



Comprehensive HVAC & Electrical Capacity Study

Project Status Update

Smithtown Central School District | October 2026

LIZARDOS

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Introduction



Patrick Tennant, P.E., CEM, CBCP

**Associate Vice President
Presenter and Mechanical Lead**

- ✓ Principal-in-Charge for the District's study
- ✓ 18 years of MEP engineering experience
- ✓ Leads the team of mechanical and electrical engineers carrying out the study
- ✓ Primary point of contact for the District

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MEP Engineering | Mineola, New York

- ✓ 60+ years of mechanical, electrical, plumbing and fire protection design
- ✓ Extensive K-12 school and higher education experience
- ✓ Condition assessments, capacity studies and capital planning for public owners
- ✓ Extensive K-12 architectural capabilities via Aeterna Group Companies

Comprehensive Study - Scope of Work

- **Existing conditions assessment:** Evaluate the condition, age, capacity and code status of heating, ventilation, cooling and electrical systems in each building.
- **Cooling and dehumidification feasibility:** Assess building-wide comfort cooling and dehumidification in conjunction with existing heating systems.
- **Electrical capacity analysis:** Determine available electrical capacity at each building and identify upgrades required to accommodate new HVAC loads.
- **Alternatives, design and cost evaluation:** Develop options with capital and life-cycle costs and schematic design. Identify applicable rebates, grants and incentives.
- **Deliverables:**
 - Building-by-building reports, with a district-wide summary
 - Load calculations and electrical capacity spreadsheets
 - Schematic design drawings (PDF and CAD/Revit)
 - Final presentation to the Board

School District Portfolio

14 buildings, approximately 1.7 million square feet

7

Elementary Schools

~66,000 SF each

Accompsett, Dogwood,
Mills Pond, Mt. Pleasant,
Smithtown, St. James,
Tackan

3

Middle Schools

~160,000 SF each

Accompsett, Great Hollow,
Nesaquake

2

High Schools

~300,000 SF each

Smithtown High School East
and West

2

Ancillary Buildings

~83,000 + ~62,000 SF

Administration building and
rental property

Project Phases

1

Document Review & Site Surveys

Drawings, schedules and utility data; on-site inspection of boilers, unit ventilators, RTUs/AHUs and electrical gear in all 14 buildings

Tasks 1-2

2

System Analysis & Evaluation

Load calculations, ventilation and filtration review, heating plant evaluation, electrical capacity, staff interviews

Tasks 3, 4, 6, 7

3

Testing

Supply/return airflow, zone distribution and IAQ checks, develop balancing scope and coordinate with District's balancing contractor for building baseline testing

Task 5

4

Options & Schematic Design

Centralized vs. decentralized options, cost and life-cycle comparison, funding, schematic layouts and riser diagrams

Tasks 8-10

5

Final Report & Presentation

District-wide summary, building-by-building reports, CAD/PDF drawings, presentation to the Board

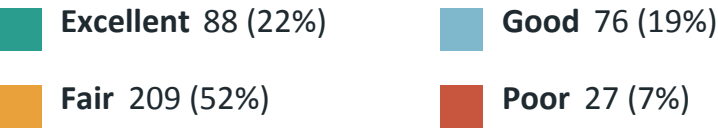
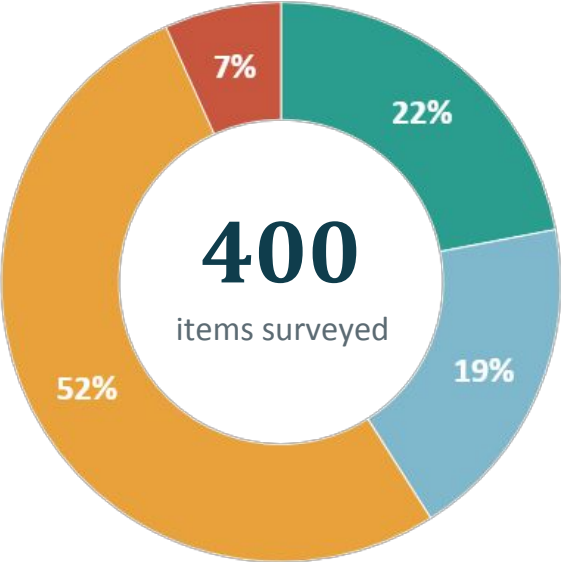
Task 11

Where we are today

Document review	Complete	Existing drawings, schedules and PSEG demand data gathered for all buildings
Site surveys and visual assessments	Complete	All 14 buildings surveyed (February to March 2026); equipment inventoried and condition-rated
HVAC load calculations and analysis	In progress	Zone-by-zone Carrier HAP models built; draft building reports underway
Heating system evaluation	In progress	Boiler plants documented; retain-vs-replace evaluation underway
Electrical capacity evaluation	In progress	Initial evaluations complete; detailed capacity analysis continuing
Air balancing and performance testing	Pending	Develop scope of work based on surveys for District's Testing and Balancing contractor. Review results and tailor options accordingly.
Options, costs, funding, schematic design	Started	Preliminary options identified; costing and design to follow

What we are seeing across the district

Overall equipment condition



59% of equipment is in fair or poor condition

236 of 400 items surveyed. These items need refurbishment or replacement in the near term.



Heating plants are aging

25 of 28 boilers are rated fair. Only High School East has boilers rated excellent.



Cooling coverage varies by building

Five of seven elementary schools rely mainly on window units. Middle and high schools have rooftop units and split systems, many in fair or poor condition.

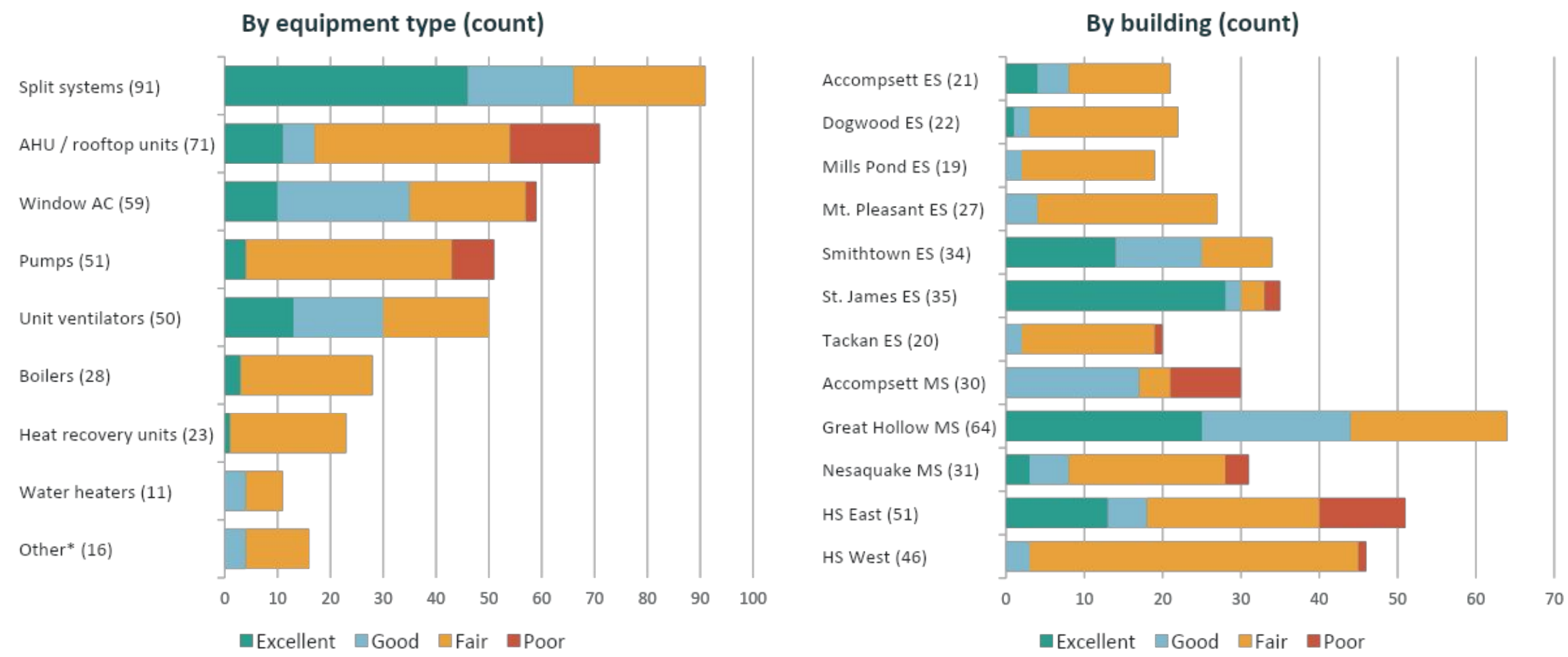


Electrical upgrades will be required

In order to support additional loads, electrical distribution panels will need to be upgraded.

Totals cover the 12 school buildings surveyed to date. The administration building and rental property will be added.

Equipment condition by type and building



*Other: chillers, cooling towers, cogeneration units and unit heaters. Totals cover 12 school buildings; administration building and rental property to follow.

Existing conditions across the district



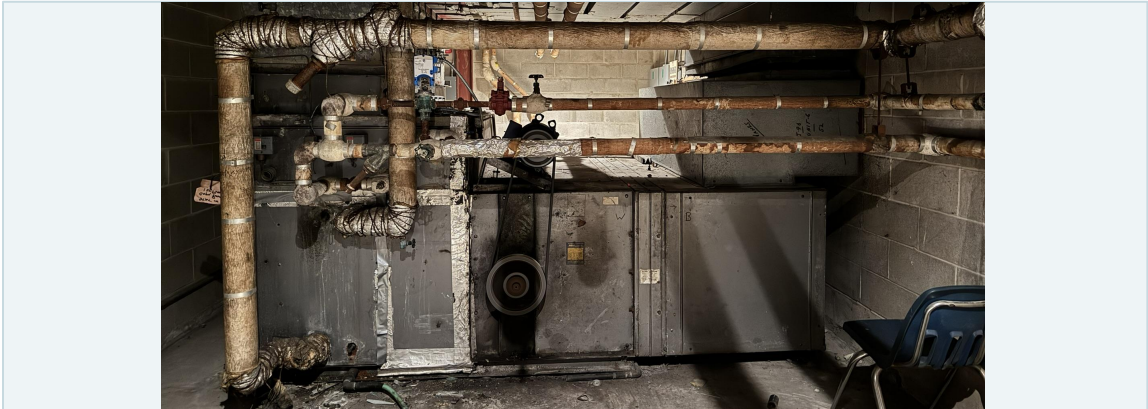
Typical Unit Ventilator – Accomsett Elementary



Typical Boiler – High School West



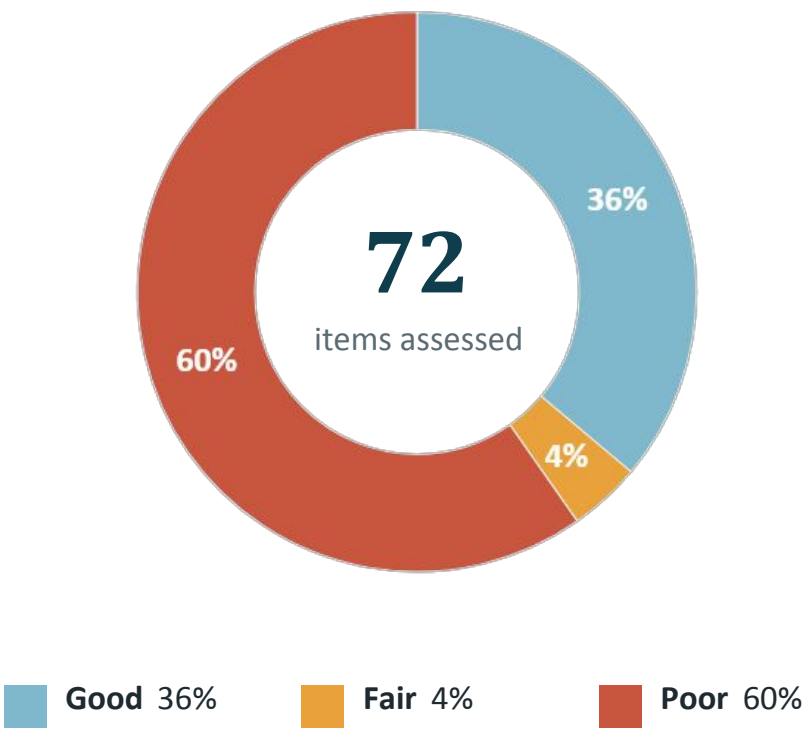
Chiller – High School East



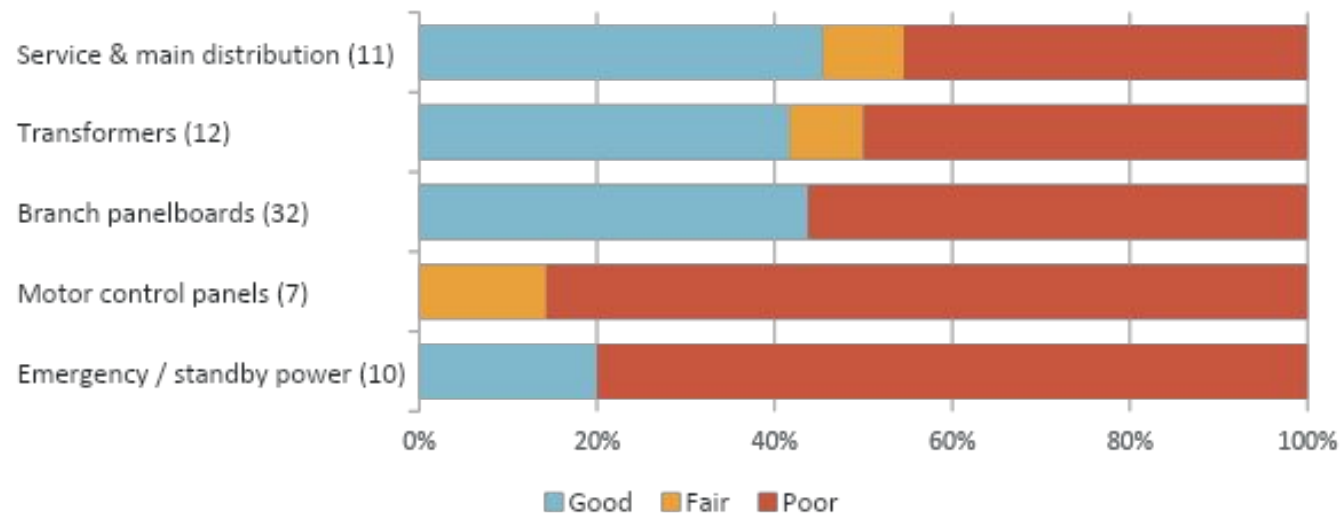
Indoor Air Handler (Heating Only) – High School East

Electrical Condition: Typical Building

Nesaquake Middle School



Condition by equipment category (%)



57%

of equipment recommended for replacement within 6–18 months

50%

is original Federal Pacific equipment, all rated poor

3000A

main switchboard has exceeded its service life

Example building only. Electrical assessments for the remaining buildings are being finalized; district-wide results will be in the final report.

Existing conditions across the district



Outdated Electrical Panels



Outdated Electrical Switchgear

Options Being Evaluated

Classroom Solutions

- DX unit ventilators
- Chilled water unit ventilators

Large Space Solutions

- Packaged rooftop units where roof conditions permit
- Indoor AHUs with DX or chilled-water cooling

Office / Support Areas

- VRF or split systems
- Air handling systems with VAVs

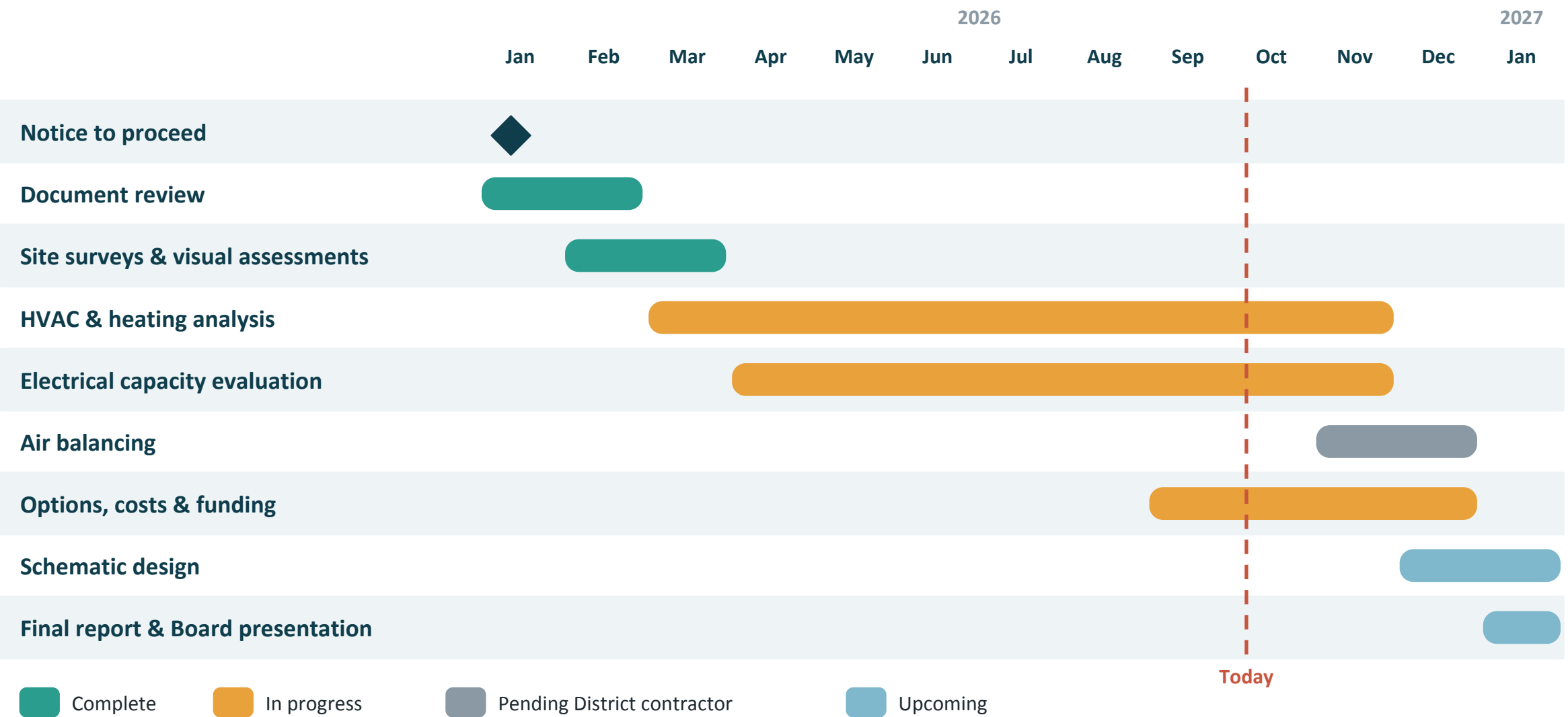
Infrastructure Strategy

- Electrical service and distribution upgrades as required
- Phased installation to manage cost and operational disruption
- Integration with existing central systems where applicable

Funding sources we are tracking

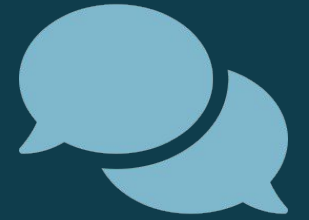
- **PSEG Long Island:** 2026 Commercial Efficiency Program offers prescriptive rebates for rooftop units, VRF and heat recovery ventilators, and custom rebates for heat pumps and chillers. Applications must be made before work begins.
- **NYSERDA FlexTech:** Cost-shared engineering studies that document energy savings and support rebate and grant applications.
- **NYSED Building Aid:** State aid on approved capital projects at the District's building aid ratio. Requires a voter-approved project and SED approval.
- **Federal programs:** The 179D deduction ended for projects beginning construction after June 30, 2026. Any remaining elective-pay credits (e.g., geothermal) to be confirmed with the District's advisors.
- **Note:** *Incentives are tied to the rebate programs currently available. The rebates ultimately included in the report will likely vary depending on when the work is performed and on changes to each program.*

Schedule to completion



Next steps

- Finalize HVAC options at each facility
- Finalize electrical load analysis at each building
- Coordinate balancing scope of work with air balancing contractor
 - Sampling of equipment at each school (20-25%)
- Develop schematic design for recommended options
- Develop cost estimates, life-cycle comparisons and funding strategies
- Issue draft reports to the School District



Questions

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