



**Stamford Public Schools
Board of Education, Facilities Management
888 Washington Boulevard, 3N
Stamford, Connecticut 06901**

TO: City of Stamford Board of Finance Members

FROM: Kevin McCarthy, Director of Facility Operations, Stamford Public Schools

COPY: Dr. Tamu Lucero, Superintendent, Stamford Public Schools
Ryan Fealey, CFO, Stamford Public Schools
Anthony Romano, Management Analyst, City of Stamford OPM

DATE: March 7, 2023

RE: Capital Project (001313) Appropriation Request
District Wide Window AC Unit Project Additional Information

This memorandum contains additional information as requested by Board of Finance Members via email received on February 20, 2023, from the Clerk of the Board, related to the Additional Appropriation Request for the District Wide Window AC Unit Project. Further information related to renting window AC units is also included in this memorandum.

Provide Total scope of project:

Project scope includes furnishing and installing 348 window air conditioners in teaching spaces that do not currently have air conditioning. Work includes purchasing and installing the window AC unit, installing an electrical outlet for the unit, removing the window glass/frame, and installing a plywood/fire rated panel in the window opening for the window ac unit to mount through. Below is the number of window AC units by school over the course of the project which is anticipated to be funded and constructed in two phases:

Building	Number of Window AC Units Needed
Cloonan	47
Dolan	53
KT Murphy	14
Newfield	21
Northeast	1
Roxbury	24
Springdale	2
Stamford High	75
Turn of River	37
Westhill	74

How many rooms in total need to be addressed over the coming years to meet the total scope of this initiative?



The first phase includes 200 teaching spaces and the second phase includes 148 teaching spaces.

Please separate by school

Please see table provided in question one.

Group schools into 2 categories that will remain (and not be substantially renovated) and those that will be closed or substantially renovated (example, Turn of River).

Based on the Implementation Schedule within the Master Plan, which was presented to the Board of Finance on November 2, 2022, and contained in page 7 and 8 of the presentation, the following summary table identifies major construction at the sites:

Building	Major Construction
Cloonan	Closes July 2033
Dolan	Closes July 2035
KT Murphy	Closes July 2028
Newfield	Construction July 2037 - 2039
Northeast	Construction July 2037 - 2039
Roxbury	Closes July 2027
Springdale	Construction July 2038 - 2040
Stamford High	Construction July 2023 – July 2033, July 2039 – December 2041
Turn of River	Construction July 2030-July 2033
Westhill	Closes July 2027

Costs Analysis:

Upfront costs:

Please identify the costs behind the \$1,500 per unit.

- \$600 for Window AC Unit
- \$450 for Electrical Materials and Labor
- \$450 for Carpentry Materials and Labor

How much for the dedicated electrical line

\$450 has been budgeted for electrical materials and labor per unit.

How much for the install of the unit

\$900 has been budgeted for electrical and carpentry work required for the install per unit.

How much for the unit?



\$600 has been budgeted for the unit

How do we ensure that certain installs (including electrical) do not exceed the estimated costs? Conversely, what will be the process to determine if an unused dedicated electrical line already exists in a room that can be utilized? My understanding is that there may be rooms that were outfitted for prior (obsolete) technology that might be able to be used.

As currently done with all Facilities Projects, Facility Managers will be managing the project and ensuring work is conducted effectively and efficiently focusing on schedule, budget, and minimizing disruption to the learning environment.

Electrical requirements are unique to each teaching space and will be reviewed prior to installation by a Facility Manager and our licensed Electrical Foreman to ensure the work is conducted in an effective, efficient, and practical manner that is easy to maintain and does not impact the learning environment. There is potential available electrical load associated with obsolete educational technology and the LED lights previously installed. Additionally, some schools have had new electrical panels installed in certain sections of the building during the generator projects recently completed.

Ongoing Costs:

Please specify the total annual operating costs for the entire scope of the project once all units are installed.

Below is a summary table of expected usage costs from Competitive Energy Services, based on a 8 hours per day, 5 days a week, 4 months a year usage.

Building	Units	Usage	All in/Kwh	Cost
Cloonan	47	79383	\$ 0.194	\$ 15,411
Dolan	53	89517	\$ 0.194	\$ 17,379
KT Murphy	14	23646	\$ 0.194	\$ 4,591
Newfield	21	35469	\$ 0.194	\$ 6,886
Northeast	1	1689	\$ 0.194	\$ 328
Roxbury	24	40536	\$ 0.194	\$ 7,870
Springdale	2	3378	\$ 0.194	\$ 656
Stamford High	75	126675	\$ 0.194	\$ 24,593
Turn of River	37	62493	\$ 0.194	\$ 12,132
Westhill	74	124986	\$ 0.194	\$ 24,265
Total	348	587,772		\$ 114,110

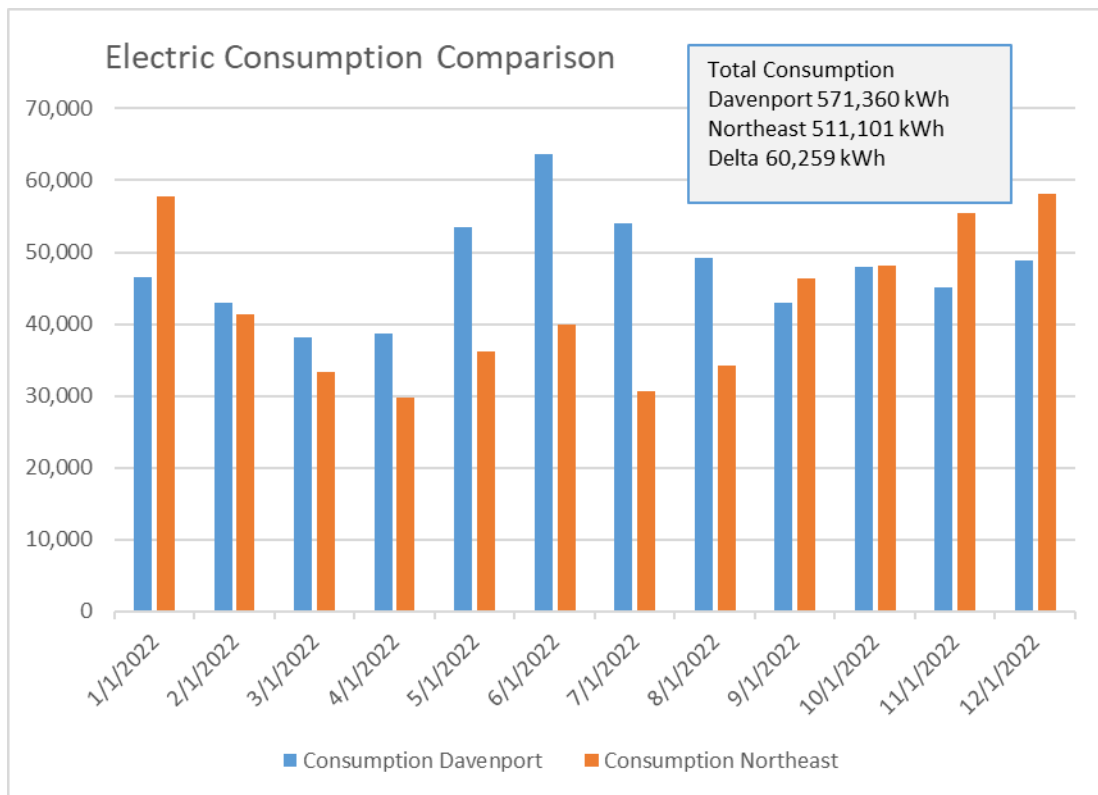
Benchmark an existing school that has existing window units and analyze the energy usage in the year prior to the window units being installed and the year after - normalize for any other energy savings projects in that school - like LED lighting. An example of a school to use might be Northeast School. This will help prove out the cost analysis for electricity usage that has been estimated previously.

All schools have LED retrofits. An energy usage analysis should normalize for weather to confirm year to year comparison has been corrected for degree day information.

Additionally, assumptions would need to be made for load factors, run times, etc. as well as installation costs. This is a more extensive analysis which will take additional time.

Compare the costs of operating the schools with the window units vs the schools with central air conditioning.

Below is a comparison table of electrical consumption at Northeast, which has window AC units, and Davenport, which has roof top units providing heating, cooling, and ventilation.



What controls can be put in place at the building level to ensure air conditioners are not run on nights and weekends and at other times of the year?

Building administrators will be tasked with ensuring staff are turning off window ACs at the end of the day in a similar fashion as they do computers and active touch panels.

Can there be a defined standard operating procedure with the Custodians' Union to ensure units are shut off at night and weekends?

In addition to building administrating working with staff to ensure units are shut off at the end of day, Facilities will work with custodian staff to ensure units are shut off at the end of the day.



For other times of the year outside of the 2 month time periods, can there be a procedure where the fuse (for the dedicated electrical servicing the window units) is switched off and on for each season at the electrical box?

If the units are on a dedicated circuit, Facilities will work with Electrical shop to ensure breakers in the electrical panel are disconnected during non-use.

Window AC Unit Rentals

BOE Facilities Department conducted additional research on the cost of renting window AC Units above initial information provided. Facilities staff conducted google searches, as directed by BOF members, and concluded the following:

- Contacted the following vendors
 - Rent An AC:
 - \$550 a season for 10,000 BTU units
 - Paratus Rentals
 - \$480 per unit for 3 months
 - Rent-A-Center
 - \$33.00 per week for 14,000 BTU units
 - County TV and Appliance
 - Does not rent units
 - Air Solution
 - Does not rent units.
- Electrical costs and carpentry costs for install still required. Each unit still requires a window panel and electrical outlet.
- Reoccurring carpentry cost during spring install and fall removal. Each unit will require the window glass removed/panel installed in the spring and the panel removed/window glass installed in the fall.