McGlynn Complex & Andrews MS HVAC Energy Efficiency Project

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City Council Committee of the Whole
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Why?

- McGlynn & Andrews opened in 2001
- HVAC systems, similar to other building systems, have a lifespan. At 23 years we are beyond the lifespan
- Medford has operated under a deferred maintenance or fix when broken maintenance budgeting for a significant period of time.
- Building systems should be (and will be moving forward) covered under Preventive Maintenance Contracts.
- Buildings HVAC systems should be recommissioned every 5 years. Systems have only been recommissioned once, in 2010.

Why?

- Annual startup and repairs have been handled internally and through HVAC trained vendors.
- Systems are currently in various stages of failure in both schools
- Building construction and commissioning have evolved in the years since construction.
- Pandemic health & safety measures have illustrated the overall challenges with these systems
- Systems are built on obsolete R22 Refrigerant & therefore it is prohibitively expensive to repair, if even possible

What?

Currently

- Gas boilers for heating
- Air cooled chillers for cooling classrooms
- Air handlers with air-cooled condensing units for cooling gym, cafeteria, and administrative areas
- Mini-split heat pumps for cooling IT rooms
- Building automation system

What?

Replacement

- Air-to-water heat pumps for heating and cooling
- Condensing gas boilers for heating during coldest temperatures (keeping classroom unit ventilators)
    - This is to reduce operating cost and upfront cost. Heat pumps would need to be significantly larger to cover the relatively small amount of time this would be operating. This design reduces emissions by 39% (58% with 100% renewable electricity).
- Air handlers with air-to-air heat pumps for heating and cooling gym, cafeteria, and administrative areas
- Building automation system for new equipment (keeping existing controls for classroom units)
- Mini-split heat pumps for cooling IT rooms
- Note: Domestic hot water heating is not in the scope of this project

State Funding Considered

- **Mass Save Rebates** – We're planning on taking advantage of these (an estimated $2.2 million), but they are rebates that are reimbursed, not upfront payments.
- **Department of Energy Resources Green Communities Grant** – Up to $500,000 for building electrification, but timing didn't match. Application deadline was October 2024, our required schematic design wasn't available until mid-December 2024, and notification of award wouldn't have happened until spring 2025. (Could apply to this grant in June for retro-commissioning of elementary schools.)
- **MSBA Accelerated Repair Program** – Old program paused for heating systems in 2023, new heat pump retrofit program opened this week. "Accelerated" means within 2 years after the award.
- **Massachusetts Clean Energy Center Green School Works** – Opening sometime in 2025, timeframe for award/completion unclear. Eligible schools are Title 1 schools or in MA EJ Block Groups.

Federal Funding Considered

- **Elective Pay Tax Credits** – Local governments and nonprofits are now eligible for tax “refunds” for certain energy-related tax credits. These include geothermal, solar, energy storage, electric vehicles, and electric vehicle charging stations. The 30% solar tax credits are the only ones that could potentially apply to this project. Geothermal was considered, but was not chosen because of cost and timeline issues.
- **Energy Efficiency and Conservation Block Grant Program** – Formula grant based on population (~$100,000 for Medford). Used for lighting upgrades at City Hall.
- **Renew America Schools** – Alicia & Mayor Breanna met with the Greater Boston Labor Council, MAPC, and surrounding communities multiple times through 2023. It would have dictated a 5-year process before installation would be complete with several years before construction funding would be certain. The coalition determined not to pursue this opportunity.

Past Work

- November 2023 - HVAC Options study of AMS delivered to the Public Schools
- Ongoing updates to School Committee
- June 20, 2024 - OPM contract signed
- August 14 – Designer contract signed
- Late August - Weekly Design Meetings commence
- November 1 – Andrews Schematic Design Complete
- December 9 – prequalified 4 Construction Managers
- December 11 – McGlynn Schematic Design Complete
- January 13 - Logistics Planning w/ Principals Started

Projected Work

- January – IG application for CM at Risk procurement approved
- February – Contract for Construction Manager and pre-purchase of some equipment signed
- February - Design Development completed
- March - Could have budget estimate for next bond approval
- April - Construction Documents completed
- Spring 2025 - Preparation for construction
- Summer 2025 – Disruptive construction (classroom heating and cooling available by end of summer)
- Fall 2025 – Finalize construction, commissioning, and close out

Acting now

- Our goal of providing classroom cooling for the start of school is still realistic and achievable.
- Approving funding now allows equipment to be ordered
  - Construction Manager (CM) requires $300K
  - CM then is authorized to pre-purchase known equipment with encumbered funds (lead time of 3 months)
- Impending federal tariffs may significantly alter the costs associated with this project. This is an unknown variable at this point.
- Phase I Funding - $5 million - 12.16.2024 Request
  - Completing Construction Documents
  - Early Bid Package
  - OPM Services
  - CM Preconstruction Services
  - Equipment Pre Purchase
- Phase II Funding - ~$23-26 million - March / April 2025
  - Cost Estimating by the CM
  - McGlynn Roof Replacement / Refurbishment
  - Construction
  - Solar Installation at both schools - Tentative

Initial Design	**$1,566,225**	
OPM through design development	$267,458	
Designer through design development	$1,298,767	ARPA Funded
Phase I - Preconstruction	**$5,000,000**	$5 million bond authorization - 12.16.2024 SC Ask of City Council
OPM through construction documents	$90,000	
Designer through construction documents	$750,000	
CM preconstruction fee	$300,000	
Owner soft costs contingency	$388,400	
Equipment pre purchase	$3,156,000	

Preliminary conceptual project budget contained herein based upon December 16, 2024 Cost Estimation.

Construction	**$21,819,211**	
Construction costs	$16,901,454	
Owner construction contingency	$687,273	
Designer through construction	$1,325,885	
OPM through construction	$484,955	
Owner soft costs contingency	$2,419,644	Contingency not considered in the GMP
Other costs	**$2,830,000**	**$24,649,211 total needed for second bond**
Commissioning	$500,000	
ADA upgrades	$500,000	
IT rooms (all five schools)	$180,000	Sensitive Equipment Requires 24/7/365 Climate Control
McGlynn roof	$1,500,000	Refurbishment vs. $3 million Replacement
Roofing contingency	$150,000	
Mass Save incentives (estimated)	**-$2,230,000**	**Reimbursable, not included above**
Solar add alternate	**$1,200,000**	Not included above

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HVAC Project Total Anticipated Costs

Initial Design	**$1,566,225**	ARPA Funding
Phase I - Preconstruction	**$5,000,000**	$5 million bond authorization - 12.16.2024 Ask of City Council
Phase II - Construction	**$21,819,211**	
Other costs	**$2,830,000**	**$24,649,211**
Mass Save incentives (estimated)	**-$2,230,000**	**$22,419,211**

First Bond:	**$5,000,000**
Second Bond:	**$24,649,211**
Total Bond Request:	**$29,649,211**
Mass Save incentives (estimated):	**-$2,230,000**
Total Estimated Costs Less Incentives:	**$27,419,211**

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