

HARFORD COUNTY PUBLIC SCHOOLS

COMPREHENSIVE MAINTENANCE PLAN 2016



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BOARD OF EDUCATION OF HARFORD COUNTY

INFORMATIONAL REPORT

DECISION ON 2016 COMPREHENSIVE MAINTENANCE PLAN

August 15, 2016

Background Information:

The Public School Construction Program Administrative Procedures Guide requires each Board of Education to annually prepare a Comprehensive Maintenance Plan to be submitted to the Interagency Committee for the Public School Construction Program (PSCP).

Discussion:

As required by the Interagency Committee for the Public School Construction Program, the Department of Facilities prepares an annual Comprehensive Maintenance Plan.

Utilizing the guidelines prescribed by the Interagency Committee, the plan is reviewed and annually updated by the school system's Department of Facilities. The revised and updated Comprehensive Maintenance Plan is attached.

Superintendent's Recommendation:

The Superintendent of Schools recommends that the Board of Education approve the Comprehensive Maintenance Plan for submittal to the Interagency Committee for Public School Construction Program.

HARFORD COUNTY PUBLIC SCHOOLS

COMPREHENSIVE MAINTENANCE PLAN

AUGUST 2016

PURPOSE OF THE PLAN

This comprehensive maintenance plan is established to develop, maintain, and/or improve the maintenance program of the public school system to support the delivery of educational programs and services and to provide a safe and healthy environment as effectively and efficiently as possible.

OBJECTIVES OF MAINTENANCE

The primary objective of the maintenance program is the maintenance of buildings, grounds, and fixed equipment through repairs or replacement during the 40 year life expectancy of the building. Specifically this can be further broken down as follows:

- 1.) To provide buildings which function at top efficiency.
- 2.) To maintain the plant buildings and grounds and fixed equipment in such a manner as to eliminate or reduce to acceptable levels - fires, accidents, and safety hazards.
- 3.) To provide continuous use of facilities without disruptions to the educational program.
- 4.) To protect public property by planned, scheduled, and repair/ preventive maintenance.
- 5.) To conserve energy by insuring that the maximum results are obtained with minimum expenditure of energy.
- 6.) To provide maintenance program which will produce the maximum amount of maintenance for the minimum dollars expended.

MAINTENANCE CATEGORIES

Scheduled Maintenance

- 1.) Preventive Maintenance - It is the goal of a preventive maintenance program that equipment will be inspected and serviced as required to prevent more costly failures. Attached with this Comprehensive Maintenance Plan is a detailed summary of the Preventive Maintenance Program. Along with this narrative is a TASK LISTING for one of the identified areas for Preventive Maintenance (Make-up Air Unit). Additionally, a list of thirty-three (33) identified areas of mechanical equipment is attached that is the major thrust of the program as well as the filter, drive belt and filter frame specifications.
- 2.) Scheduled Repairs - Scheduled maintenance has the goal of keeping the facilities in proper operating condition through regular service of equipment and facilities. It is, therefore, imperative that a schedule be established to insure proper budgeting.

The schedule itself is not an exact time table because the exact month or even year of a failure or breakdown cannot be determined in advance. Rather, it is a prediction indicating that over a

period of time a piece of equipment must be replaced or serviced if it is expected to function properly. The frequencies used are those recommended by the Interagency Committee or are based on local experiences and conditions.

Repairs or replacements are not made strictly by the schedules, but are made based on the necessity of corrective action. The schedule or replacement must be flexible but will be accurate from a long range budget planning standpoint.

- 3.) Modernization and Alterations – Replacement of the chiller was completed at North Harford Middle School. Parking lot patching, painting, floor tile replacement and partial asbestos abatement were completed at numerous sites.

Replacement projects are as follows: folding partition at Prospect Mill Elementary School; metal chain fence at Bakerfield Elementary School; roof at Churchville Elementary School; boilers at Church Creek Elementary School and concrete sidewalks at Southampton Middle, Joppatowne High and Edgewood High School.

Preventive maintenance and repair on the boilers, sprinkler systems, stage rigging, and fire alarm systems throughout Harford County Public Schools. Preventive maintenance was performed at all three (3) natatorium locations.

Unscheduled Maintenance

- 1.) **Unscheduled Repairs** - Requests for repairs are received through our computerized work order system. They are then reviewed, prioritized and assigned to appropriate personnel for completion. Acknowledgment copies are signed by school personnel when work is complete. A total of 20,432 work orders were submitted between 7/1/2015 and 6/9/2016. During that time period 17,581 work orders were completed. This computerized system allows for an accurate inventory control and an accurate tracking of labor, materials/parts and all associated departmental costs. At this time, all buildings are set up to submit work requests electronically.
- 2.) **Vandalism and Security Related Repairs** - Facilities is prepared to respond to any acts of vandalism or problems relating to proper building security twenty-four (24) hours a day seven (7) days a week.

While specifics relating to this area cannot be identified in advance, historical information and community trends are used to forecast needs.

Deferred Maintenance

- 1.) As a part of the prioritizing process it becomes necessary, due to budget constraints, to defer some projects. This activity occurs in a minimal amount. Some other projects are deferred because of personnel shortages and are addressed at a later time.

Capital Improvement Program

The Comprehensive Maintenance Plan (CMP) incorporates and mirrors many components of the CIP. Specific categories of the CMP are boiler replacement, floor covering replacement, fire alarm replacement, resurfacing, roof, HVAC, and vehicle replacement. Priorities are established with both programs in tandem.

BLEACHER INSPECTIONS AND REPAIRS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY19 | Planned FY20 | Planned FY21 |
|------------------------------------|------------------|-----------------|------------------|------------------|-----------------|-----------------|-----------------|
| Aberdeen High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Bel Air High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Center for Educational Opportunity | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| C. Milton Wright High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Edgewood High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Fallston High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Harford Technical High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Havre de Grace High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Joppatowne High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| North Harford High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Patterson Mill Middle/High | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out | In/Out |
| Aberdeen Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Bel Air Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Edgewood Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Fallston Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Havre de Grace Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Magnolia Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| North Harford Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Southampton Middle | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Abingdon Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Church Creek Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Emmorton Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Fountain Green Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| North Bend Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Red Pump Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| Ring Factory Elementary | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |

BOILER INSPECTIONS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen High | X | X | | X | | X | |
| Bel Air High | | | X | | X | | X |
| Center for Educational Opportunity | X | X | | X | | X | |
| C. Milton Wright High | X | X | | X | | X | |
| Edgewood High | X | X | | X | | X | |
| Fallston High | | | X | | X | | X |
| Harford Technical High | | | X | | X | | X |
| Havre de Grace High | | | X | | X | | X |
| Joppatowne High | | | X | | X | | X |
| Patterson Mill Middle/High | | | X | | X | | X |
| Aberdeen Middle | X | X | | X | | X | |
| Bel Air Middle | | | X | | X | | X |
| Edgewood Middle | | | X | | X | | X |
| Fallston Middle | | | X | | X | | X |
| Havre de Grace Middle | X | X | | X | | X | |
| Magnolia Middle | | | X | | X | | X |
| North Harford Middle | X | X | | X | | X | |
| Southampton Middle | | | X | | X | | X |
| Abingdon Elementary | X | X | | X | | X | |
| Bakerfield Elementary | | | X | | X | | X |
| Bel Air Elementary | X | X | | X | | X | |
| Church Creek Elementary | X | X | | X | | X | |
| Churchville Elementary | X | X | | X | | X | |
| Darlington Elementary | | | X | | X | | X |
| Deerfield Elementary | X | X | | X | | X | |
| Dublin Elementary | | | X | | X | | X |

BOILER INSPECTIONS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Emmorton Elementary (3) | X | X | | X | | X | |
| Forest Hill Elementary | X | X | | X | | X | |
| Forest Lakes Elementary | X | X | | X | | X | |
| Fountain Green Elementary | | | X | | X | | X |
| Hall's Cross Roads Elementary | X | X | | X | | X | |
| Havre de Grace Elementary | | | X | | X | | X |
| Hickory Elementary | | | X | | X | | X |
| Homestead/Wakefield – Primary | X | X | | X | | X | |
| Homestead/Wakefield – Intermediate | X | X | | X | | X | |
| Jarrettsville Elementary | | | X | | X | | X |
| Joppatowne Elementary | | | X | | X | | X |
| Magnolia Elementary | | | X | | X | | X |
| Meadowvale Elementary | X | X | | X | | X | |
| North Bend Elementary | | | X | | X | | X |
| North Harford Elementary | | | X | | X | | X |
| Patterson Mill Middle/High | | | X | | X | | X |
| Red Pump Elementary | X | X | | X | | X | |
| Ring Factory Elementary | | | X | | X | | X |
| Roye-Williams Elementary | | | X | | X | | X |
| Wm. Paca/Old Post Road – Primary | X | X | | X | | X | |
| Wm. Paca/Old Post Road – Inter. | X | X | | X | | X | |
| William S. James Elementary | X | X | | X | | X | |
| Youth's Benefit – Primary | | | X | | X | | X |
| Youth's Benefit – Intermediate | | | X | | X | | X |
| John Archer | | | X | | X | | X |

BOILER REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|---|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Aberdeen High | 2004 | | | | | | | |
| Bel Air High (3) | 2009 | | | | | | | |
| Center for Educational Opportunity (2) | 1965 | | | X | | | | |
| C. Milton Wright High (2) | 1978 | | | | | | | |
| Edgewood High (3) | 2010 | | | | | | | |
| Fallston High (5) | 2015 | | | | | | | |
| Harford Technical High (3) | 00,01 | | | | | | | |
| Havre de Grace High (3) Gym/Boiler Room | 2011 | | | | | | X | |
| Havre de Grace High (2)-Main | 2012 | | | | | | X | |
| Joppatowne High (2) | 1971 | | | | | | | X |
| Patterson Mill Middle/High | 2006 | | | | | | | |
| Aberdeen Middle (2) | 2003 | | | | | | | |
| Bel Air Middle (5) | 94,00 | | | | | | | |
| Edgewood Middle | 2005 | | | | | | | |
| Fallston Middle (2) | 1992 | | | | | | | |
| Magnolia Middle (4) | 2015 | | | | | | | |
| North Harford Middle (2) | 2008 | | | | | | | |
| Southampton Middle (2) | 2010 | | | | | | | |
| Abingdon Elementary (3) | 1992 | | | | | | | |
| Bakerfield Elementary (2) | 1999 | | | | | | | |
| Bel Air Elementary (2) | 2013 | | | | | | | |
| Church Creek Elementary (5) | 93,16 | | X (3) | | | | | |
| Churchville Elementary (4) | 1998 | | | | | | | |
| Darlington Elementary (2) | 66,95 | | | X | | | | |
| Deerfield Elementary (2) | 2010 | | | | | | | |
| Emmorton Elementary (3) | 1993 | | | | | | | |

BOILER REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|-----------------------------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Forest Lakes Elementary (2) | 1997 | | | | | | | |
| Fountain Green Elementary | 1993 | | | | | | | |
| Hall's Cross Roads Elem. (2) | 1993 | | | | | | | |
| Havre de Grace Elementary (2) | 1989 | | | | | | | |
| Hickory Elementary (2) | 1996 | | | | | | | |
| Homestead/Wakefield-Prim(2) | 1988 | | | | | | | |
| Homestead Wakefield-Inter (2) | 1984 | | | | X | | | |
| Jarrettsville Elementary (3) | 2012 | | | | | | | |
| Joppatowne Elementary (2) | 2009 | | | | | | | |
| Magnolia Elementary (2) | 1974 | | | | | | | |
| Meadowvale Elementary (2) | 1991 | | | | | | | |
| Norrisville Elementary (1) | 2014 | | | | | | | |
| North Bend Elementary (2) | 1990 | | | | | | | |
| North Harford Elementary (3) | 2013 | | | | | | | |
| Patterson Mill Middle/High | 2006 | | | | | | | |
| Red Pump Elementary | 2011 | | | | | | | |
| Ring Factory Elementary (2) | 1990 | | | | | | | |
| Roye-Williams Elementary (2) | 1982 | | | | | | | |
| Wm. Paca/Old Post Road- Pri (2) | 1974 | | | | | X | | |
| Wm. Paca/Old Post Road-Inter. (2) | 2012 | | | | | | | |
| William S. James Elementary (4) | 2014 | | | | | | | |
| Youth's Benefit - Inter. (2) | 1973 | | | | | | | |
| John Archer (2) | 2009 | | | | | | | |

FIRE ALARM REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|-------------------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Aberdeen High | 2004 | | | | | Panel | | |
| Bel Air High | 2009 | | | | | | | |
| Center for Educ. Oppor. | 1965 | | | | | | | |
| C. Milton Wright High | 1996 | | | | X | | | |
| Edgewood High | 2010 | | | | | | | |
| Fallston High | 2009 | | | | | Panel | | |
| Harford Tech. High | 2000 | | | | | Panel | | |
| Havre de Grace High | 2005 | | | | | | | |
| Joppatowne High | 1996 | | | | | | | X |
| North Harford High | 2005 | | | | | Panel | | |
| Aberdeen Middle | 2000 | | | | | | | |
| Bel Air Middle | 1994 | | | | | X | | |
| Edgewood Middle | 2005 | | | | | Panel | | |
| Fallston Middle | 1993 | | | | | | | |
| Havre de Grace Middle | 2011 | | | | | | | |
| Magnolia Middle | 2014 | | | | | | | |
| North Harford Middle | 2003 | | | | | Panel | | |
| Southampton Middle | 2003 | | | | | | | |
| Abingdon Elementary | 2002 | | | | X | | | |
| Bakerfield Elementary | 2000 | | | | | Panel | | |
| Bel Air Elementary | 2002 | | | | | | | |
| Church Creek Elem. | 1994 | | | | | | X | |
| Churchville Elem. | 2000 | | | | | | | |
| Darlington Elementary | 1999 | | X | | | | | |
| Deerfield Elementary | 2010 | | | | | | | |
| Dublin Elementary | 2012 | | | | | | | |
| Edgewood Elementary | 2001 | | | | | | | |
| Emmorton Elementary | 2010 | | | | | | | |
| Fountain Green Elem. | 1993 | | | | | | | |

FIRE ALARM REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|--------------------------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Forest Lakes Elementary | 1997 | | | | | Panel | | |
| George D. Lisby @ Hillsdale | 1997 | | | | X | | | |
| Hall's Cross Roads Elem. | 1997 | | | | | Panel | | |
| Havre de Grace Elem. | 1995 | | | | | | | |
| Hickory Elementary | 1997 | | | | | | | |
| Homestead/Wakefield – Inter. | 2009 | | | | | X | | |
| Homestead/Wakefield - Primary | 1958 | | | | | X | | |
| Jarrettsville Elementary | 2010 | | | | | | | |
| Joppatowne Elementary | 2009 | | | | | | | |
| Magnolia Elementary | 2009 | | | | | | | |
| Meadowvale Elem. | 2001 | | | | | | | |
| Norrisville Elementary | 2011 | | | | | | | |
| North Bend Elementary | 1991 | | | | X | | | |
| North Harford Elem. | 2002 | | | | | | | |
| Prospect Mill Elem. | 2012 | | | | | | | |
| Red Pump Elem. | 2011 | | | | | Panel | | |
| Ring Factory Elem. | 2007 | | | | | | | |
| Riverside Elementary | 2000 | | | | | | | |
| Roye-Williams Elem. | 2013 | | | | | | | |
| Wm. Paca/Old Post Rd. – Inter. | 2013 | | | | | | | |
| Wm. Paca/Old Post Rd.– Primary | 2014 | | | | | | | |
| William S. James Elem. | 2004 | | | | | Panel | | |
| Youth's Benefit – Intermediate | 2001 | | | | | | | |
| Youth's Benefit - Primary | 2005 | | | | | | | |
| John Archer | 2006 | | | | | | | |
| Harford Glen – Bldg. A | 1997 | | | | | | | |
| Harford Glen – Bldg. B | 1997 | | | | | | | |
| Harford Glen – Cafeteria | 2014 | | | | | | | |

FLOOR COVERING REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned F Y 21 |
|--|----------------|---------------|-------------|---------------|---------------|---------------|---------------|----------------|
| Aberdeen High | 2003 | | | | | | | |
| Bel Air High | 2009 | | | | | | | |
| Center for Educational Oppor. (Media) | 2007 | | | | | | | |
| C. Milton Wright High | 2010 | | | | | | | |
| Edgewood High | 2010 | | | | | | | |
| Fallston High | 2001 | | | | | | | |
| Harford Technical High | 2000 | | | | | | | |
| Havre de Grace High | 2000 | | | | | | | |
| Joppatowne High | 2003 | | | | | | | |
| North Harford High | 2006 | | | | | | | |
| Aberdeen Middle | 2003 | | | | | | | |
| Bel Air Middle (Media) | 2012 | | | | | | | |
| Edgewood Middle | 2003 | | | | | | | |
| Fallston Middle | 1993 | | | | | | X | |
| Havre de Grace Middle (Media) | 2013 | | | | | | | |
| Magnolia Middle | 2000 | | | | | | | |
| North Harford Middle | 1997 | | | | | | | |
| Southampton Middle | 2000 | | | | | | | |
| Abingdon Elementary | 1992 | | | | | X | | |
| Bakerfield Elementary | 2000 | | | | | | | |
| Bel Air Elementary | 2008 | | | | | | | |
| Church Creek Elementary | 1994 | | | | | | | |
| Churchville Elementary | 1997 | | | | | | | |
| Darlington Elementary | 2016 | X | X | | | | | |
| Deerfield Elementary | 2010 | | | | | | | |
| Dublin Elementary | 2011 | | | | | | | |
| Edgewood Elementary | 2002 | | | | | | | |
| Emmorton Elementary | 1994 | | | | | | | |

FLOOR COVERING REPLACEMENTS

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|---------------------------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Forest Hill Elementary | 2000 | | | | | | | |
| Fountain Green Elementary | 1993 | | | | | | | X |
| Forest Lakes Elementary | 1997 | | | | | | | |
| George D. Lisby Elem. (VCT) | 1968 | | | | | | | |
| Hall's Cross Roads Elementary | 1992 | | | | X | | | |
| Havre de Grace Elementary | 2012 | | | | | | | |
| Hickory Elementary | 1997 | | | | | | | |
| Homestead/Wakefield – Primary | 1996 | | | | | | | |
| Homestead/Wakefield – Inter. | 2009 | | | | | | | |
| Jarrettsville Elementary | 2007 | | | | | | | |
| Joppatowne Elementary | 2009 | | | | | | | |
| Magnolia Elementary | 1997 | | | | | | | |
| Meadowvale Elementary | 2002 | | | | | | | |
| Norrisville Elementary | 1997 | | | | | | | |
| North Bend Elementary | 2014 | | | | | X | | |
| North Harford Elem. (VCT) | 1997 | | | | | | | |
| Prospect Mill Elementary | 2006 | | | | | | | |
| Red Pump Elementary | 2011 | | | | | | | |
| Ring Factory Elementary | 2010 | | | | X | | | |
| Riverside Elementary (Media) | 2010 | | | | | | | |
| Roye-Williams Elementary | 1995 | | | | | | | |
| Wm. Paca/Old Post Road – Prim. | 1997 | | | | | | | |
| Wm. Paca/Old Post Road – Inter. | 1997 | | | | | | | |
| William S. James Elementary | 1997 | | | | | | | |
| Youth's Benefit – Primary | 1995 | | | | | | | |
| Youth's Benefit – Intermediate | 2000 | | | | | | | |
| John Archer (VCT) | 1998 | | | | | | | |

HVAC SYSTEM REPLACEMENTS

(Roof Top Units and Chillers)

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|--|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Aberdeen High (Chiller) | 2005 | | | | | | | |
| Bel Air High (Chiller) | 2009 | | | | | | | |
| C. Milton Wright High (Chiller) | 2001 | | | | | | | |
| Edgewood High (Chiller) | 2010 | | | | | | | |
| Fallston High (Chiller) | 1997 | | | | | | | |
| Harford Technical High (RT) | 1998 | | | | | | | |
| Havre de Grace High (Chiller RT) Auditorium (2) | 2012 | | | | | | | |
| Joppatowne High (Chiller) | 2006 | | | | | | | |
| North Harford High | 2007 | | | | | | | |
| Aberdeen Middle (Chiller) | 2014 | | | | | | | |
| Bel Air Middle | 2007 | | | | | X | | |
| Edgewood Middle (Chiller) | 2005 | | | | | | X | |
| Fallston Middle (Chiller) | 1993 | | | | X | | | |
| Havre de Grace Middle (RT) | 1997 | | | | | | | |
| Magnolia Middle (Chiller) | 2014 | | | | | | | |
| North Harford Middle (Chiller) | 2015 | | | | | | | |
| Southampton Middle (Chiller) | 2010 | | | | | | | |
| Abingdon Elementary (Chiller) | 2001/ 1992 | | | | | X | | |
| Bakerfield Elementary (Chiller) | 1998 | | | | | | | |
| Bel Air Elementary (Chiller) | 2011 | | | | | | | |
| Church Creek Elementary (Chiller) | 2013 | | | | | | | |
| Churchville Elementary (Chiller) | 1998 | | | | | | | |
| Darlington Elementary | 2000 | | | X | | | | |
| Dublin Elementary | 2015 | | | | | | | |
| Edgewood Elementary (RT) | 2001 | | | | | | | |
| Emmorton Elementary (Chiller) | 2013 | | | | | | | |
| Forest Hill Elementary (Chiller) | 2000 | | | | | | | |

HVAC SYSTEM REPLACEMENTS

(Roof Top Units and Chillers)

| School | Date Installed | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|---|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
| Forest Lakes Elementary (Chiller) | 2014 | | | | | | | |
| Fountain Green Elem. (Chiller) | 2009 | | | | | | | |
| George D. Lisby Elem. @ Hillsdale (RT) | 1997 | | | | | | | |
| Hall's Cross Roads Elem. (Chiller) | 1996 | | | | | | | |
| Havre de Grace Elem. (Chiller) | 2013 | | | | | | | |
| Hickory Elementary (Chiller) | 1997 | | | | | | | X |
| Homestead/Wakefield – I (Chiller) | 2012 | | | | | | | |
| Jarrettsville Elementary (Chiller) | 2012 | | | | | | | |
| Magnolia Elementary (Chiller) | 2003 | | | | | | | |
| Meadowvale Elementary(Chiller) | 2002 | | | | | | | |
| Norrisville Elementary (Chiller) | 1995 | | | | | | | |
| North Bend Elementary (Chiller) | 1991 | | | | X | | | |
| North Harford Elem. (Chiller) | 2000 | | | | | | | |
| Patterson Mill Middle/High (Chiller) | 2006 | | | | | | | |
| Prospect Mill Elementary (RT) | 2016 | X | X | | | | | |
| Red Pump Elementary | 2011 | | | | | | | |
| Ring Factory Elementary (Chiller) | 2015 | | | | | | | |
| Riverside Elementary (RT) | 1995 | | | | | | | |
| Roye-Williams Elementary (Chiller) | 1995 | | | | | | | |
| Wm. Paca/Old Post Rd – I (Chiller) | 2012 | | | | | | | |
| Wm. Paca/Old Post Rd – Primary | 1996 | | | | | | | |
| William S. James Elementary (Chiller) | 2014 | | | | | | | |
| Youth's Benefit Elementary Intermediate (Chiller) | 2009 | | | | | | | |
| Youth's Benefit Elementary Primary (Chiller) | 2012 | | | | | | | |
| John Archer | 2009 | | | | | | | |
| K Buildings (Total of 14) | 68,70 | | | | | | | |

PAINING

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen High | | | | | | | X |
| Bel Air High | | | | | | | |
| Center for Educational Opportunity | | | | | | | |
| C. Milton Wright High | | | | X | | | |
| Edgewood High | | | | | X | | |
| Fallston High | | | | | | | |
| Harford Technical High | X | X | | | | | |
| Havre de Grace High | | | | | | X | |
| Joppatowne High | | | | | | | |
| North Harford High | | | X | | | | |
| Aberdeen Middle | | | | X | | | |
| Bel Air Middle | | | | | | | |
| Edgewood Middle | | | | X | | | |
| Fallston Middle | | | | | | | |
| Havre de Grace Middle | X | X | | | | | |
| Magnolia Middle | | | | | | | X |
| North Harford Middle | | | | | X | | |
| Patterson Mill Middle/High | | | | | | | |
| Southampton Middle | | | | | | | X |
| Abingdon Elementary | | | | | | | |
| Bakerfield Elementary | | | | | | X | |
| Bel Air Elementary | | | | | | | |
| Church Creek Elementary | | | | | | | |
| Churchville Elementary | | | | | X | | |
| Darlington Elementary | | | | | | | |
| Deerfield Elementary | | | | X | | | |
| Dublin Elementary | | | | | | | |
| Edgewood Elementary | | | | | | | |
| Emmorton Elementary | | | | | | | |

PAINING

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|---------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Forest Hill Elementary | | | | | X | | |
| Forest Lakes Elementary | | | X | | | | |
| Fountain Green Elementary | X | X | | | | | |
| George D. Lisby @ Hillsdale | | | | | | | X |
| Hall's Cross Roads Elementary | | | X | | | | |
| Havre de Grace Elementary | X | X | | | | | |
| Hickory Elementary | | | | | | | |
| Homestead / Wakefield - Primary | | | | | | | |
| Homestead / Wakefield - Intermediate | | | | | | | |
| Jarrettsville Elementary | | | | | X | | |
| Joppatowne Elementary | | | | | | | |
| Magnolia Elementary | | | | | | | |
| Meadowvale Elementary | | | | | | | |
| Norrisville Elementary | | | X | | | | |
| North Bend Elementary | | | | | | | X |
| North Harford Elementary | | | X | | | | |
| Prospect Mill Elementary | | | | | | X | |
| Red Pump Elementary | | | | | | | |
| Ring Factory Elementary | | | | | | X | |
| Riverside Elementary | | | | | | | |
| Roye-Williams Elementary | | | | | X | | |
| Wm. Paca/Old Post Road - Primary | | | | X | | | |
| Wm. Paca/Old Post Road - Intermediate | | | | X | | | |
| Wm. S. James Elementary | | | | | | | |
| Youth's Benefit - P | | | | | | | |
| Youth's Benefit - I | | | | | | | |
| John Archer | X | X | | | | | |

PAVING – OVERLAY & MAINTENANCE

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen High – South | | | | | | | |
| Bel Air High | | | | | | | |
| Center for Educational Opportunity | | | | | | | |
| C. Milton Wright High | | | | | | | |
| Edgewood High | | | | | | | |
| Fallston High | | | | | | | |
| Harford Technical High | | | | | | | |
| Havre de Grace High | | | | | | | |
| Joppatowne High | | | | X | | | |
| North Harford High | | | | | | | |
| Aberdeen Middle | | | | | | | |
| Bel Air Middle | | | | | | | |
| Edgewood Middle | | | | | | | |
| Fallston Middle | | | | | | | |
| Havre de Grace Middle | | | | | | | |
| Magnolia Middle | | | | | | | |
| North Harford Middle | | | | | | | |
| Patterson Mill Middle/High | | | | | | | |
| Southampton Middle | | | | | | | |
| Abingdon Elementary | | | | | | | |
| Bakerfield Elementary | | | | | | | |
| Bel Air Elementary | | | | | | | |
| Church Creek Elementary | | | | | | | |
| Churchville Elementary | | | | | | | |
| Darlington Elementary | | | | | | | |
| Deerfield Elementary | | | | | | | |
| Dublin Elementary | | | | | | | |
| Edgewood Elementary | | | | | | | |
| Emmorton Elementary | | | | | | | |

PAVING – OVERLAY & MAINTENANCE

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|-------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Forest Hill Elementary | | | | | | | |
| Forest Lakes Elementary | | | | | | | |
| Fountain Green Elementary | | | | | | | |
| George D. Lisby Elem. At Hillsdale | | | | | | | |
| Hall’s Cross Roads Elementary | | | | | | X | |
| Havre de Grace Elementary | | | | | | | |
| Hickory Elementary | | | | | | | |
| Homestead/Wakefield – P | | | | | | | |
| Homestead/Wakefield – I | | | | | | | |
| Jarrettsville Elementary | | | | | | | |
| Joppatowne Elementary | | | | | | | |
| Magnolia Elementary | | | | | | | |
| Meadowvale Elementary | | | | | | | |
| Norrisville Elementary | | | | | | | |
| North Bend Elementary | | | | | | | X |
| North Harford Elementary | | | | | | | |
| Prospect Mill Elementary | | | | | | | |
| Red Pump Elementary | | | | | | | |
| Ring Factory Elementary | | | | | | | |
| Riverside Elementary | | | | | X | | |
| Roye-Williams Elementary | | | | | | | |
| Wm. Paca/Old Post Road – Primary | | | | | | | |
| Wm. Paca/Old Post Road-Intermediate | | | | | | | |
| William S. James Elementary | | | | | | | |
| Youth’s Benefit – Primary | | | | | | | |
| Youth’s Benefit – Intermediate | | | | | | | |
| John Archer | | | | | | | |
| Hickory Annex | | | | | | | |

ROOF REPLACEMENTS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|------------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen High | | | | | | | |
| Bel Air High | | | | | | | |
| Center for Educational Opportunity | | | | | | | |
| C. Milton Wright High | | | | | | | |
| Edgewood High | | | | | | | |
| Fallston High | | | | | | | |
| Harford Technical High | | | | | | | |
| Havre de Grace High | | | | | | | |
| Joppatowne High | | | X | | | | |
| North Harford High | | | | | | | |
| Aberdeen Middle | | | | | X | | |
| Bel Air Middle | | | | | | | |
| Edgewood Middle | | | | | | | |
| Fallston Middle | | | | | | | |
| Havre de Grace Middle | | | | | | | |
| Magnolia Middle | | | | | | | |
| North Harford Middle | | | | | | | |
| Patterson Mill Middle/High | | | | | | | |
| Southampton Middle | | | | | | | |
| Abingdon Elementary | | | | | | | |
| Bakerfield Elementary | | | | | | | |
| Bel Air Elementary | | | | | | | |
| Church Creek Elementary | | | | | | | |
| Churchville Elementary | X | X | | | | | |
| Darlington Elementary | | | | | | | |
| Deerfield Elementary | | | | | | | |
| Dublin Elementary | | | | | | | |
| Edgewood Elementary | | | | | | | |
| Emmorton Elementary | | | | | | | |
| Forest Hill Elementary | | | | | | | |
| Forest Lakes Elementary | | | | | | | |

ROOF REPLACEMENTS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|-----------------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Fountain Green Elementary | | | | | | | |
| George D. Lisby @ Hillsdale | | | | | | | |
| Hall's Cross Roads Elementary | | | | | | | |
| Havre de Grace Elementary | | | | | | | X |
| Hickory Elementary | | | | | | X | |
| Homestead / Wakefield - Primary | | | | | | | |
| Homestead / Wakefield – Inter. | | | | | | | |
| Jarrettsville Elementary | | | | | | | |
| Joppatowne Elementary | | | | | | | |
| Magnolia Elementary | | | | | | | |
| Meadowvale Elementary | | | | | | | |
| Norrisville Elementary | | | | | | | |
| North Bend Elementary | | | | | | | |
| North Harford Elementary | | | | X | | | |
| Prospect Mill Elementary | | | | | | | |
| Red Pump Elementary | | | | | | | |
| Ring Factory Elementary | | | | | | | |
| Riverside Elementary | | | | | | | |
| Roye Williams Elementary | | | | | | | |
| Wm. Paca/Old Post Road – Primary | | | | | | | |
| Wm. Paca / Old Post Road – Inter. | | | | | | | |
| William S. James Elementary | | | | | | | |
| Youth's Benefit - Primary | | | | | | | |
| Youth's Benefit - Intermediate | | | | | | | |
| John Archer | | | | | | | |

CLEANING OF ON-SITE WASTEWATER SYSTEMS

| School | Planned FY 16 | Actual FY 16 | Planned FY 17 | Planned FY 18 | Planned FY 19 | Planned FY 20 | Planned FY 21 |
|--|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| Aberdeen High – Grease Trap | X | X | X | X | X | X | X |
| Bel Air High – (2) Grease Traps | X | X | X | X | X | X | X |
| Edgewood High – (2) Grease Traps | X | X | X | X | X | X | X |
| Fallston High – WWTP & Grease Trap | X | X | X | X | X | X | X |
| Harford Technical High - WWTP & Grease Traps | X | X | X | X | X | X | X |
| North Harford High - WWTP & Grease Trap | X | X | X | X | X | X | X |
| Fallston Middle – Grease Trap | X | X | X | X | X | X | X |
| North Harford Middle – Grease Trap | X | X | X | X | X | X | X |
| Patterson Mill Middle/High - Grease Trap | X | X | X | X | X | X | X |
| Churchville Elementary – Septic Tank | X | X | X | X | X | X | X |
| Darlington Elementary - Septic Tank | X | X | X | X | X | X | X |
| Deerfield Elementary – Grease Trap | X | X | X | X | X | X | X |
| Dublin Elementary – Septic Tank | X | X | X | X | X | X | X |
| Edgewood Elementary – Grease Trap | X | X | X | X | X | X | X |
| Forest Hill Elementary–Septic Tank & Grease Trap | X | X | X | X | X | X | X |
| Jarrettsville Elementary – Septic Tank | X | X | X | X | X | X | X |
| Norrisville Elementary–Septic Tank &Grease Trap | X | X | X | X | X | X | X |
| North Bend Elementary – Septic Tank | X | X | X | X | X | X | X |
| North Harford Elementary – Septic Tank | X | X | X | X | X | X | X |
| Prospect Mill Elementary – Grease Trap | X | X | X | X | X | X | X |
| Red Pump Elementary – Grease Trap | X | X | X | X | X | X | X |
| Youth’s Benefit – Inter. – Septic Tank | X | X | X | X | X | X | X |
| Youth’s Benefit – Primary – WWTP & Grease Trap | X | X | X | X | X | X | X |
| Harford Glen – Grease Trap | X | X | X | X | X | X | X |
| Harford Glen House – Septic Tank | X | X | X | X | X | X | X |
| John Archer – Grease Trap | X | X | X | X | X | X | X |

UNDERGROUND STORAGE TANKS

| SCHOOL | PRODUCT | GALLONS | TANK No. | INSTALL DATE | LAST TEST | PASS/ FAIL | TEST COMPANY | TYPE OF TANK | TEST PIPES PLACED | MAN WAY | CERT ON FILE |
|--------------------------|---------|---------|----------|--------------|-----------|------------|--------------|--------------|-------------------|---------|--------------|
| 2017 | | | | | | | | | | | |
| HICKORY ANNEX-BUS | DIESEL | 10000 | 2 | 1933 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| HOMESTEAD ELEM | #2 OIL | 10000 | 1 | 1966 | 2016 | P | Eldreth | Steel | NO | YES | YES |
| WAKEFIELD ELEM | #2 OIL | 10000 | 1 | 1958 | 2016 | P | Eldreth | Steel | NO | YES | YES |
| 2018 | | | | | | | | | | | |
| ABERDEEN HIGH-CEO | #2 OIL | 15000 | 1 | 1987 | 2008 | P | Eldreth | STIP-3 | YES | NO | YES |
| ABERDEEN MIDDLE | #2 OIL | 10000 | 1 | 1999 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| FALLSTON MIDDLE | #2 OIL | 20000 | 1 | 1993 | 2007 | P | Eldreth | ST-FRP | YES | YES | YES |
| HOMESTEAD ELEM | #2 OIL | 10000 | 1 | 1966 | 2012 | P | Eldreth | Steel | NO | YES | YES |
| NORTH HARFORD ELEM. | #2 OIL | 10000 | 1 | 1993 | 2007 | P | Eldreth | ST-FRP | NO | YES | YES |
| WAKEFIELD ELEM. | #2 OIL | 10000 | 1 | 1958 | 2012 | P | Eldreth | Steel | NO | YES | YES |
| 2019 | | | | | | | | | | | |
| ABINGDON ELEM. | #2 OIL | 15000 | 1 | 1992 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| ABINGDON ELEM.-GENERATOR | DIESEL | 20000 | 1 | 1992 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| BAKERFIELD ELEM. | #2 OIL | 10000 | 1 | 1993 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| CHURCHVILLE ELEM. | #2 OIL | 10000 | 1 | 1995 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| HOMESTEAD ELEM. | #2 OIL | 10000 | 1 | 1966 | 2013 | P | Eldreth | ST-FRP | YES | YES | YES |
| JOHN ARCHER | #2 OIL | 10000 | 1 | 1988 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| MAGNOLIA ELEM. | #2 OIL | 10000 | 1 | 1990 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| WAKEFIELD ELEM. | #2 OIL | 10000 | 1 | 1958 | 2013 | P | Eldreth | ST-FRP | YES | YES | YES |
| OLD POST ROAD ELEM. | #2 OIL | 10000 | 1 | 1990 | 2009 | P | Eldreth | ST-FRP | YES | YES | YES |
| 2020 | | | | | | | | | | | |
| HICKORY ANNEX | GAS | 8000 | 1 | 1993 | 2015 | P | Eldreth | ST-FRP | YES | YES | YES |
| WAKEFIELD ELEM. | #2 OIL | 10000 | 1 | 1958 | 2019 | P | Eldreth | Steel | NO | YES | YES |
| HOMESTEAD ELEM. | #2 OIL | 10000 | 1 | 1966 | 2019 | P | Eldreth | Steel | YES | YES | YES |
| HICKORY ANNEX BUS | DIESEL | 10000 | 2 | 1993 | 2015 | P | Eldreth | ST-FRP | YES | YES | YES |
| HALL'S CROSS ROADS | #2 OIL | 10000 | 1 | 1987 | 2015 | P | Eldreth | STIP-3 | YES | YES | YES |

VEHICLE REPLACEMENT

7/1/2016

The following report presents a breakdown of the equipment owned and maintained by HCPS and outlines the amount of capital replacement expenditure needed per year under the replacement guidelines utilized by Harford County Government policy. The economic life standards used to form Harford County's policies are derived from the American Public Works Association (APWA). The numbers presented are based on current fleet composition and do not include any re-alignment due to changing needs. Furthermore, they do not factor in inflation. Some of the inflation factor will be overcome by an increase in trade value as our fleet becomes newer. Please also see the explanation accompanying each section regarding the use of these numbers.

| Capital Money Needed Each Year | | |
|--------------------------------|----|------------|
| Truck | \$ | 613,493.00 |
| Car | \$ | 59,855.00 |
| Tractor | \$ | 168,463.09 |
| Equipment | \$ | 100,000.00 |
| Total | \$ | 941,811.09 |

See the accompanying spreadsheet for each category above.

In the above categories, "Tractor" represents all school based equipment.

The "Equipment" category is Facilities tractors, trailer, mowing equipment, paving equipment etc.

The "Equipment" category does not have an accompanying spreadsheet and the number above is based on the estimated replacement cost of the equipment divided by 8 years.

5 YEAR REPLACEMENT PLAN - TRUCKS

| Description of Categories | |
|---------------------------|--------------------------------------|
| A | One-Ton Van |
| B | One-Ton Utility 4X4 |
| C | 3/4 Ton and One-Ton 4X4 Pick-up |
| D | 1/2 Ton Pick-up |
| E | 35,000 GVW Dump Truck with Plow |
| F | Forestry Truck with Plow |
| G | Stake Body Truck Heavy One-Ton |
| H | One-Ton Dump |
| I | 1/2 Ton Van |
| J | Passenger Van |
| K | Box Truck 6000 series |
| L | Refrigerated Box Truck |
| M | Wash Bus/Science Bus |
| N | Bucket Truck |
| O | Sprinter/Super Duty Step Van |
| P | Dual Rear Wheel HD P/up for Salt Box |

| | Est. Cost | Est. Trade | Est. Total | Total in Fleet | Economic Life | Notes |
|---|---------------|-------------|---------------|----------------|---------------|---------------------|
| A | \$ 30,000.00 | \$ 800.00 | \$ 29,200.00 | 40 | 6/90 | |
| B | \$ 39,500.00 | \$ 1,000.00 | \$ 38,500.00 | 8 | 6/90 | |
| C | \$ 30,000.00 | \$ 1,000.00 | \$ 29,000.00 | 6 | 6/90 | |
| D | \$ 13,000.00 | \$ 500.00 | \$ 12,500.00 | 14 | 6/90 | |
| E | \$ 120,000.00 | \$ 2,000.00 | \$ 118,000.00 | 5 | 8/120 | Repl w/ E group |
| F | \$ 80,000.00 | \$ 3,000.00 | \$ 77,000.00 | 1 | 8/120 | Repl w/A or B group |
| G | \$ 36,000.00 | \$ 500.00 | \$ 35,500.00 | 1 | 6/90 | |
| H | \$ 56,000.00 | \$ 2,500.00 | \$ 53,500.00 | 1 | 6/90 | |
| I | \$ 14,000.00 | \$ 800.00 | \$ 13,200.00 | 23 | 6/90 | |
| J | \$ 14,000.00 | \$ 2,500.00 | \$ 11,500.00 | 6 | 6/90 | |
| K | \$ 81,000.00 | \$ 3,000.00 | \$ 78,000.00 | 3 | 8/120 | |
| L | \$ 105,000.00 | \$ 3,000.00 | \$ 102,000.00 | 3 | 8/120 | |
| M | n/a | n/a | n/a | 0 | 6/90 | |
| N | \$ 75,000.00 | \$ 3,000.00 | \$ 72,000.00 | 1 | 6/90 | |
| O | \$ 40,000.00 | \$ 1,500.00 | \$ 38,500.00 | 10 | 6/90 | |
| P | \$ 38,000.00 | \$ 2,500.00 | \$ 35,500.00 | 1 | 6/90 | |

5 YEAR REPLACEMENT PLAN - TRUCKS

The average number of units that will need to be replaced during each year are indicated below:

| Average Cost Per Year | | | |
|-----------------------|----------------|---------------|---------------|
| | Units Per Year | Cost | Total |
| A | 6.66 | \$ 29,200.00 | \$ 194,472.00 |
| B | 1.33 | \$ 38,500.00 | \$ 51,205.00 |
| C | 1 | \$ 29,000.00 | \$ 29,000.00 |
| D | 2.33 | \$ 12,500.00 | \$ 29,125.00 |
| E | 0.625 | \$ 118,000.00 | \$ 73,750.00 |
| F | 0.125 | \$ 77,000.00 | \$ 9,625.00 |
| G | 0.166 | \$ 35,500.00 | \$ 5,893.00 |
| H | 0.166 | \$ 53,500.00 | \$ 8,881.00 |
| I | 3.83 | \$ 13,200.00 | \$ 50,556.00 |
| J | 1 | \$ 11,500.00 | \$ 11,500.00 |
| K | 0.375 | \$ 78,000.00 | \$ 29,250.00 |
| L | 0.375 | \$ 102,000.00 | \$ 38,250.00 |
| M | 0 | n/a | |
| N | 0.166 | \$ 72,000.00 | \$ 11,952.00 |
| O | 1.666 | \$ 38,500.00 | \$ 64,141.00 |
| P | 0.166 | \$ 35,500.00 | \$ 5,893.00 |
| | 19.98 | Grand Total | \$ 613,493.00 |

5 YEAR REPLACEMENT PLAN – TRACTORS

| Description of Categories | |
|---------------------------|---|
| A | Commercial Front Mower such as Ford MC28, or Kubota F3060 |
| B | Compact Diesel with Rear Deck such as Ford TC-40 or Kubota 30 series |
| C | Garden Tractor such as Ford TC21 or 24 (frequently replaced with zero turn rider) |
| D | Wing Mower such as Ransome or Howard Price 1280/Utility Tractor |
| E | Gasoline Zero Turn Rider such as Bobcat Z219, Toro 400 series or Scag 48 Wide Cut |
| F | Diesel Zero Turn Rider |
| G | Commercial Push mower |
| H | Snow blower |
| I | Leaf Blower |
| J | Combination Weed eater/Trimmer/Edger |

| | Est. Cost | Est. Trade | Est. Total | Total In Fleet | Economic Life | Notes |
|---|--------------|-------------|--------------|----------------|---------------|--|
| A | \$ 15,500.00 | \$ 1,000.00 | \$ 14,500.00 | 47 | 7 years | Repl w/E group Repl w/AorB Group |
| B | \$ 17,000.00 | \$ 3,000.00 | \$ 14,000.00 | 8 | 7 years | |
| C | \$ 6,000.00 | \$ 300.00 | \$ 5,700.00 | 3 | 7 years | |
| D | \$ 15,500.00 | \$ 3,000.00 | \$ 12,500.00 | 3 | 7 years | |
| E | \$ 6,000.00 | \$ 800.00 | \$ 5,200.00 | 33 | 7 years | |
| F | \$ 9,500.00 | \$ 1,000.00 | \$ 8,500.00 | 8 | 7 years | |
| G | \$ 349.00 | \$ - | \$ 349.00 | 56 | 7 years | |
| H | \$ 500.00 | \$ - | \$ 500.00 | 52 | 7 years | |
| I | \$ 300.00 | \$ - | \$ 300.00 | 52 | 7 years | |
| J | \$ 579.00 | \$ - | \$ 579.00 | 54 | 7 years | |

This plan is based on the economic life standards used by Harford County Government in establishing equipment replacement parameters.

The economic life standards used to form Harford County's policies are derived from the American Public Works Association (APWA).

The economic life of each vehicle type is listed on the right side of the above chart. (6/90 means 6 years or 90,000 miles)

5 YEAR REPLACEMENT PLAN – TRACTORS

| Average Cost Per Year | | | |
|-----------------------|----------------|--------------|---------------|
| | Units Per Year | Cost | Total |
| A | 6.71 | \$ 14,500.00 | \$ 97,295.00 |
| B | 1.14 | \$ 14,000.00 | \$ 15,960.00 |
| C | 0.43 | \$ 5,700.00 | \$ 2,451.00 |
| D | 0.43 | \$ 12,500.00 | \$ 5,375.00 |
| E | 4.71 | \$ 5,200.00 | \$ 24,492.00 |
| F | 1.14 | \$ 8,500.00 | \$ 9,690.00 |
| G | 8 | \$ 349.00 | \$ 2,792.00 |
| H | 7.43 | \$ 500.00 | \$ 3,715.00 |
| I | 7.43 | \$ 300.00 | \$ 2,229.00 |
| J | 7.71 | \$ 579.00 | \$ 4,464.09 |
| | | Grand Total | \$ 168,463.09 |

COMPLIANCE OVERVIEW

Environmental compliance requirements impact every area of facilities. Regulations dictate close attention to issues such as asbestos containing materials, underground storage tank systems, wastewater, lead containing materials, hazardous substances, storm water management, carbon monoxide, drinking water quality, indoor air, and radon. Compliance encompasses the conditions, safety and operation of all the buildings and occupants throughout the school system and the Department of Facilities personnel. When age and condition of buildings and equipment warrant additional monitoring, environmental personnel ensure acceptable performance is maintained by visual and quantitative analysis. Monitoring of water treatment is performed in accordance with the Lead and Copper Rule and Safe Drinking Water Act. Additionally, water system corrosion control is administered as prescribed by Maryland Department of Environment (MDE). Concerns about indoor air quality are addressed by bi-annual site assessments. Any additional mechanical work required is coordinated through the Department of Facilities. Monitoring for radon has been done in buildings throughout Harford County Public Schools. Follow-up actions including remediation and monitoring has been performed at sites where radon levels indicated. Additional monitoring will also be performed periodically to ensure continued acceptable radon levels in Harford County Public Schools buildings. Harford County Public Schools Facilities responds effectively to the constantly increasing number and complexity of Environmental Regulations.



INVESTIGATION OF AN INDOOR AIR QUALITY PROBLEM

Date Notified: _____ Who Reported: _____

Position: _____

Building: _____

Building Location: _____

Designated Investigator: _____

Position: _____

On-Site Evaluation: Date: _____ Time: _____

People Present: _____

I. Description of problem/symptoms:

II. Physical assessment:

III. Recommendation:

Signatures: Investigator: _____ Date: _____

Principal: _____ Date: _____



HARFORD COUNTY PUBLIC SCHOOLS
PERIODIC SURVEILLANCE

Periodic surveillance shall be performed formally by Harford County Public School personnel approximately every six-months. Please return form to Cynthia Yost, Environmental Specialist, in the Department of Facilities.

_____ Today's Date
School Name

_____ Performed by: Name and Position
Date Noted

Changes in Material: _____

Conditions:



RESOURCE AND ENERGY CONSERVATION

In an effort to meet the goals of the Energy Management Plan as they pertain to reduction of energy consumption, implementation of conservation programs, implementation of new conservation technology, and establishment of procedures to facilities conservation efforts. Harford County Public Schools Facilities Department is in the process of upgrading our Building Automation Platform with a new crowd based energy monitoring software. This enhanced technology will allow us to:

- Track energy use trends for individual locations
- Identify outlying use for potential maintenance issues
- Identify accurate cost per school event for accurate billing and budgeting purposes
- Educate the occupants about the financial advantages of their conservation efforts

School locations that are deemed inefficient will be addressed by the individual school based administrator and chief custodian in conjunction with the Resource Conservation Manager for possible improvements. New technology will be reviewed and evaluated for its effectiveness and appropriateness for use within our facilities. Continued monitoring of our resource and energy consumption will take place as well as onsite evaluations of our facilities. This oversight will provide data to evaluate the effectiveness of our conservation efforts.

HCPS Building Efficiency and Sustainability Survey

School: _____ Date: _____
 Rooms Inspected: _____ Inspected by: _____

This survey is to be used to evaluate the efficiency of the HCPS site including the building and surrounding grounds. It is meant to be a useful tool in determining areas of progress in addressing efficiency and conservation issues, as well as identifying additional areas of concern. The areas inspected in this checklist are outlined in the administrative procedures documents for HCPS.

| Site Grounds | Y | N | Comment |
|--|----------|----------|----------------|
| Outside security lights are functioning | | | |
| Outside security lights are off in day-light hours | | | |
| Outside parking and sidewalk lights are functioning | | | |
| Outside parking and sidewalk lights are off during day-light hours | | | |
| Recycling and waste receptacles are on-site and properly used | | | |
| Recycling receptacles are available for community and event use | | | |
| Appropriate use of shading and canopy use | | | |
| Evidence of Ground Erosion or run-off | | | |
| | | | |
| Building Envelope | Y | N | |
| Exterior doors and windows are functioning properly and draft free | | | |
| Weather stripping and caulk are appropriate and functioning | | | |
| Structure is sound with no serious penetrations or areas of draft | | | |
| Window coverings are used appropriately to maximize daylight use | | | |
| Window coverings are closed in evening hours to resist temp change | | | |
| Recycling and waste receptacles are on-site and properly used | | | |
| | | | |
| Resource usage | Y | N | |
| Sinks and water fountains appear to be functioning and leak free | | | |
| Toilets are functioning and do not appear to be running | | | |
| Paper towel and toilet paper dispensers are functioning | | | |
| | | | |
| Electrical | Y | N | Comment |
| Light level is appropriate for needs | | | |
| Light level is appropriately efficient i.e. fluorescent | | | |
| Lights are off in unoccupied areas of the building | | | |
| Fixtures are clean and functioning | | | |
| Accent lighting is minimal and appropriately used | | | |
| Half-lighting or task-lighting is used where appropriate | | | |
| | Y | N | Comment |

HARFORD COUNTY PUBLIC SCHOOLS

Preventive Maintenance

July 2016

Status/Remarks

Preventive maintenance is the proactive application of proper inspection and servicing techniques to plant and equipment systems associated with the Harford County Public Schools on a continuous selective cyclical and routine basis.

With the augmentation of a Computerized Maintenance Management System, this approach will afford the advantage of protecting capital investment by permitting the application of adjustments, replacement of wear and tear components and calibration of devices under controlled conditions, and either effecting quick, simple solutions or else generating pertinent work orders to the cognizant maintenance section for repair before the equipment fails or breaks down.

Representative Accomplishments

1. Essential Equipment Preventive Maintenance Field Audits of the entire school system, an open-ended and ongoing process, including the formulation & usage of projections for new school facilities, those schools undergoing major renovation/reconstruction & the prompt replacement of projection data with actual data – complete with impact analysis – upon the completion of the new/major renovation/reconstruction activity.
2. The formulation & periodic updating of equipment task listing criterion for over 30 major and sub-equipment categories serving as a basis upon which to plan, organize, analyze & process a high volume of data.
3. The development, utilization and continuous revision of an analytical technique of a Preventive Maintenance Subtotals Equipment Task Network, to include the establishment of per unit annual coverage capability factors, as the essential vehicle to array and manage the equipment regarding frequency and specifics of PM service intervals within the five major HCPS geographical school zones delineated by PM. This approach facilitates obtaining maximum economy and efficiency.
4. The identification of selective essential rates of coverage of the school system, given the available PM staffing levels, system size & criticality of service so as to specify realistic initial/modified program implementation levels as well as to provide a sound foundation and benchmarking for future expansion.
5. The application of functional, durable identification labeling to the thousands of items of equipment audited - to include ongoing updating, as required (replacements, modifications, etc.). This includes innovative classroom ceiling grid labeling for those equipment installations aloft above ceiling level.
6. Development, utilization and continuous updating of logistical system encompassing the PM Team HVAC air filter/frame general specifications, comprehensive expendables inventory instruments for drive belts, air filter media and air filter frames and procurement

contract rider for the last 3(+) consecutive years with the Baltimore and/or Howard County Public School Systems and pricing request/order procedures. Some samples are included.

7. The implementation of an Electric Service Entrance Equipment Maintenance/PM Program to provide much needed attention to the Main Electrical Services at the schools on a regular basis to include substantial follow-up on deficiencies encountered. Proactive role in the implementation of a MABE funded Thermographic Imaging/Infrared Testing thrust for electrical distribution equipment which further assists the Maintenance/PM action by helping uncover incipient deficiencies before they cause unscheduled electrical outages, equipment damage or possibly fire.

A sample Preventive Maintenance checklist for annual indirect gas fired make-up air unit inspections is attached. The generation/modification of PM checklists is an evolving, ongoing process.

HARFORD COUNTY PUBLIC SCHOOLS

Preventive Maintenance Program

JULY 2016

| <u>Preventive Maintenance Inspection Frequency</u> | | | | | | | | | | | |
|---|---|-------------|-------------|--------|-------|--------------------|--------|---------|--------|-----|-----------|
| Item | Description | A | Bi-A | Semi-A | Tri-A | <u>Quar</u> | Semi-Q | Mo. | Bi-Mo. | FI* | *** a. |
| 1. | Air Handling Unit (AHU) | x | | X** | | X | | | | X | |
| 2. | Circulator Pump (CP) | c. X | | | | | | | | | |
| 3. | Circulator Pump (CP) >=50HP | | | | c. X | | | | | | X |
| 4. | Exhaust Fan (EF) | X | | | | | | | | | |
| 5. | Vane Axial Exhaust Fan (VAEF) | a · x | a · x | | | | | b. X | | | |
| 6. | Heat Pump (HP) – General | | | X | | | | | | X | |
| 7. | Heat Pump (HP) – Relocatable | | | | | | X | | | | |
| 8. | Water to Air Geothermal Heat Pump | X | | X | | | | X | | | |
| 9. | Roof Top Unit (RTU) | X | | | | X | | | | X | |
| 10. | Return Air Fan (RAF) | X | | | | | | X | | | |
| 11. | Supply Air Fan (SAF) | X | | X | | | | X | | X | |
| 12. | Air Cleaner/Purifier | | | X** | | | | X | | | |
| 13. | Unit Heater Ventilator Electrical (UHV-E) | | | X | | X | | | | X | |
| 14. | Energy Recovery Ventilator | X | | | | X | | X | | | |
| 15. | Energy Recovery Unit (ERU) | X | | X | | X | | X | | | |
| 16. | Electric Unit Heater (EUH) | | | X | | | | | | | |
| 17. | Cabinet Unit Heater Electrical (CUH) | X | | | | X | | | | | |
| 18. | A/C Only Unit (Electrical) | | | X | | X | | | | X | |
| 19. | Fan Coil Unit Electrical (FCU) | X | | | | X | | | | | |
| 20. | Fan Powered Mixing Box Electrical (FPMB) | | | X | | X | | | | | |
| 21. | UHV – Gas | | | X | | | | | | | |

| Item | Description | A | Bi-A | Semi-A | Tri-A | Quar | Semi-Q | Mo. | Bi-Mo. | Fl.* | *** a. |
|------|---|---------|------|--------|-------|------|--------|-----|--------|------|-----------|
| 22. | Unit Heater – Gas (GUH) | | | X | | | | | | | |
| 23. | Indirect Gas Fired Make-up Air Unit | SampleX | | X | | X | | | | | |
| 24. | UHV – Water/Steam | | | X | | X | | | | X | |
| 25. | Cabinet Unit Heater – Water Steam (CUH) | X | | | | | | | | X | |
| 26. | Fan Coil Unit – Water/Steam (FCU) | x | | | | X | | | | X | |
| 27. | A/C only Unit (Water/Steam) | | | X | | X | | | | | |
| 28. | Horizontal A/C Unit (H A/C) | | | X | | | | | X | | |
| 29. | Fan Powered Mixing Box – Water/Steam (FPMB) | | | X | | X | | | | X | |
| 30. | Unit Heater (UH) Water/Steam | | | X | | | | | | | |
| 31. | Wall Fan (WF) | x | | | | | | | | | |
| 32. | Water Cooler (WC) | | | X | | | | | | | |
| 33. | Window A/C (WAC) | | | X | | | | | | | |

Sample Preventive Maintenance Checklist attached.

* Air filter change and inspection service only – custom, variable frequency.

**Selectively applied, custom service.

*** Overhaul/General Take-Down Inspection. Frequency TBD, hourly basis.

• At selective essential rates of coverage. PM service frequencies are custom tailored to each facility.

Not all PM service frequencies apply to all schools.

- a. By others – Outside the scope of PM
- b. Or at every 720 hrs. of operation using retro-fitted elapsed run time hour meter.
- c. Or, for 1760 rated RPM machine motors, at each 7400 hours of accumulated run time (4250 hrs, machine pumps) – NEMA 280-360 fr; 3500 hours NEMA 360-5800; with prescribed periodic purging and replacement of lubricant – or per manufacturer’s instructions – using retro-fitted elapsed run time hours metering.

HARFORD COUNTY PUBLIC SCHOOLS
TASK LISTING FOR PREVENTIVE MAINTENANCE
CLASSIFICATIONS FORM
GAS FIRED MAKE-UP AIR UNIT (560IGFMUAU) ANNUAL INSPECTION
(FALL)

SAFETY PRECAUTIONS

- Lock-out the gas and the electrical power to the unit before performing any maintenance or service operations on this equipment.
- Wait for all rotating components to come to a complete stop prior to entering the equipment.
- Clear snow away from roof mounted units. Keep the snow clear of the intake, access doors and any vent piping.
- Do not allow water or solvents to enter the motor or bearings. Motors and bearings should never be sprayed with steam, water or solvents.
- Exercise caution when venting the coils. High pressure and/or high temperature fluids can cause serious injury.

GENERAL INSPECTION PROCEDURES

1. ***Fan Wheel:*** Keep the fan wheel clean for proper operation. Accumulated dirt and oil will cause imbalance.
2. ***Cooling Coils***
 - a. Inspect the coil for signs of corrosion and/or leaks. Repair any leaks as required.
 - b. Inspect coil surface for foreign material. If the coil surface needs to be cleaned, then direct the cleaning agent into the leaving air-side so that foreign material will be washed out of the coil rather than being pushed farther in to it.
 - c. Inspect and clean the drain pan to prevent the growth of algae and other organisms. Add condensate drain capsules as needed.
3. ***Chilled Water Coils***
 - a. Test the circulating fluid for sediment, corrosive products, and biological contaminants and take the necessary corrective measures.
 - b. Maintain adequate fluid velocities and proper filtering of the fluid.
 - c. If automatic air vents are not utilized, periodic venting of the coil is recommended to remove accumulated air.

4. *Evaporative Coolers*

- a. Shut off the water and drain all the lines when the outside temperature drops below 45°F.
- b. Remove drain plugs for the winter.
- c. Clean all interior parts of any mineral deposits or foreign materials that may have built-up during the cooling season.
- d. Replace any worn or non-functioning parts.

5. *Gas Line*

- a. Remove the drip leg and clean any liquid or debris that may have accumulated.
- b. After cleaning the drip leg, reattach it.

6. ***Vent Piping:*** Remove any debris from the drip legs in the combustion air and exhaust pipes.

7. ***Burners and Orifices:*** Before each heating season examine the burners and gas orifices to make sure they are clear of any debris such as spider webs, etc. Then clean the burners as follows:

- a. Turn off both electrical and gas supplies to the unit.
- b. Disconnect union between manifold and gas valve.
- c. Remove manifold and burner assembly.
- d. Inspect and clean orifices and burners as necessary. Avoid using any hard or sharp instruments which could cause damage to the orifices or burners.
 1. Remove any soot deposits from the burner with a wire brush.
 2. Clean the ports using an aerosol degreaser or compressed air.
 3. Wipe the inside of the burner clean. Cleaning the burner with a degreaser will retard the future build-up of dirt.
 4. Before reinstalling the burner assembly, look down the heat exchanger tubes to make sure they are clear of any debris.
 5. Reinstall manifold and burner assembly, reconnect wire leads and gas supply piping.
 6. Turn on the electrical power and gas supply.
 7. Follow the start-up procedure to light the burners and verify proper operation.

8. *Heat Exchanger*

- a. Check the heat exchanger annually for cracks.
 - b. If a crack is detected, the heat exchanger should be replaced before the unit is put back into operation.
 - c. Airflow across the heat exchanger should be checked to make sure the blower is operating properly.
9. **Flue Collector Box:** The flue passageway and flue collector box should be inspected prior to each heating season and cleared of any debris.
10. **Electrical Wiring:** The electrical wiring should be checked annually for loose connections or deterioration.

Tools needed to complete the Preventive Maintenance:

| | | |
|----------------|--------------|-------------------------------------|
| Hand Tools | Wire Brush | Fiberglass step ladder, as required |
| VOM | Respirator | Full face safety goggles |
| H2O Test Kit | Pipe Cleaner | Portable Air Compressor |
| Vacuum Cleaner | | |

Materials List: Coil Cleaner, Aerosol Degreaser, Condensate Drain Tabs

Special Notes:

1. Coordination with Energy Manager required in advance if building is otherwise shut-down by EMS – e.g., schools closed.
2. Disconnect and secure to the OFF position, all sources of power to the equipment prior to servicing, per standard Lock-Out Tag-Out Procedures. In the case of the exception in which the equipment must be temporarily energized for troubleshooting, observation, diagnostic measurements or related servicing actions, **exercise extreme caution.**
3. Check all work and restore power upon completion of the Preventive Maintenance work activity.
4. For further technical details, refer to the instruction manual.
5. Safety glasses and gloves required as needed.

