Introduction

Mission

The Department of Maintenance is one of eight departments comprising the Division of Supporting Services (DSS). The goal of DSS is for the Departments of Maintenance, Capital Planning, Design and Construction, Food and Nutrition Services, Information Technology Services, Operations, Transportation, and Facility Coordination, Health, Physical Education, and Athletics to continue to improve all methods of communication and coordination for maintenance projects and capital improvement planning.

Mission Statement for the Division of Supporting Services

The Division of Supporting Services is committed to promoting achievement and opportunity through a coordinated effort to provide the highest quality learning environment.

This plan outlines the process for providing properly maintained educational facilities. This plan also provides an overview for the maintenance of all facilities, identifies objectives of the preventive maintenance program, provides an overview of budgetary requirements, and identifies and provides support for projects within the school system's six-year maintenance operating budget plan and the Capital Improvements Program.

The Department of Maintenance is fundamentally responsible for supporting the educational mission of SMCPS by ensuring that the students of SMCPS have learning environments that are safe, comfortable, and attractive. A vigorous preventive maintenance program to protect the capital assets ensures that the planned useful life of the facilities and associated components are realized, and that early detection of unforeseen facility concerns are communicated and planned for well in advance of their actual failure. Our schools are operated efficiently and effectively through a commitment to open communication, continuous training, and the integration of people, technology, and process.

The Department of Maintenance is presently comprised of 33.85 staff members providing emphasis on:

- Health, fire / life safety, and intrusion detection systems repair and functionality
- State, federal, and local code compliances
- Indoor Environmental Quality (IEQ) and Indoor Air Quality (IAQ) remediation
- Scheduled preventive, predictive, and corrective maintenance
- Potable and non-potable water testing
- School building/grounds and system inspections
- Minor renovations/alterations
- Logistic Support
- Planning long- and short-term facility infrastructure and system needs

Characteristics of the maintenance program are as follows:

- Maintaining more than 2,585,230 square feet of building/school space
- Maintaining a fleet of 111 vehicles and 24 buses
- Annually executing approximately 13,945 work orders
- Annually completing approximately 6,482 hours of preventive maintenance tasks
- Facilitating facility emergency preparedness and response
- Providing maintenance and upkeep of 795.37 acres (237.55 active acres)
- Preforming all regulatory facility related testing and inspections (elevators, drinking water, effluent, boiler, fire alarm, sprinklers, kitchen hoods, back flow prevention, fuel oil tank, spill bucket, infrared inspections, bleacher, operatable walls, and theatrical rigging).

The Department of Maintenance currently employs four maintenance processes; each process has a particular application to which it is best suited. The following processes are used to maximize the life cycle and reliability of schools' systems' facilities and to maximize the use of maintenance of plant funding.

- **Scheduled Preventive Maintenance -** This process is utilized on equipment and tasks that, through industrial standards, code requirements, warranty compliances, and sound due diligences, require scheduled periodic inspections and services; i.e., fire alarm systems, vertical transportation systems, air filtration systems, bleachers, etc.
- **Predictive Maintenance** - This process is utilized on the equipment and tasks that have predictable failure rates, based on individual and unique applications. These predictions are based on physical observation, empirical data, laboratory tests, and recorded hours of operation; i.e., vehicle maintenance, water chiller replacement, emergency generator replacement, etc.
- **Corrective Maintenance -** This process is utilized on components within systems that, because of their relatively low monetary value, do not warrant periodic scheduled maintenance or the investment in data collection or laboratory testing. They are scheduled to be replaced based on operational observations and objectives; i.e., fan belts, air handling units, casing gaskets, laboratory faucets, flush valves, etc.
- **Deferred Maintenance** - This process is utilized in an attempt to manage budget constraints when faced with unplanned or unpredictable service interruptions. This process defers planned scheduled preventive maintenance and predictive maintenance to direct funds and efforts to address unplanned or unpredictable service interruptions. Please note, preventive maintenance is never deferred on critical equipment and systems; i.e., life safety systems, major comfort control systems, emergency power generators, etc.

Goals and Initiatives

The Department of Maintenance implements a program of preventive maintenance of schools and support facilities through renewal, repair, renovation, or replacement, while ensuring the operation of these facilities is at or near their original design efficiency, and providing predictive input on facilitating infrastructure and systems' likely failure intervals for capital funding planning, for as long as they remain in use for the county's educational program.

Presently, the Departments of Maintenance, Capital Planning, Design and Construction, Food and Nutrition Services, Information Technology, Operations, Transportation, and Facility Coordination, Health, Physical Education, and Athletics are organizationally separate departments; however, all eight departments continue to collaboratively communicate and express needs and concerns in relation to anticipated and on-going maintenance, alteration, and construction projects. All eight departments monitor and assess all aspects of building construction, design, maintenance, operation, and safety and security. Collaboratively, these departments utilize information to correct and/or manage deficiencies, identify and establish new capital projects. A program of prevention is initiated and maintained through regular periodic inspections by maintenance staff, site administrators, and school-based building service employees.

Within the department of maintenance short and long-term goals are summarized below.

Short Term Initiatives (1 to 3 years)

- Planning for the abatement and/or management of Hg containing materials in existing flooring
- Focus on relocatable utilization to determine state/local funding sources for renovation, replacement, and/or disposal of these units as appropriate.
- Training on alternate ventilation verification methods, CFC certification courses, renovator certificated refresher courses (Pb management while working), various safety courses, refresher training on refrigeration charging / troubleshooting, and refresher training on commercial HVAC application.
- Identifying funding for the purchase of a facility management system to more effectively collect, store, and manage facility information, as a single source for management of facility documents (drawings, specifications, operation and

maintenance information), capital planning assistance, project, and project management communications.

Long Term Initiatives

- Manage all facilities and systems to ensure they are planned for replacement before they fail, by means of the expected life cycles monitoring and maintenance management.
- Employ a full facilities management tool that will include software and associated services to support condition assessments, facilities needs analyzed, project development, project planning, project management, and project document indexing and organization.
- Reinvent and invest in stormwater management, identify community partners, and identify more cost-effective maintenance and repair contract vehicles and techniques.
- Training, education, re-training, and refresher training.

Initiatives

Maintenance, as with other functions within SMCPS, is also responsible to the students, staff, community, and the environment. Maintenance, as a function, has always been a sustainable function; maintaining equipment, structures, and devices not only helps increase the interval of replacement and decrease the interval in which raw materials are needed for replacement, but maintains the energy efficiency at near design levels. Other practices have been adopted that help maintain the environment and benefit the school system. Some of these are listed below as examples:

- The Work Request and Work Order System has been converted to a primarily electronic system, eliminating 95% of the paper used previously.
- Low or No Volatile Organic Compounds (VOC) paints are used where practical within our facilities and, where not practical, the spaces are well ventilated for a minimum of 24 hours before use is restored. This practice maintains good air quality, allowing the occupants a comfortable environment, and reduces harmful waste into our environment.
- Work planning and material staging have been arranged not only to reduce the need to travel back and forth from the schools to acquire materials for maintenance, but also to improve trade craft labor utilization. This decreases the consumption of gasoline and increases trade craft utilization. As a result, it reduces our consumption of vehicle maintenance materials such as oils, coolants, hydraulic fluids, lead batteries, and tires. Since 2007, an estimated $190,272.00 (12.8%) has been saved in fuel costs, and overall, our trade craft utilization is averaging 82% utilization.
- Machine part cleaners that were used in the past contained ozone depleting chemicals, some of which contained carcinogens. These cleaners have been replaced with more environmentally friendly cleaners. This not only helps the environment, but reduces the time spent on hazardous material tracking and inventory requirements and reduces the likelihood of employee injury when using these products, creating a safer environment for our staff and, again, reduces environmental impacts.
- All flooring products are “Green,” limiting the cost to the school system, reducing the eventual disposal, and utilizing recycled and/or recyclable materials.

- All equipment, furniture, and cabinetry are evaluated for reuse or repurposing before disposal, reducing our need to purchase new furniture and reducing the tasking on environmental resources.

Energy Conservation

In the fall of 2005, SMCPS outlined an Energy Conservation Strategic Plan (ECSP). At the time electricity was $0.06/kWh, fuel oil was $1.83/gallon, natural gas was $1.14/ therm, and propane was $1.23/gallon. Electricity is now $0.119/kWh, a 98.3% increase, fuel oil is $3.264/gallon, a 78.36% increase, propane is $1.868/gallon, a 51.85% increase, and natural gas is now $0.875/ therm, which is a 23.2% reduction. Compared to FY 2021, in FY 2022, the unit cost of all utilities increased. While SMCPS has no direct control over the price for utilities, we do have control over our consumption.

DSS proposes a proactive daily approach to energy conservation. We believe that through better management of our facilities and education of employees and students, a reduction in energy consumption will be achieved which will result in financial savings. The desire and level of commitment within the school system and the energy usage of facilities will determine the level of success of the program. The effective management of energy is based on three principles:

1. Changing philosophy about energy usage within SMCPS
2. Initiating changes within the building environment
3. Promoting system-wide awareness for energy conservation success

In July 2018, the school system implemented a new version of SchoolDude Energy Manager, the capabilities of the new version allow for expanded analysis. Based on the new analysis SMCPS has saved an estimated 58 million kWh in electricity while bringing on two new schools. Energy consumption (electric, fuel oil, propane, and natural gas) was reduced from 78.47 KBTU/ft2 in FY 2007 to 63.19 KBTU/ft2 in FY 2022. This equates to a 19.5% reduction. While the initial response to COVID-19 created a higher-than-average decrease in energy consumption in FY 2020, the last two fiscal years have increased over FY 2020 due to staff and students returning to buildings and indoor air quality requirements.

In accordance with the Board’s goal to ensure the effective and efficient use of school system resources, DSS has developed a set of goals for the ECSP. These goals are utilized to evaluate the effectiveness of the plan, analyze proposed initiatives and projects, and develop short and long-range goals and objectives. These goals will continue to be reviewed as new advancements in energy conservation develop.

Maryland State Legislature enacted House Bill 630 as Chapter 608 on May 30, 2021. This legislation concerns primary and secondary education school district energy use. As of July 1, 2022, all Maryland school districts were required to have an energy use policy addressing energy efficiency, conservation, renewable energy, and the monitoring and reporting of energy data both current and historical. SMCPS revised its energy policy on June 8, 2022 and continues its data collection and reporting efforts to remain in compliance with this legislation.

Highlights of the 2021 – 2022 school year included the following energy conservation initiatives:

1. Continued participation in the demand response curtailment program offered by the local electric cooperative for 19 schools. This resulted in a savings of 2,133 kW during the summer of 2021 (June – October 2021).
2. Continued participation in energy rebate programs offered by the local electric cooperative for installation of energy efficient equipment.

With the start of the 2022 – 2023 school year, each school will continue to implement energy saving strategies. SMCPS will continue to implement system-wide energy conservation measures, as well as site-specific measures always focusing on:

1. Awareness/education
2. Evaluation of new technologies
3. Re-evaluation of electrical load profiles
4. Utilization of all available resources for funding of energy conservation projects