\$177,567,728	\$10,374,522	6.205%	1.880%	\$174,229,455	\$3,338,273	4.325%
2008	\$182,349,404	\$4,781,676	2.693%	3.670%	\$175,657,181	\$6,692,223	-0.977%
2009	\$192,206,310	\$9,856,906	5.406%	-0.810%	\$193,763,181	-\$1,556,871	6.216%
2010	\$196,750,968	\$4,544,658	2.364%	1.640%	\$193,524,252	\$3,226,716	0.724%
2011	\$193,564,101	-\$3,186,867	-1.620%	2.650%	\$188,434,652	\$5,129,449	-4.270%
2012	\$201,165,234	\$7,601,133	3.927%	1.620%	\$197,906,357	\$3,258,877	2.307%
2013	\$215,403,322	\$14,238,088	7.078%	1.390%	\$212,409,216	\$2,994,106	5.688%
2014	\$221,001,580	\$5,598,258	2.599%	1.640%	\$217,377,154	\$3,624,426	0.959%
2015	\$227,198,355	\$6,196,775	2.804%	0.630%	\$225,767,005	\$1,431,350	2.174%
2016	\$241,996,168	\$14,797,813	6.513%	1.380%	\$238,656,621	\$3,339,547	5.133%
2017	\$252,361,017	\$10,364,849	4.283%	2.550%	\$245,925,811	\$6,435,206	1.733%
2018	\$264,692,475	\$12,331,458	4.886%	3.230%	\$256,142,908	\$8,549,567	1.656%
2019	\$280,873,746	\$16,181,271	6.113%	2.010%	\$275,228,184	\$5,645,562	4.103%
2020	\$295,275,581	\$14,401,835	5.128%	1.080%	\$292,086,605	\$3,188,976	4.048%
2021	\$309,178,217	\$13,902,636	4.708%	3.090%	\$299,624,610	\$9,553,607	1.618%
2022	\$334,635,419	\$25,457,202	8.234%	7.210%	\$310,508,205	\$24,127,214	1.024%
2023	\$351,054,411	\$16,418,992	4.907%	3.740%	\$337,924,976	\$13,129,435	1.167%
2024	\$380,539,783	\$29,485,372	8.399%	3.200%	\$368,362,510	\$12,177,273	5.199%
2025	\$389,519,080	\$8,979,297	2.360%	2.740%	\$378,846,257	\$10,672,823	-0.380%
2026	\$407,360,815	\$17,841,735	4.580%	3.100%	\$394,732,630	\$12,628,185	1.480%
	\$6,258,561,912	\$264,062,758	<b>4.150%</b>	2.578%	\$6,089,647,317	\$168,914,595	<b>1.552%</b>
			Nominal Increase Annual Average				Real Increase Annual Average

## DRAFT – NOT FOR CIRCULATION

11.15.25

S. Modigliani

### Inflation, Proposition 2½, and the Challenge of Sustainable Local Budgets

Over the past decade, Brookline has approved three (?) Operating overrides to preserve local services that residents value—schools, public safety, and community programs. A fourth Operating override is now being considered, and many households are asking two reasonable questions: *Why does this keep happening?* and *Can we afford to keep doing this?*

The root cause lies in the interaction between inflation and Proposition 2½, the state law that limits annual property tax levy growth to 2.5 percent plus new development. Because this cap is expressed in nominal terms, it does not adjust for inflation. When the cost of goods and services rises faster than 2.5 percent—as has been the case for most of the past decade—the real purchasing power of municipal revenues falls, even if taxes are raised to the legal maximum.

At the same time, the major cost drivers in local budgets—healthcare, energy, and some aspects of collective bargaining agreements—often increase by 4 to 6 percent per year. This mismatch forces towns to choose between reducing services or seeking voter approval to permanently increase the tax base through an override. For many residents, especially those on fixed incomes, each new override represents a real financial burden. Yet without additional revenue, service reductions become unavoidable, particularly in labor-intensive departments like education, public safety, and public works.

Due to thoughtful Town management, an effort to raise a number of the Local Receipts (with particular emphasis on license and permit fees, parking meter charges, traffic and parking violation fines), renewed efforts on PILOTS, and new growth from Zoning and Development initiatives, the Town has been able to achieve a nominal average annual growth of 4.15% over the period 2000-2026 (see attached Budget analysis). However, corrected for inflation over this same period, the real growth has been 1.55%.

For perspective, a department with a \$10 million budget today would have only \$8.88 million in real purchasing power after five years of 2.5 percent inflation. Level funding in nominal terms amounts to an 11 percent real cut in services. Even repeated overrides only reset the baseline temporarily—unless long-term costs are aligned with realistic revenue growth, the same gap will reappear within a few years.

Debt service tells a different story. As one example, the Devotion School bond issued in

2017 for \$33 million, a 25-year bond at 3.14% interest with level principal payments, begins with a \$2.356 million annual payment, falling to \$1.361 million in the final year. Adjusted for inflation, that last payment equals only \$0.74 million in today's dollars, meaning the real cost of debt can decline significantly over time. In other words, Capital borrowing for long-lived assets such as buildings and infrastructure can be sustainable if managed prudently, but using Operating overrides to fund recurring expenses is far less stable.

Ultimately, the pattern of frequent overrides is not necessarily a sign of poor management—it largely reflects the structural limits in Proposition 2½ when inflation runs above 2.5 percent. This points to the importance of examining any budget line item, whether Town or School related, which is consistently growing at a real rate greater than the sum of inflation and the real increase in the Town's budget of around 1.55%, or around 4%. Such operating budget line items cannot be sustained without a cut in services somewhere else in the Budget, or a recognition that another Operating override is required. However, repeated reliance on overrides is not a sustainable long-term strategy for either taxpayers or local government.

TO BE WRITTEN:

AFFORDABILITY ISSUES IN THE PRESENCE OF A PATTERN OF REPEATED OPERATING OVERRIDES.

### Annual Debt Service - Level Principal Bond (\$33M, 25 yrs, 3.14%)

