Town of Sudbury
Capital Improvement Budget Request
FY2018 Form A

		Department/Committee: Facilities/SPS/Town **Item/Project Name:** Capital Repairs at Town and Schools HVAC Equipment
Initial Year of Request: 2015	**Estimated Total Project Cost:** $55,000	**Estimated Future Savings:**[1] This request will reduce further repair bills, improve indoor air quality issues, maintain staff morale, prevent painting and floor repairs from the leaks in the units, and prolonging serviceable life of equipment.
Estimated Incremental Costs:[2] None – there will be a savings from reduction of additional repair costs and avoidance of a premature capital replacement	**Staffing Changes:**[3] None, but it will certainly improve the morale of teachers and staff when they have consistent air conditioning and fewer drippings of water from the ceiling. Especially important with AHU-2, as there are performances in the auditorium during the summer months. Joe K. will be assessing the two rooftop units in the upcoming months to be prepared to engage vender to perform major capital maintenance. There are several HVAC units at different buildings with serious needs, and this gets the funding in place to permit these expensive repairs or replacement, and will insure we maximize the full potential of the equipment's life cycle.	
Justification Code: "A" This work is essential to air exchanges and indoor air quality and conditioning in the buildings, for the health and welfare of the occupants. This is a critical need to insure the buildings are reliable for use.	**R or NR:** R	**Priority:** 1

Project Description:
The immediate task is the Repair of several HVAC units at the Curtis School and at the Goodnow Library. There are two at Curtis under immediate consideration, both problematic and leaking. The estimate to make major capital repairs on the Curtis rooftop units is $15,000 per unit. A third one at Curtis is the air conditioning/air handling unit for the auditorium. These HVAC rooftop Units are 17 years old and the library is 19 years old, and beginning to wear out. The interior of several units are rusting, and holes are now formed in the sheet metal, leaking to the indoors. The A/C coils were installed as a retro-fit in 2002, and they are failing. The costs estimates are attached. We know as the equipment gets older, larger repairs, or replacements, are required. This funding will support the costs associated with the large repairs, and will give us more useful life and time before we need full replacement of equipment. This project request will also fund repairs at the Goodnow Library rooftop HVAC unit #2. The estimated cost of the repairs is $17,739.00. Two other units that are aging and may need repairs or replacement are at the Town Clerks Office and the Senior Center. The Senior Center unit is 27 years old and is approaching the end of its useful life. The unit will be used until it fails. The replacement estimate is $10,784.00.

Justification and Need: The motors, variable frequency drives, shafts, sheet metal, compressors and condensing coils are starting to wear out and causing leaks in units and the refrigerant supply. The condensate pans under the cooling coils are rotted and condensate is leaking to the school floor below. Attached is a picture of the temporary water leakage control, with the hose that runs along the ceiling and drains into the custodians closet sink. The rooftop units are the heating and cooling systems for our buildings and many are becoming older and need to be repaired or replaced. In the last two years, we have funded replacement of some older units that were not worth repair, this request is to fund capital repairs to those units, which still have value before replacing with new, or in the case of the senior center, replacement is more economical. This type of request will become more frequent in the upcoming years as many of our schools and Town buildings are of a similar age and these systems will need replacement or major system repairs. The plan for FY18 is to invest this capital into repairs and try to prolong the life span of the units. The units do have some remaining useful years; however, these do require significant repair cost. A new replacement unit of this scale would cost one to two hundred thousand dollars, or even more for the very large units. This repair plan, although expensive, is a wise investment in order to gain years of additional usefulness from the rooftop units.

Benefit:
Prolong the building system and protect the asset. This project may also allow the opportunity to update the refrigerant from R22 to R410A, which is more environmentally friendly and less costly when a repair is necessary. It will not necessarily be an option for every major repair, but if it were possible, the refrigerant would be updated. The Atkinson Pool and Fairbank Cafetorium both were replaced with grant money. These two projects capital replacements totaled over $400,000. This major repair request is to fund those repairs that are generally far in excess of the maintenance budget.

Last time this was replaced (i.e., year roof was previously replaced or year vehicle):	**Typical Replacement Cycle:**
Most units under consideration are between 17 and 20 years old.	15 to 20 years

Alternatives Considered/Reasons for Rejecting Alternatives: Put off another year and/or wait until it fails and is unrepairable. However, two units at the Curtis School have deteriorated and need to be fixed, it is not an option, and they have simply worn out. The estimates for these repairs are attached. The state law for repairs and construction requires the town pay prevailing wage, which increases our costs dramatically from those similar costs in private sector. Last year the Goodnow Library had a 20,000 dollar repair to just one of the two rooftop units. A replacement estimate for an entire new HVAC rooftop unit would be in excess of $200,000.00. If we do nothing, other units will fail and cause an unacceptable environment to teach the kids, work, provide services, as well as cause damages to the roof, ceiling and floor finishes at the facilities. We will spend more in the end if we do not fix what we have; the trouble is that these fixes are much more costly than just simple maintenance.
Consequences of Not Implementing/Delaying Implementation: The buildings may not have air conditioning or heat and it will affect building operation. The cost of repairs, or replacement if we do not make repairs, will be much more expensive if there is an emergency repair. It is not really a matter of if we need to do this, but rather how we fund these capital repairs. Some repairs are immediate and known. Other capital repairs will arise as many of our appliances are approaching 18 to 20 years old.
Other Pertinent Background Information (e.g., Quotes, Brochures, Pictures, etc.): See attached quotations for HVAV repairs.

[1] Quantify any future savings if project is implemented (e.g., personnel costs, maintenance, repairs, energy conservation, etc.)
[2] Quantify any incremental costs anticipated if project is implemented (e.g., future personnel costs, maintenance, repairs, etc.)
[3] Quantify staffing changes (up or down) anticipated if project is implemented.

Picture of Curtis roof, showing just some of the two dozen rooftop HVAC appliances.

HRU-2 is shown here, with other units in the background

The compressors and air-handling unit for HRU-2

This is the source of leakage and the coils has failed

This is why we build buildings with flat roofs. The unit in the upper left is for the auditorium.