



**Wake County Board of Education
Facilities Committee**

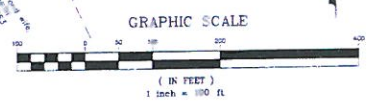
July 10, 2012
4:00pm
Board Conference Room, Crossroads I
Chris Malone, Committee Chair
Susan Evans, Vice Chair
Dr. Jim Martin
Deborah Prickett

PURPOSE: To address facilities and operations issues.

OUTCOMES: By the end of the meeting, Committee Members will have:

- Approved Facilities Committee meeting minutes from June 12, 2012 meeting.
- Received presentation and approve schematic design of West Apex High (H-10);
- Received status report and timeline for installation of ground source heating & cooling (geothermal) system;
- Received status report and timeline for guaranteed energy savings contracts;
- Received information on process for identifying and prioritizing needs for renovation of existing schools, along with lists of projects identified;
- Received a capital improvement program "table of contents", showing line items typically included in a CIP bond program.














| TOPIC | WHO | TIME |
|--|----------------|------|
| Set up <ul style="list-style-type: none"> • Comments • Agenda • Desired outcomes | Chair Malone | 5 |
| Approve the Facilities Committee meeting minutes from June 12, 2012 meeting. | Chair Malone | 5 |
| Receive presentation and approve schematic design of West Apex High (H-10). | Sheri Green | 20 |
| Receive status report and timeline for installation of ground source heating & cooling (geothermal) system. | Brian Conklin | 10 |
| Receive status report and timeline for guaranteed energy savings contracts. | Brian Conklin | 10 |
| Receive information on process for identifying and prioritizing needs for renovation of existing schools, along with lists of projects identified. | Joe Desormeaux | 25 |
| Receive a capital improvement program "table of contents", showing line items typically included in a CIP bond program. | Don Haydon | 10 |
| Closure and next steps. | Chair Malone | 5 |

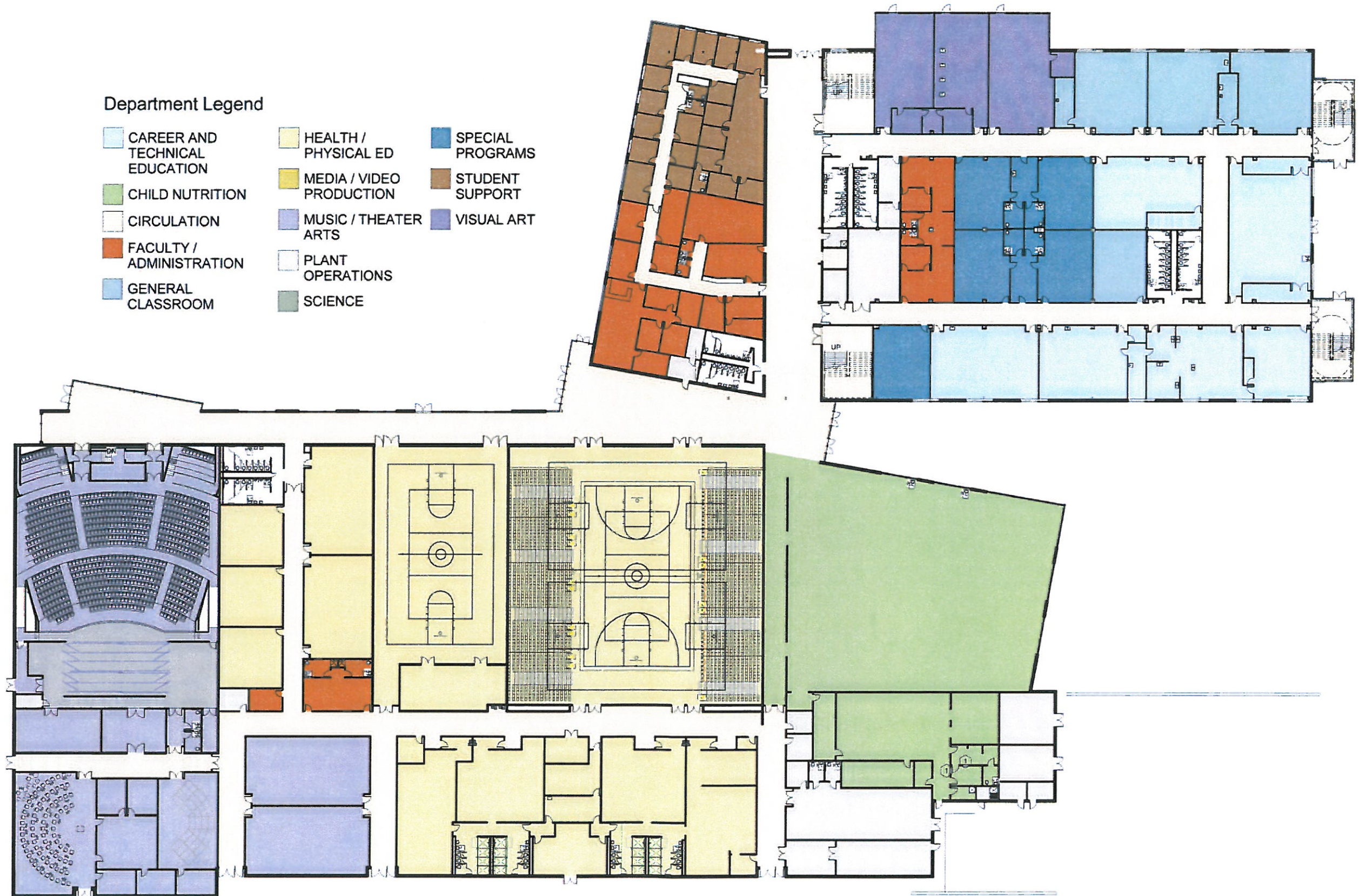






Department Legend

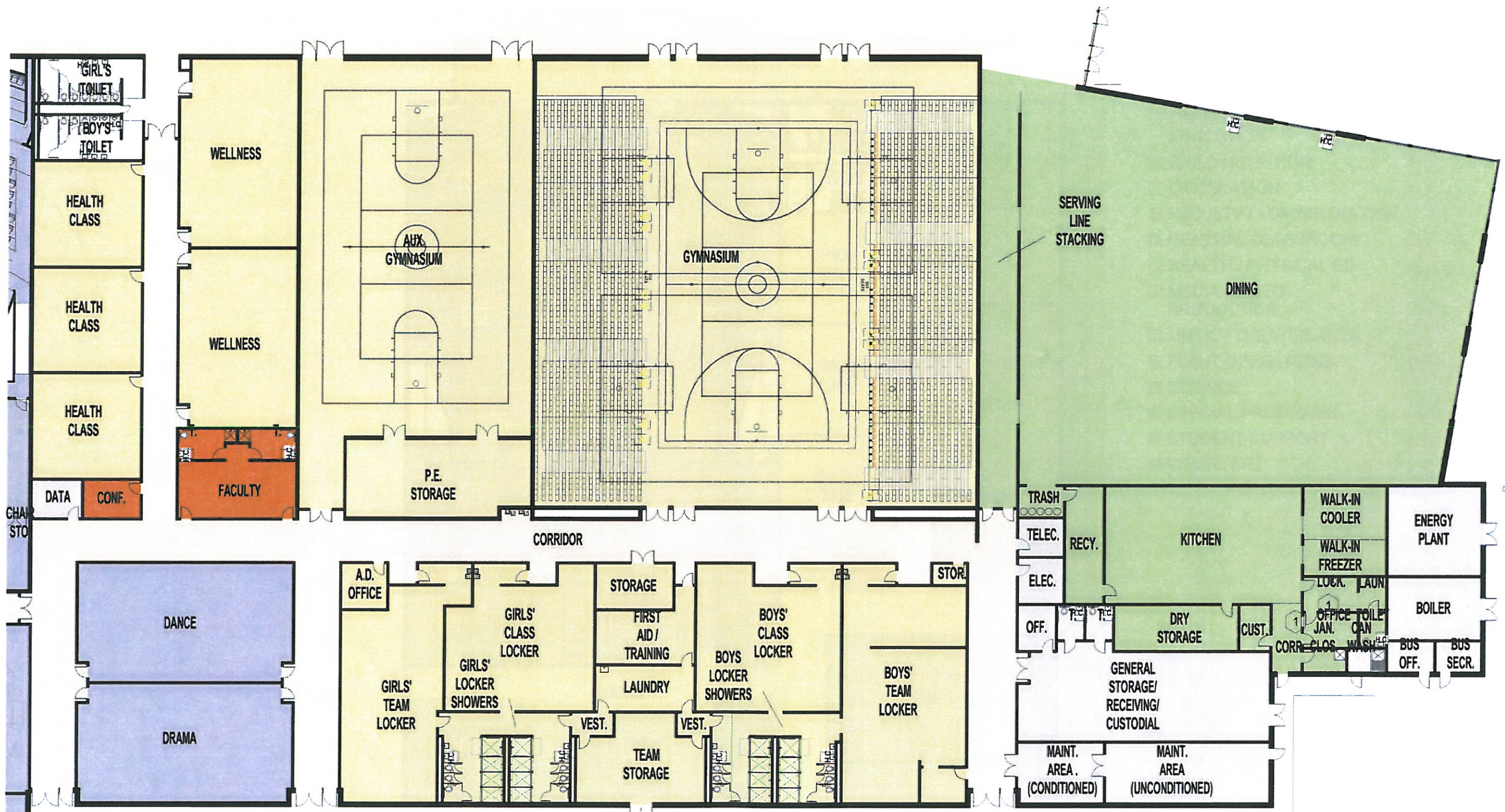
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|--|--|--|
|  CAREER AND TECHNICAL EDUCATION |  HEALTH / PHYSICAL ED |  SPECIAL PROGRAMS |
|  CHILD NUTRITION |  MEDIA / VIDEO PRODUCTION |  STUDENT SUPPORT |
|  CIRCULATION |  MUSIC / THEATER ARTS |  VISUAL ART |
|  FACULTY / ADMINISTRATION |  PLANT OPERATIONS | |
|  GENERAL CLASSROOM |  SCIENCE | |





Department Legend

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|---|---|---|---|
| CAREER AND TECHNICAL EDUCATION | FACULTY / ADMINISTRATION | HEALTH / PHYSICAL ED | SCIENCE |
| CHILD NUTRITION | GENERAL CLASSROOM | MEDIA / VIDEO PRODUCTION | SPECIAL PROGRAMS |
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| | | PLANT OPERATIONS | |



Department Legend

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20 Year Approach to Existing Schools

- ◆ New Growth
- ◆ Deferred Growth
- ◆ Additions
- ◆ Life Cycle Replacements (LCR)
- ◆ Major Renovations (MR)
- ◆ Deferred LCR and MR



Life Cycle Replacements



- ◆ Individual systems replaced before failure
- ◆ Replacement cycle 5 – 20 years
- ◆ Prioritize based on matrix priority
- ◆ Annual average starting at \$42M and increasing to \$54 M in 20 years (Source: Whitestone Research)

| | | Immediate - System(s) have failed | Short Term - 0-2 Years - System(s) functioning improperly and will fail soon. | Long Term - 3-5 yrs - System(s) that have exceeded their useful life, but are still functioning. | Improvements - Code changes, systems upgrades, aesthetic issues, and program needs. |
|--|------------|-----------------------------------|---|--|---|
| | <u>Pts</u> | 40 | 30 | 20 | 10 |
| High: Significant loss of capability, frequent interruptions and considerable degradation of effectiveness. <u>Health/Safety:</u> Probable chance of physical disability greater than 3 months or resource loss greater than \$200,000. | 10 | 400 | 300 | 200 | 100 |
| | 9 | 360 | 270 | 180 | 90 |
| | 8 | 320 | 240 | 160 | 80 |
| Medium: Limited loss of capability. Relocations and rescheduling of work or classes required. <u>Health/ Safety:</u> Possible chance of lost workdays or resource loss greater than \$10,000. | 7 | 280 | 210 | 140 | 70 |
| | 6 | 240 | 180 | 120 | 60 |
| | 5 | 200 | 150 | 100 | 50 |
| Low: Minimal impact on capability. All others. | 4 | 160 | 120 | 80 | 40 |
| | 3 | 120 | 90 | 60 | 30 |
| | 2 | 80 | 60 | 40 | 20 |
| | 1 | 40 | 30 | 20 | 10 |

Example: Significant impact on teachers and children throughout the school. Frequent interruptions to service and continuous leaks. Considerable degradation.
 Rating: High/Immediate - Probably 360 pts

Example: Facility changes have evolved past boilers capability. System can no longer be manipulated to satisfactorily support facility.
 Rating: Medium/Long Term - Probably 80 pts

Example: Replace shingle roofing on gym before additional damage occurs to roof and interior
 Rating: Medium/Short Term - Probably 120 pts

WHITESTONE RESEARCH DATA

| Uniformat | Component Name | Quantity | UM | Year Replaced | MARS RSL |
|-----------|---|--------------|----|---------------|----------|
| B2010 | Concrete, Painted, Exterior, 1st Floor | 51571 Sq Ft | | | 2007 95 |
| B2020 | Aluminum Fixed Window w/ Thermal Break, Do | 1460 Each | | | 2007 70 |
| B2030 | Aluminum Frame, Fully Glazed, Exterior Door | 27 Each | | | 2007 45 |
| B2030 | Steel Single 12'x12', Painted, Roll-up Door, Auto | 7 Each | | | 1995 18 |
| B3010 | Asphalt Shingle Roof | 1307 Sq Ft | | | 1995 23 |
| B3010 | Built-up Roof w/ Cool Reflective Coating | 169215 Sq Ft | | | 1999 22 |
| B3010 | Built-up Roof w/ Cool Reflective Coating | 56171 Sq Ft | | | 2001 24 |
| B3010 | Metal Roof | 2520 Sq Ft | | | 1995 23 |
| B3010 | Single-Ply Modified Bituminous/Thermoplastic | 65 Sq Ft | | | 2001 9 |
| B3010 | Single-Ply Modified Bituminous/Thermoplastic | 6684 Sq Ft | | | 1997 5 |
| B3010 | Single-Ply Modified Bituminous/Thermoplastic | 52810 Sq Ft | | | 2007 15 |
| B3010 | Single-Ply Roof w/ Cool Reflective Coating | 1736 Sq Ft | | | 1990 13 |
| C1020 | Wood, Solid Core w/ Safety Glass, Painted, Inte | 345 Each | | | 2007 35 |
| C3010 | Concrete Block, Painted, Interior Wall Finish | 15598 Sq Ft | | | 2007 70 |
| C3010 | Sheetrock, Unstippled, Interior Wall Finish | 336176 Sq Ft | | | 2007 70 |
| C3020 | Carpet, Nylon 20 oz., High Traffic | 31195 Sq Ft | | | 2007 3 |
| C3020 | Concrete, Painted Flooring | 15598 Sq Ft | | | 2007 70 |
| C3020 | Quarry Tile Flooring | 77988 Sq Ft | | | 2007 45 |
| C3020 | Vinyl Tile Flooring | 187170 Sq Ft | | | 2007 13 |
| C3030 | Acoustical Tile, Dropped Ceiling | 311950 Sq Ft | | | 2007 65 |
| D1010 | Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fp | 1 Each | | | 2007 20 |
| D1010 | Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fp | 1 Each | | | 2007 20 |
| D1010 | Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fp | 1 Each | | | 2001 14 |
| D1010 | Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fp | 1 Each | | | 2001 14 |
| D1010 | Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fp | 1 Each | | | 2007 20 |
| D2010 | Drinking Fountain, Vitreous China | 119 Each | | | 2007 30 |
| D2010 | Lavatory, Vitreous China | 119 Each | | | 2007 30 |
| D2010 | Service Sink, Iron, Enamel | 27 Each | | | 2007 30 |
| D2010 | Tankless Water Closet | 146 Each | | | 2007 30 |
| D2010 | Urinal, Vitreous China | 80 Each | | | 2007 30 |
| D2020 | Circulator Pump, 1 HP, Hot Water | 7 Each | | | 2007 15 |
| D2020 | Circulator Pump, 2 HP, Cold Water | 7 Each | | | 2007 15 |
| D2020 | Pipe & Fittings, 3/4" Copper, Cold Water | 17 K Ln Ft | | | 2007 20 |
| D2020 | Pipe & Fittings, 3/4" Copper, Hot Water | 5 K Ln Ft | | | 2007 20 |
| D2020 | Pipe & Fittings, 2" Copper, Cold Water | 20 K Ln Ft | | | 2007 20 |
| D2020 | Pipe Insulation, Fiberglass, Cold Water | 20 K Ln Ft | | | 2007 20 |
| D2020 | Pipe Insulation, Fiberglass, Hot Water | 7 K Ln Ft | | | 2007 20 |
| D2020 | Water Heater, Electric, 120 Gal. | 3 Each | | | 2005 8 |
| D2020 | Water Heater, Gas, Non-condensing, 120 Gal. | 7 Each | | | 2007 10 |
| D2020 | Water Storage Tank, 150 Gal. | 8 Each | | | 2005 13 |
| D2030 | Backflow Preventer, 3/4" | 2 Each | | | 2007 5 |
| D2030 | Backflow Preventer, 1" | 2 Each | | | 2007 5 |
| D2030 | Backflow Preventer, 2" | 4 Each | | | 2007 5 |
| D2030 | Backflow Preventer, 4" | 4 Each | | | 2007 5 |
| D2030 | Backflow Preventer, 6" | 15 Each | | | 2007 5 |
| D2030 | Backflow Preventer, 6" | 6 Each | | | 2007 5 |
| D2030 | Pipe & Fittings, 6" Cast Iron | 10 K Ln Ft | | | 2007 70 |
| D2030 | Pipe & Fittings, 10" Cast Iron | 3 K Ln Ft | | | 2007 70 |
| D2040 | Pipe & Fittings, 4" PVC | 3 K Ln Ft | | | 2007 25 |
| D2040 | Roof Drain, 4-6" | 93 Each | | | 2007 35 |
| D2090 | Air Compressor, 10 HP | 3 Each | | | 2007 20 |
| D3010 | Pipe & Fittings, 4" Steel, Gas | 12 K Ln Ft | | | 2007 70 |
| D3020 | Chemical Feed System | 7 Each | | | 2007 12 |
| D3020 | Circulation Pump, 5 HP, Hot Water | 7 Each | | | 2007 12 |
| D3020 | Expansion Tank, 30 Gal. | 14 Each | | | 2007 45 |
| D3020 | Expansion Tank, 60 Gal. | 13 Each | | | 2007 45 |

Component

Sort By: Uniformat Name Newest Close Help...

Component: Air Handler, Multizone, 20,000 Cfm 0-815

Uniformat: D3040 Distribution Systems

Sort Order within Uniformat: 3.6 Review Tasks...

Unit of Measure: Each Reports...

Allow PM Tasks to coincide with Replacement Tasks.

M&R Tasks

| Task | Reviewed |
|---|-----------|
| Repair Air Handler, Multizone, 20,000 Cfm | 6/11/2004 |
| Replace Air Handler, Multizone, 20,000 Cfm | 6/11/2004 |
| Maintain Air Handler, Multizone, 20,000 Cfm | 6/11/2004 |

Task

Task: Repair Air Handler, Multizone, 20,000 Cfm 765 Close Help...

Component: Air Handler, Multizone, 20,000 Cfm 815

Labor Trade: Plumber Hours: 4 per Each

Rental Equipment: Hours: 0 per Each

Material Cost: 629.769 per Each Date Last Reviewed: 6/11/2004

Task Type: Major Replacement Task: No

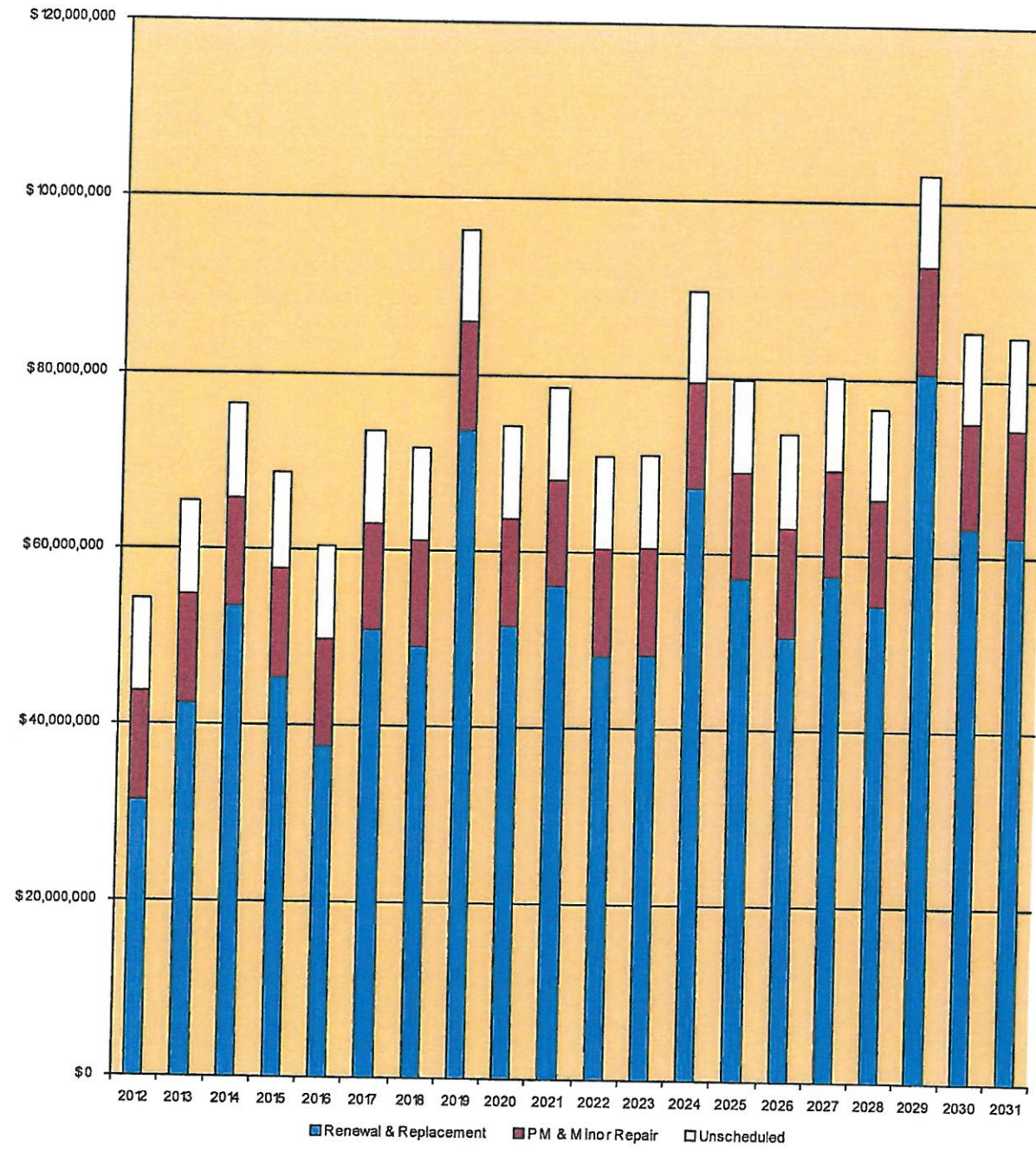
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Frequencies by City

| City | Freq |
|-----------------|------|
| Akron, OH | 11 |
| Alamogordo, NM | 10 |
| Albany, NY | 11 |
| Albuquerque, NM | 10 |
| Altus, OK | 9 |
| Amarillo, TX | 10 |
| Anaheim, CA | 10 |
| Anchorage, AK | 18 |
| Ann Arbor, MI | 11 |
| Atlanta, GA | 9 |

← ↩ New Task Copy Task Edit Task Delete Task ▶ →

Average Annual M&R Costs Over 20 Years





Major Renovations



- ◆ Structural, Mechanical, IAQ, Electrical, Plumbing, Codes, and Program
- ◆ Renew every 40 Years
- ◆ Prioritize based on Facility Condition Index
- ◆ Steady increase starting at over 540,000 SF
- ◆ Approximately \$54M

Deferred Major Reno and Life Cycle

- ◆ Facilities exceeding 40 yrs since renovation
~ 850,000 SF
- ◆ Major Renovations ~ \$85 M
- ◆ Systems exceeding industry recognized life cycle
- ◆ Life Cycle ~ \$135 M
- ◆ Total \$220M - Catch up in 5 yrs = \$55 M/Yr

Major Renovations

Life Cycle

Program

Additions

Deferred MR&LC

Deferred Growth

New Growth

What Will It Cost Per Year?

| | |
|----------------------------------|---------------|
| Life Cycle Replacements per Year | \$ 42M |
| Major Renovation per Year | <u>\$ 54M</u> |
| \$/Yr to Maintain Status Quo | \$ 96M |
| Deferred LCR and MR per Yr | <u>\$ 55M</u> |
| \$/Yr to Catch Up in 5 Yrs | \$ 151M |

What Will It Cost Per Year?

| | | |
|----------------------------------|---------------|--------|
| Life Cycle Replacements per Year | \$ 42M | \$20M |
| Major Renovation per Year | <u>\$ 54M</u> | \$56M |
| \$/Yr to Maintain Status Quo | \$ 96M | \$76M |
| Deferred LCR and MR per Yr | <u>\$ 55M</u> | \$43M |
| \$/Yr to Catch Up in 5 Yrs | \$ 151M | \$119M |

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| | | |
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| Deferred LCR and MR per Yr | <u>\$ 55M</u> | \$43M |
| \$/Yr to Catch Up in 5 Yrs | \$ 151M | \$119M |
| Existing Schools in Plan 2004 | \$ 58M/Yr | |
| Existing Schools in CIP 2006 | \$106M/Yr | |

What Will It Cost Per Year?

| | | |
|----------------------------------|----------------------|--------|
| Life Cycle Replacements per Year | \$ 42M | \$20M |
| Major Renovation per Year | <u>\$ 54M</u> | \$56M |
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| Deferred LCR and MR per Yr | <u>\$ 55M</u> | \$43M |
| \$/Yr to Catch Up in 5 Yrs | \$ 151M | \$119M |
| Existing Schools in Plan 2004 | \$ 58M/Yr | |
| Existing Schools in CIP 2006 | \$106M/Yr | 3Yrs |
| | \$ 45M/Yr | 7Yrs |



Note

- ◆ Projections replace old standards with same
 - Ex: Steam replaced with steam
- ◆ Repair costs do not include code changes
- ◆ Costs do not include furniture, equipment, technology, project management, etc
- ◆ Projections do not reflect any square footage growth (additions to buildings)
- ◆ High level modeling to target areas for assessment

Line Items Typically Included in Capital Improvement Program

1. New schools:
 - a. List of new schools by name, if known, opening date, with project budget based on year open (does not include off-site improvements);
 - b. Land: lump sum amount for land acquisition includes land needed for new schools to be built with current CIP construction funds, as well as for future needs;
 - c. Lump sum line item for installation of expansion facilities such as ninth grade centers.
2. Existing schools:
 - a. Major renovation projects listed by school, including project budget;
 - b. Life cycle repair/replacement projects listed as a lump sum;
 - c. Assessment of facilities—funding for continuous inspection of schools to identify deficiencies;
 - d. Environmental and accessibility projects—a lump sum to address smaller needs as deficiencies are identified;
 - e. Life cycle furniture and educational equipment replacement.
3. Start-up design:
 - a. Funding to design new schools and major renovation projects that will be constructed with funds from the following CIP;
 - b. Allows for a continuous construction program, because designs are bid-ready when bond is approved;
4. Technology: includes funding for equipment and infrastructure improvements.
5. Offsite road & utility improvements required for both new and renovation/expansion projects;
6. Temporary classroom funding—a lump sum for purchase, installation, or relocation of mobile and modular classrooms;
7. Projects for administrative facilities and other projects; examples could include the CNS warehouse, satellite transportation garages, and stadiums.
8. A program contingency for use in meeting unanticipated projects or costs may be listed as a line item or allocated across projects.
9. Program management, which includes funding for FD&C staff and administrative expenses may be listed as a line item or allocated to each project.