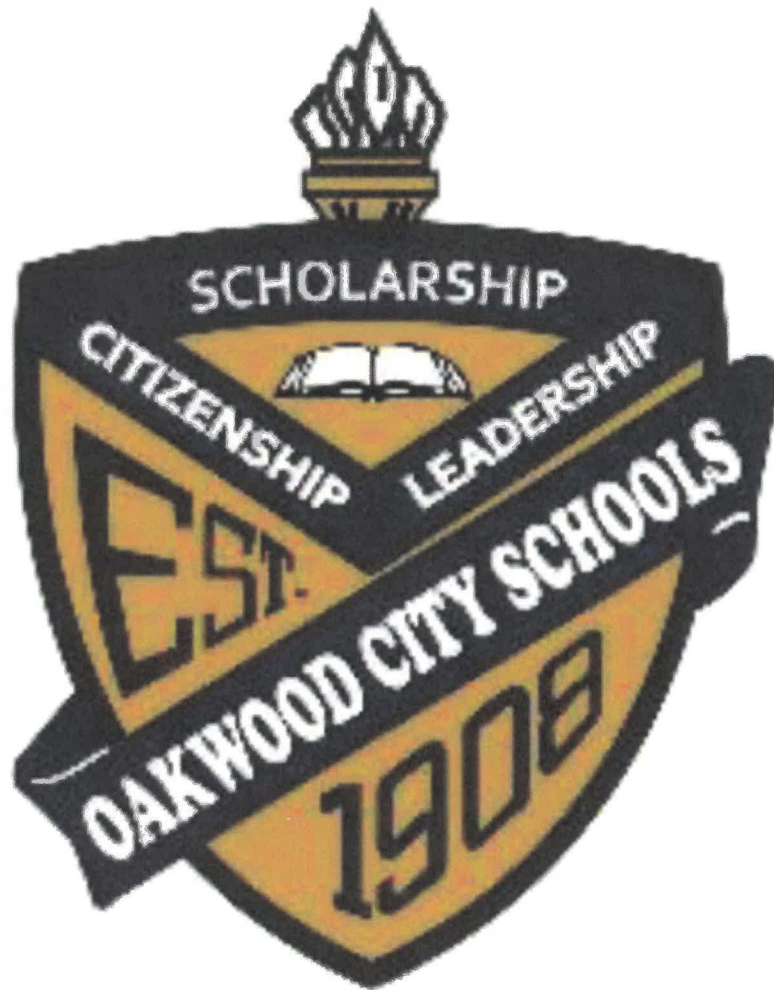


Oakwood Junior High / High School

Oakwood City Schools
Oakwood, Ohio

Technical Building Assessment Report

September 4, 2018



***emersion* DESIGN**

FANNING HOWEY

Oakwood Junior High / High School

Oakwood City Schools

Oakwood, Ohio

Technical Building Assessment Report

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I. EXECUTIVE SUMMARY

A team composed of design professionals from Emersion Design and Fanning Howey Associates representing architectural, mechanical, plumbing, electrical and educational technology spent the better part of a week evaluating every aspect of the existing building and systems at the Junior High / High School.

The intent of the evaluation was to determine “must do” improvements to the building systems due to age and condition. The oldest parts of the buildings are in the most need of improvement and replacement in order to bring new life to building for the next 20-30 years.

After expending the time in the building, this team assembled the data into line by line components for further evaluation that included developing a detailed estimate of probable construction costs. The team reached out to an independent cost estimator, Blundall Associates, who are experts in cost evaluation efforts, specifically as it relates to K-12 school facilities.

After compiling the entire list, it was necessary as a part of school leadership team, to prioritize the list of items such that the total opinion of probable project cost was within the available bond issue amount supported by the school district of \$16.5M.

The results of the prioritization led to a final Summary of the Estimate of Probable Project Costs included in this study. The details leading to the Summary are included in the Appendix.

II. DETAILED ASSESSMENT DATA

Fire Protection

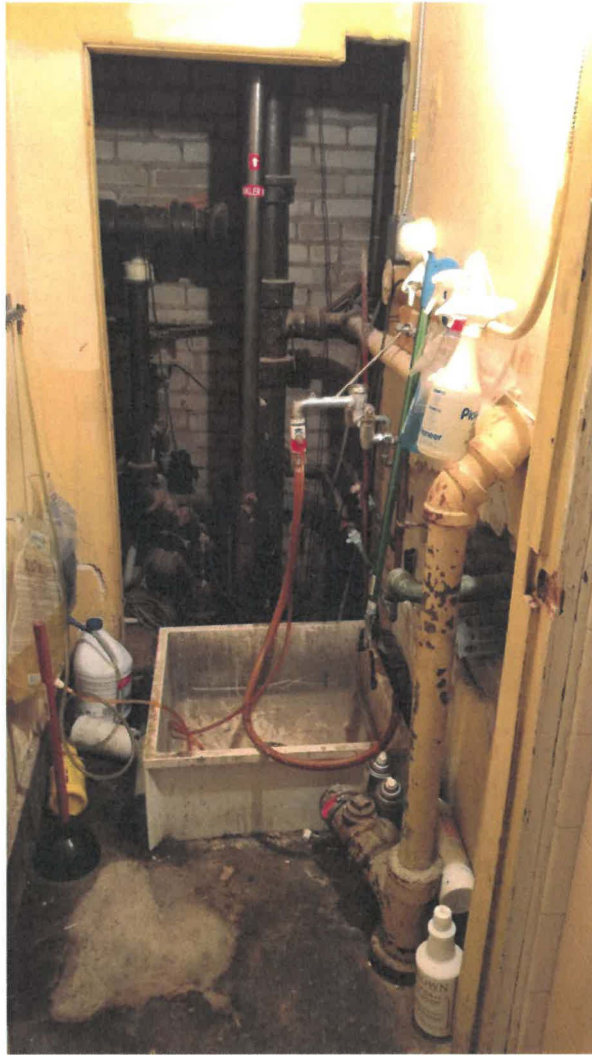
The primary recommendations associated with the Fire Protection systems include the following:

- The current fire protection system includes limited area sprinklers in storage rooms and mechanical rooms were found satisfactory. A full wet fire protection sprinkler system throughout the building should be considered, but has not been included in this study. A new, incoming water service would be required if a new fire sprinkler system is installed.
- The 2005 Addition has a full wet sprinkler system installed that was found to be in satisfactory condition.

Plumbing

- The original sanitary piping is in poor condition and has collapsed in many locations. Replace all original sanitary piping.
- The existing sanitary piping in the 2005 Addition was found to be satisfactory.





- The original domestic water piping is primarily galvanized that is in poor condition. Replace with new copper piping throughout. The 2005 Addition piping is in satisfactory condition.



- The water heaters installed for the original building area, the 2005 Addition and the kitchen area are all in satisfactory condition and will not be replaced.
- Toilet fixtures including water closets, urinals, lavatories, drinking water coolers and sinks were found to be in satisfactory condition, but with a new water piping system being needed, replacement of the fixtures are being recommend.

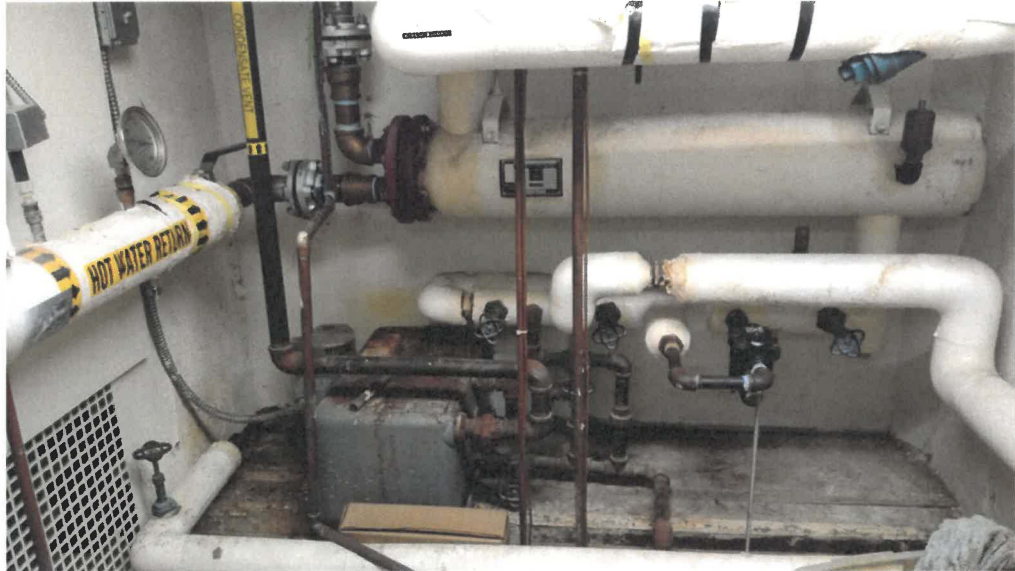
Heating, Ventilating, and Air Conditioning (HVAC)

- The existing fire-tube steam boilers (10,000 MBH) are past any useful life and are in need of replacement. We are recommending consideration for a high-efficiency, condensing boiler plant.



- The 2005 Addition boilers are copper-fin in satisfactory condition and do not require replacement. A change should be considered in the next 5-10 years.
- The existing steam and condensate return piping system is way beyond its useful life and is being recommended for replacement. The copper heating water piping system in the 2005 addition will remain.





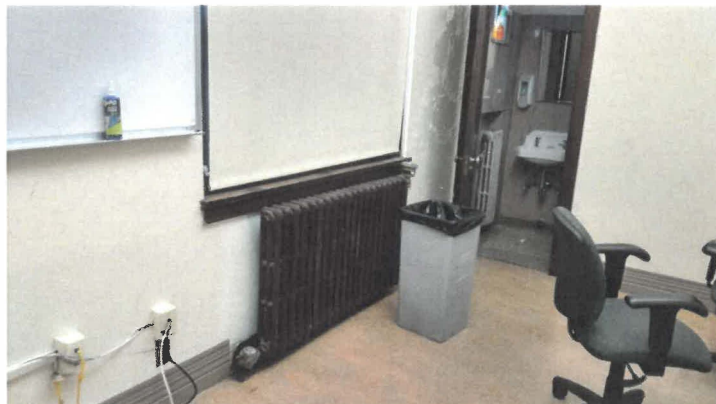
- The existing central heating and ventilating unit for the high school has exceeded its life expectancy and should be replaced with a new dedicated outdoor air handling unit and 25 new 4-pipe fan coil units. FCUs will be located in the classrooms.



- The existing central heating and ventilating unit for the junior high school has exceeded its life expectancy and should be replaced with a new dedicated outdoor air handling unit and 16 new 4-pipe fan coil units. FCUs will be located in the classrooms.
- The existing auditorium air handling unit was replaced in 2005 and is in generally good condition. To add cooling to the system, a chilled water coil can be added to the unit with changes in controls and the installation of a new central chilled water plant.
- The existing direct-expansion (DX) classroom units shall be replaced with new, 4-pipe unit ventilators for heating and cooling those spaces.



- The existing DX cooling and steam heating air handling unit that serves the high school administration area has exceeded its useful life and should be replaced with a new chilled water and heating water variable air volume air handling unit with a downstream VAV ductwork system. The existing junior high administration area system is in good condition, although the existing steam radiators should be replaced with new, heating hot water fin radiation.



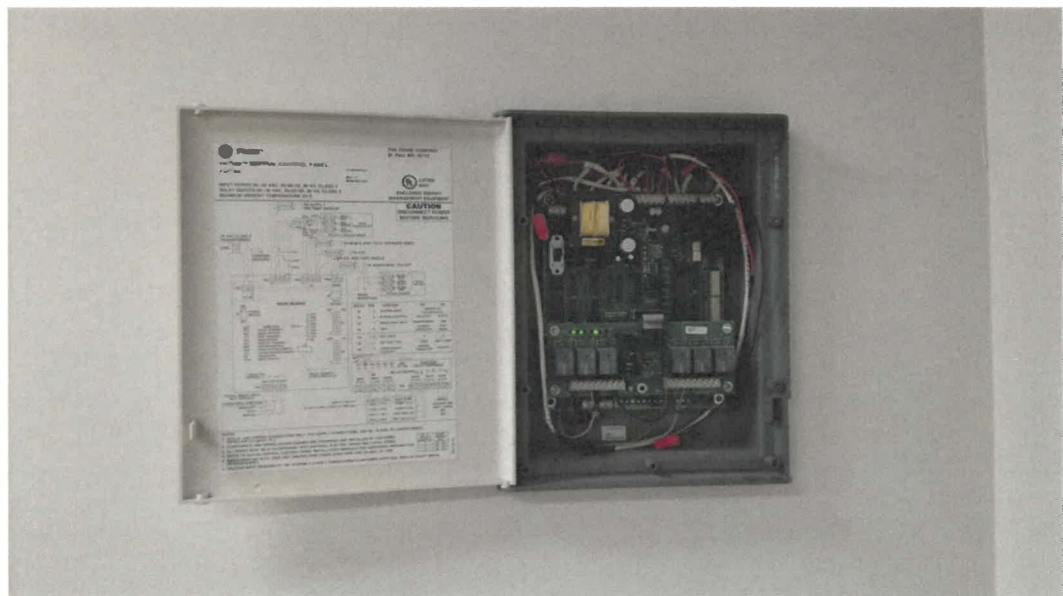
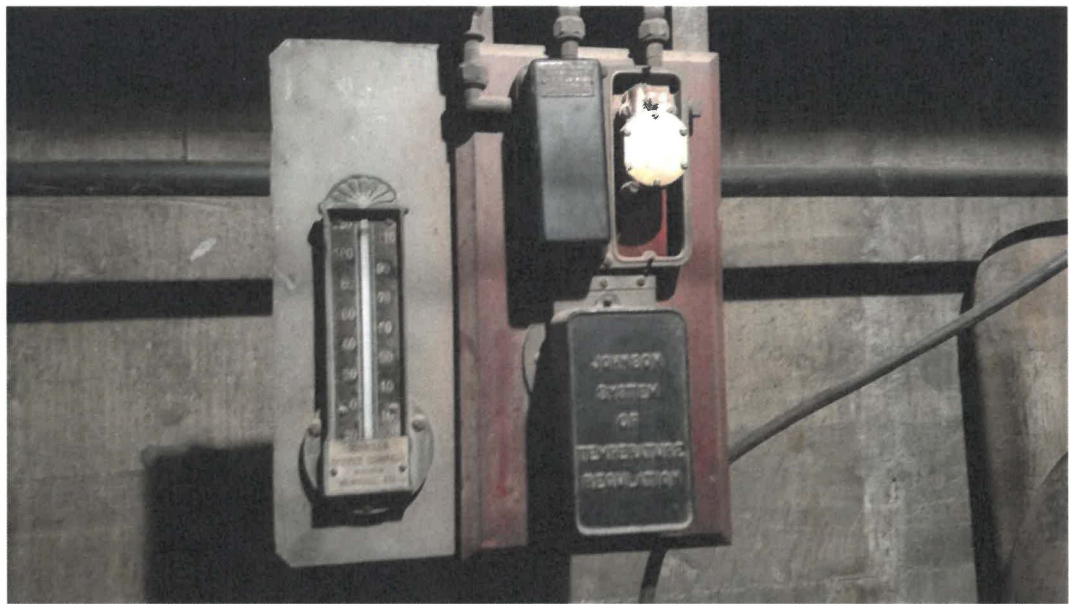
- The existing heating and ventilating air handling unit for the gymnasiums have exceeded their useful life and will be replaced and operated from the new central heating water system and central chilled water system.



- The existing science wing outdoor air unit was installed in 2000 and is in good condition.
- The locker room heating and exhaust systems were installed in 2005 and are in good condition.
- The existing window air-conditioning units installed throughout the facility are in fair condition, but are not very efficient in operation and have a very short life cycle. The new central chilled water system and air systems should be used to replace the need for these units.



- The VAV rooftop units installed as part of the 2005 addition project are in good condition and should remain.
- In general, the toilet room exhaust systems are operational, although they are fairly aged. We are suggesting a contingency amount of +/- \$40,000 be included in the program to address unknowns.
- The toilet room exhaust systems for the 2005 addition are in good condition and should remain.
- The existing temperature control systems throughout the building with the exception of the 2005 addition are a mixed bag of pneumatic with limited electronic controls. The system should be replaced in its entirety. The 2005 addition did include direct digital control (DDC), but for consistent operation, it should be updated to be compatible with the updated building system.



- A new central chilled water system including (2) outdoor, air-cooled water chillers, pumps, piping, specialties, etc. will be needed to serve spaces currently being supported by the outdated DX systems, window air conditioners and spaces not currently being air conditioned.

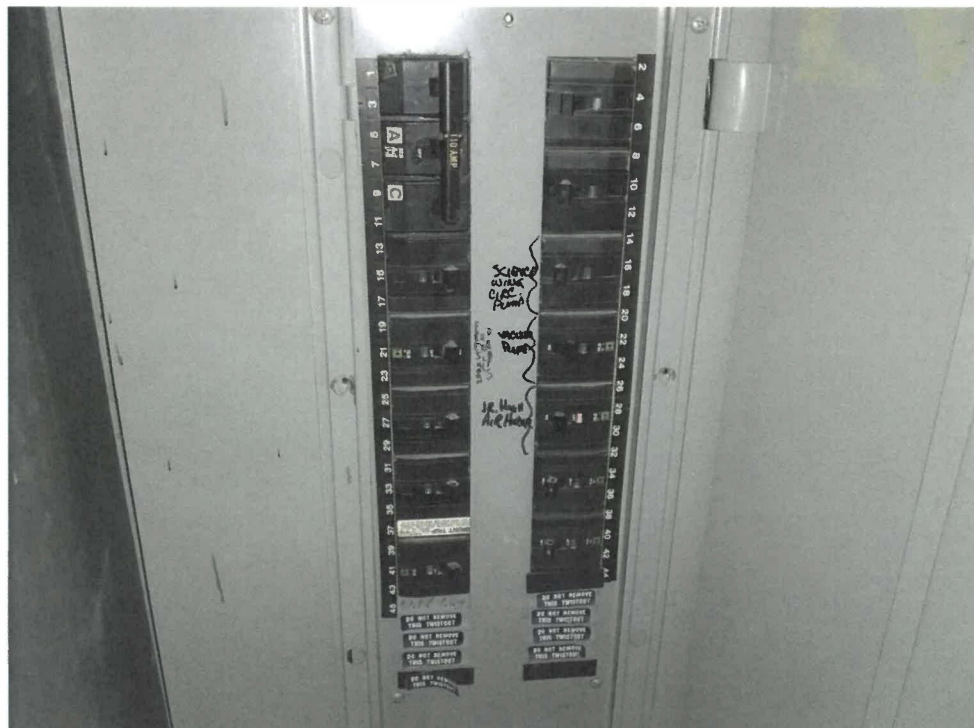


Electrical

- New 1200A 480V electrical service is required to serve new HVAC (chiller) loads. The new service will consist of a 1200A distribution panelboard with approximately 10 circuit breakers.
- There are several existing distribution panels that are serving as switchgear that are in satisfactory condition and should remain. This includes (5) 800 amp and (5) 400 amp switches.



- There is an old 800 amp switchboard that is beyond its useful life and should be replaced as a part of the electrical service upgrade. A number of old/damaged panelboards in the building are also in need of replacement.



- There are a number of panelboards that have been installed over the past 10-15 years that are in satisfactory condition and should remain in use.

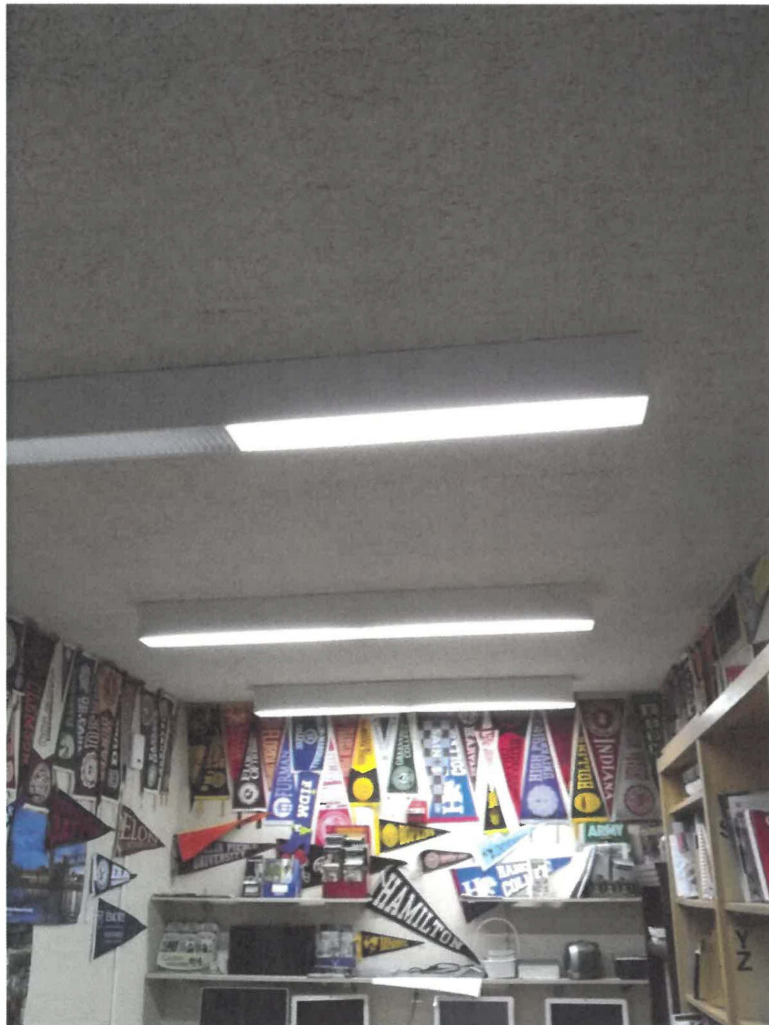


- There are up to 6 old and damaged disconnect switches that are in need of replacement. There are also up to 8 existing disconnect switches that are fairly new and in satisfactory condition that will remain in service.





- As a part of a total building upgrade, we are recommending that lighting throughout the facilities be replaced with new LED fixtures and lamping. The payback for this effort will be no more than 2-3 years and will result in less maintenance and lamp replacement costs. The replacement would include the high-bay HID lights that are being used in the JH gymnasium and the old incandescent lighting in the HS gymnasium.



- In evaluation of power outlets (receptacles) in the classroom and office spaces, we found a number of receptacles that were damaged or aged and require replacement. There remain a number of existing receptacles that were found to be in satisfactory condition and will remain in service. The cost factor will include new circuiting for a percentage of the outlets.
- There are a number of existing HVAC systems that are being replaced that will require removing electrical connections to old equipment and new electrical connections to the newly installed HVAC systems.
- The existing fire alarm system was found to be in excellent condition and will remain. There will be some modifications needed for the removal and replacement of the existing HVAC system components.
- The exit signs for the building were largely replaced in the 2005 bond program. We found some of the signage had experienced damage and should be replaced. We will include a cost factor for a percentage of the existing units to be replaced.
- We are recommending that the exterior lighting fixtures including pole lights and building lights be upgraded to LED lighting. The change will enhance lighting and control. Care will be taken when replacing architecturally critical exterior fixtures (wall sconces at the entrances) to either replace the lamping only with LED or match the look of the fixture being replaced. Exterior fixtures installed in 2005 will remain.



Educational Technology

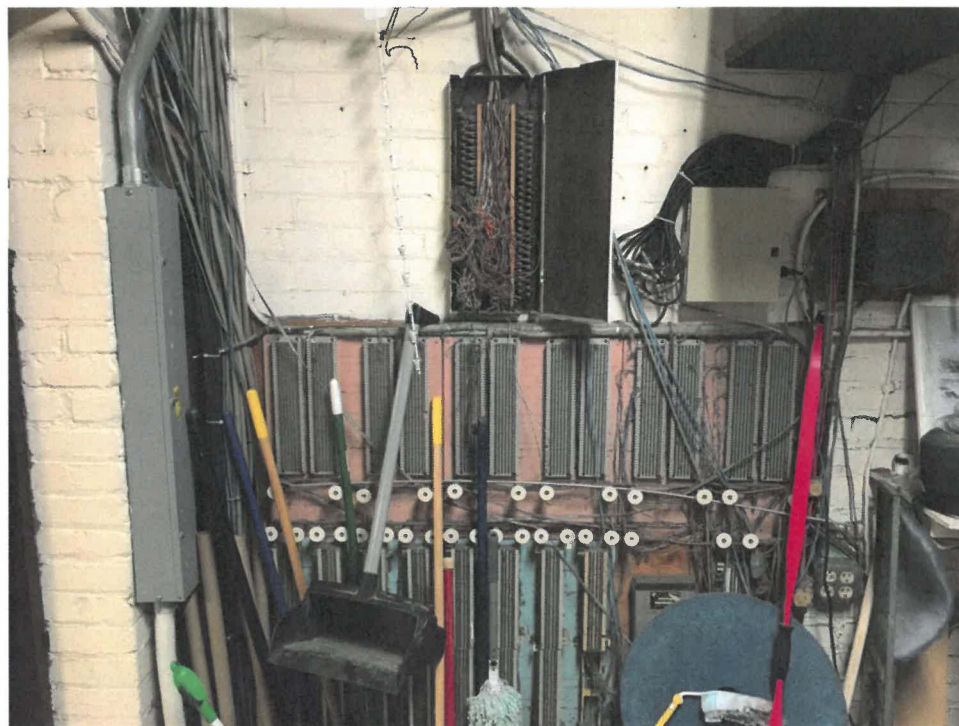
- The existing paging system is at the end of its useful life and should be replaced in its entirety. This older system was simply extended for the 2005 addition, so this work would be across the Junior High and High School.



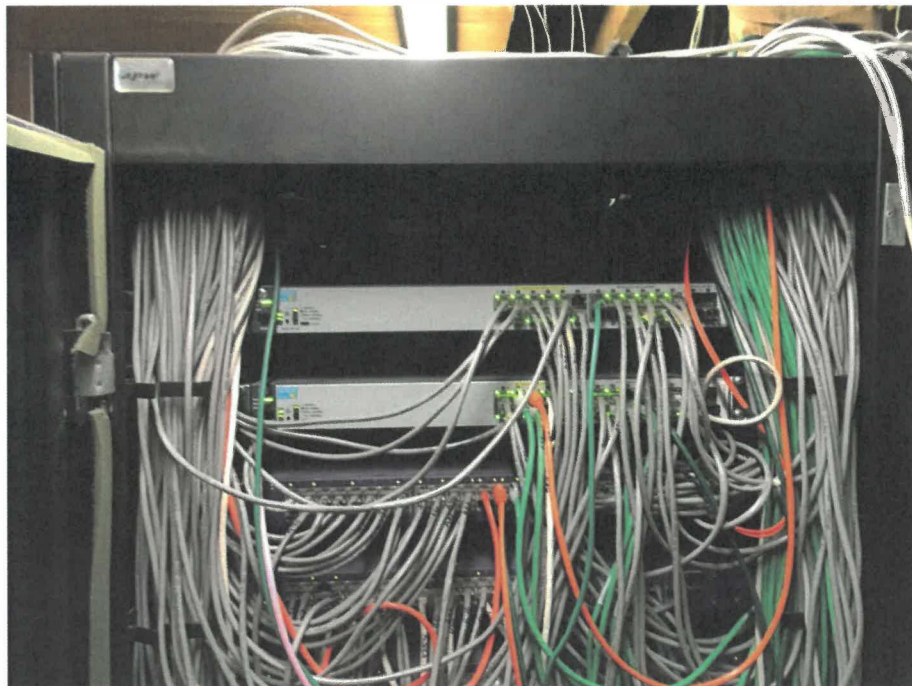
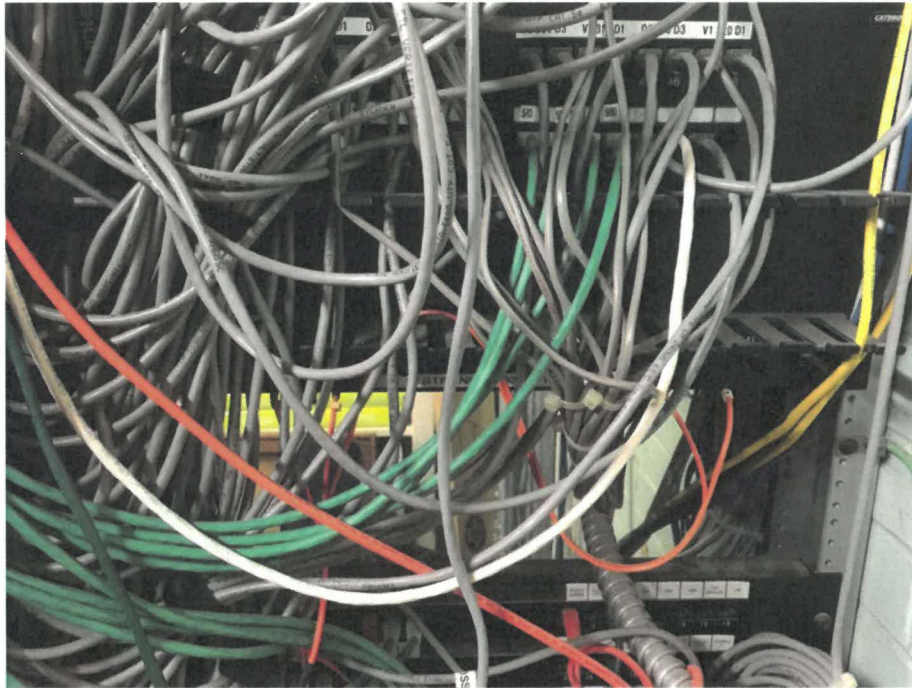
- The existing clocks are a mixture of digital clocks in the corridors and non-synchronous clocks in the classrooms and miscellaneous spaces. For overall better performance, it is recommended that a new, synchronous clock system be installed across the Junior High and High School.



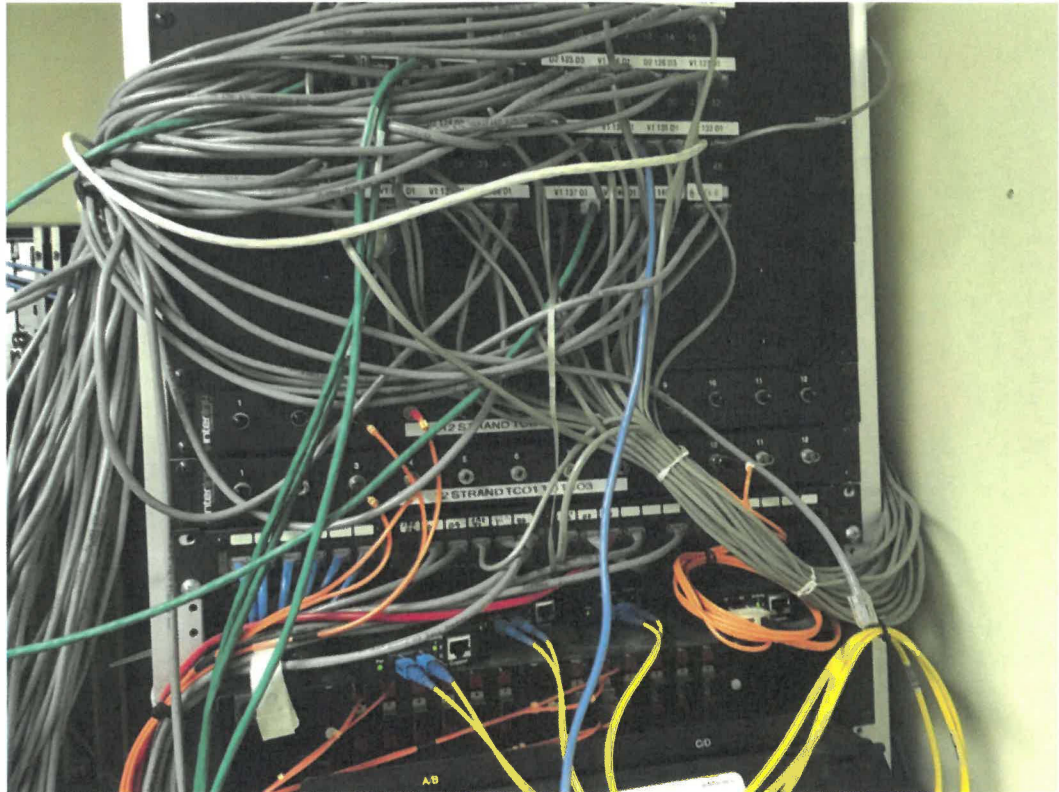
- The existing analog phone system has reached the end of its useful life. When a phone fails, only refurbished phones are available for replacement. A new IP phone system is recommended for replacement.



- The data cabling in the building is currently a mixture of Category 5, 5E and 6. There are locations in the building where the cabling is damaged. The type of cabling needed to increase the speed of the overall system to an effective 10Gb and the bandwidth is 6A. This upgrade includes cabling to faceplate connections and the wireless access points. Additional wireless devices will be able to access the network at an increased speed.



- The existing fiber backbone is currently 62.5 multi-mode fiber optic cable. It is capable of support up to a 1Gb backbone for the network. It is recommended that this be upgraded to a 50 micron multi-mode fiber optic cable that will allow up to a 10Gb backbone. The speed of the network is needed with the increase use of wireless and computer technology in the school curriculum.



- The existing raceway and junction boxes for many of the data locations have been damaged. Raceway is torn from the wall, boxes are hanging by the data cables, etc. With the recommendation of new cabling throughout, it is also recommended the raceway system be repaired and replaced throughout.



- The existing AV cabling in the classrooms is analog VGA type. As the classroom projectors are replaced (currently about 50% of the projectors are replaced) along with new computer updates for staff, only an HDMI cabling solution will work.



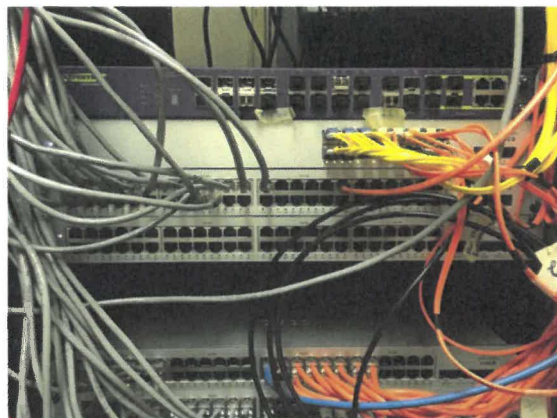
- It is recommended that the remaining 50% of the older LCD projectors be replaced with new LED ceiling mounted projectors.



- The existing sound system in the classroom consists of a single speaker that is typically mounted on the teaching wall. The speaker system has reached the end of its useful life. It is recommended that a new system that includes a small amplifier and ceiling speakers be installed as the replacement system to be available for audio needs from the teachers' computer or student devices.



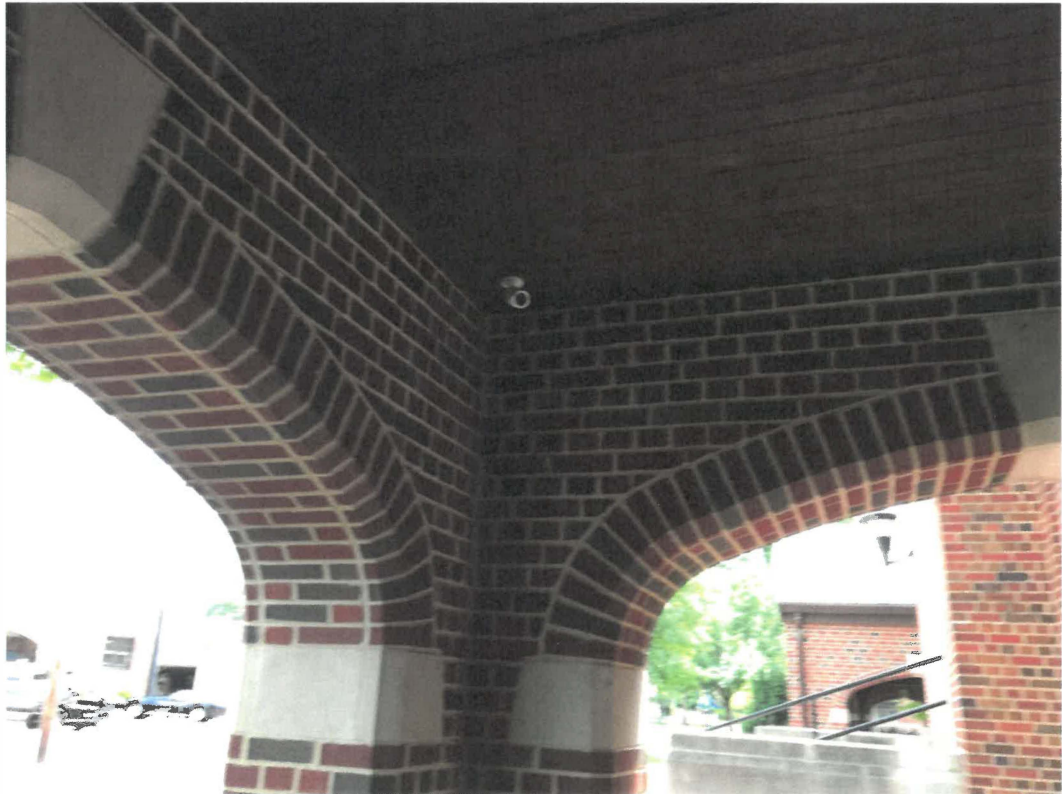
- The existing core switch located in the Main Technology Room has recently been replaced and is not in need of upgrading. The switches in the outlying Technology Closets (edge switching) are in need of upgrading as they are at the end of their useful life. This would also allow an increase in network speed to 10Gb throughout.



- The existing wireless access network was estimated to be upgraded at some point in the last 3-4 years. The existing license agreement will expire in May 2019. It is recommended that new devices be secured to replace the existing. The change will allow greater system speed and more devices to access the system at higher speeds.

Security

- Currently there is not an Access Control system in the school. An access control system is recommended and should be provided with card readers at 7 doors in the facility.
- Currently there are 30 interior and 7 exterior analog video surveillance cameras. It is recommended to replace the existing analog cameras with higher resolution IP cameras and add an additional 21 interior and 16 exterior IP cameras to provide better video surveillance coverage in the building.



- Currently there is intrusion detection for the computer labs only. Intrusion detection is recommended for the entire first floor. This can be accomplished by providing door contacts on all exterior doors and motion detectors on the first floor.

Architecture – Junior High

- The gym roof (single-ply membrane, fully adhered root system) was replaced in approximately 1994 and is in need of replacement.
- The original slate tile is over 80 years old. Individual tiles are brittle, cracked, broken, and missing throughout the roof area. Nails are reported as brittle and breaking causing tiles to come loose. Flashings appear worn throughout and are staining tiles at drip areas. Complete replacement/upgrade is recommended. The slate installed in 2005 is in satisfactory condition.



- The built-up roofing area is very worn, past its useful life and in need of replacement. It is recommended that the system be replaced with a single-ply membrane roofing that matches the same roofing type on the facility.



- It is estimated that 5-10% of the miscellaneous gutters and downspouts be repaired or replaced.



- Limited interior walls (masonry and plaster) will need repair after the renovations for the heating and air conditioning systems are complete.
- Limited concrete wall and floor repair will be required following the renovations for the heating and air conditioning and plumbing system repair.
- Ceiling (plaster and lay-in) ceiling repair/replacement will be required following the renovations for the heating and air conditioning systems.

Architecture – High School

- Single-ply membrane roofing is in good condition and will not require replacing.
- The original slate tile is over 80 years old. Individual tiles are brittle, cracked, broken, and missing throughout the roof area. Nails are reported as brittle and breaking causing tiles to come loose. Flashings appear worn throughout and are staining tiles at drip areas. Complete replacement/upgrade is recommended. The slate installed in 2005 is in satisfactory condition.



- The built-up roofing area is very worn, past its useful life and in need of replacement. It is recommended that the system be replaced with a single-ply membrane roofing that matches the same roofing type on the facility.



- It is estimated that 5-10% of the miscellaneous gutters and downspouts be repaired or replaced.




- Limited interior walls (masonry and plaster) will need repair after the renovations for the heating and air conditioning systems are complete.
- Limited concrete wall and floor repair will be required following the renovations for the heating and air conditioning and plumbing system repair.
- Ceiling (plaster and lay-in) ceiling repair/replacement will be required following the renovations for the heating and air conditioning systems.

III. OPINION OF PROBABLE CONSTRUCTION COST SUMMARY

- See the following page for content.

Oakwood City Schools
Summary Cost Report

Requirement Forecast Report - Summary

| | | | | | |
|---|------------|-------------------|---|-------------------|--------------|
| Subtotal Construction Cost | | 10,013,124 |  | Architectural | \$ 2,047,000 |
| Estimate Contingency | 10.0% | 1,001,312 | | HVAC/Plumbing | \$ 4,556,536 |
| Contractor General Conditions | 5.0% | 500,656 | | Electrical | \$ 757,779 |
| Project Contingency | 7.0% | 700,919 | | Technology | \$ 1,051,809 |
| Phasing Costs | 2.8% | 277,882 | | Smith Elementary | \$ 800,000 |
| Total Estimate of Probable Construction Costs | | 12,493,894 | | Harman Elementary | \$ 800,000 |
| Project Soft Costs | 17.0% | 2,123,962 | | | |
| Hazardous Material Remediation | OFCC x 75% | 1,882,145 | | | |
| TOTAL Estimate of Probable Project Costs | | 16,500,000 | | | |
| Available Bond Issue Funds | | 16,500,000 | | | |
| Difference Between Est. of Project Costs and Available Funds | | 0 | | | |

APPENDIX

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Plumbing / HVAC

Requirement Forecast Report - Plumbing/HVAC

Ratings to be based on the following scoring system

| | | | | | | | | |
|--|-----------------------------------|-----|--|----------------------------------|------------------|-------------------|-----------------------|-----------|
| Client: | Oakwood City Schools | | | 1. End of useful life | | | | |
| Campus: | High School / Junior School | | | 2. In need of Repair/Replacement | | | | |
| Asset: | Oakwood High School / Junior High | | | 3. Condition is satisfactory | | | | |
| Building Area: | 178,238 | sf | | 4. Recently replaced | | | | |
| | | | | 5. New work is recommended | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Quantity | | Detail (models, sizing, etc.) | Condition | Unit Cost | Total Cost | Prioritization | |
| | | | | | | | Yes | No |
| Fire Protection | | | | | | | | |
| Limited Area Sprinkler - High School/Junior High | 164,082 | sf | Limited area sprinklers in storage rooms and mechanical rooms only. Consider adding full wet sprinkler system throughout building. | 5 | \$ - | - | | |
| Sprinkler - 2005 Addition | 14,156 | sf | Full wet sprinkler throughout | 3 | \$ - | - | | |
| | | | | | | - | | |
| Plumbing | | | | | | | | |
| Sanitary Piping - High School/Junior High | 164,082 | sf | Original sanitary piping is in poor condition and has collapsed in many locations. Replace all original sanitary piping. | 1 | \$ 2.42 | 158,831 | X | |
| Sanitary Piping - 2005 Addition | 14,156 | sf | Existing sanitary piping in the 2005 addition is in good condition. | 3 | \$ - | - | | |
| Domestic Water Piping - High School/Junior High | 164,082 | sf | Original domestic water piping is primarily galvanized and should be replaced with copper piping. | 2 | \$ 2.20 | 144,392 | X | |
| Domestic Water Piping - 2005 Addition | 14,156 | sf | Existing domestic water piping in the 2005 addition is in good condition. | 3 | \$ - | - | | |
| Domestic Water Heater - High School/Junior High | 1 | ls | 135 MBH/250 Gallon Storage | 3 | \$ - | - | | |
| Domestic Water Heater - High School/Junior High | 1 | ls | 514 MBH/(2) 325 Gallon Storage. Storage tanks recently replaced. Heater nearing replacement. | 2 | \$ 36,160.00 | 36,160 | X | |
| Domestic Water Heater - Kitchen | 1 | ls | 40 Gallon Electric | 4 | \$ - | - | | |
| Domestic Water Heater - 2005 Addition | 1 | ls | 40 Gallon Electric | 3 | \$ - | - | | |
| Incoming Water Service | 1 | ls | Existing water service is adequate for current usage. If the existing High School/Junior High is sprinklered, a new water service will be required. | 2 | \$ - | - | | |
| Plumbing Fixtures - High School/Junior High | 256 | ea | 57 Water Closets, 23 Urinals, 43 Lavatories, 14 Drinking Water Coolers, 111 Sinks, 8 Custodial Sinks | 5 | \$ 1,525.00 | 156,160 | X | |
| Plumbing Fixtures - 2005 Addition | 26 | ea | 8 Water Closets, 2 Urinals, 10 Lavatories, 4 Drinking Water Coolers, 2 Sinks | 3 | \$ - | - | | |
| | | | | | | | | |
| HVAC | | | | | | | | |
| Boiler Plant - High School/Junior High | 10,000 | mbh | Fire-tube steam boilers, should be replaced with new condensing heating water boilers. | 2 | \$ 27.10 | 271,000 | X | |
| Boiler Plant - 2005 Addition | 500 | mbh | Copper-Fin heating water boiler | 3 | \$ - | - | | |
| Steam Supply and Condensate Return System | 164,082 | sf | Black Steel and Galvanized steam piping, condensate piping, condensate pumps, make-up water system, steam traps, insulation, specialties, etc. should be replaced with new heating water piping, pumps, etc. | 1 | \$ 5.25 | 861,431 | X | |
| Heating Hot Water Supply/Return System - 2005 Addition | 14,156 | sf | Copper heating water piping, insulation, pumps, specialties, etc. | 3 | \$ - | - | | |

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Plumbing / HVAC

| | | | | | | | | |
|--|---------|------|---|---|-------------|-----------|---|---|
| Original Air System - High School | 52,800 | cfm | Existing central heating and ventilating unit has exceeded its life expectancy and should be replaced with new dedicated outdoor air handling unit and (25) 4-pipe fan coil units. | 1 | \$ 21.70 | 1,145,760 | X | |
| Original Air System - Junior High | 12,900 | cfm | Existing central heating and ventilating unit has exceeded its life expectancy and should be replaced with new dedicated outdoor air handling unit and (16) 4-pipe fan coil units. | 1 | \$ 21.70 | 279,930 | X | |
| Auditorium Air System | 12,000 | cfm | Existing air handling unit was replaced in 2005. A chilled water coil should be added to the unit and connected to the new chilled water system. | 2 | \$ 1.00 | 12,000 | X | |
| DX Unit Ventilators | 30 | ea | 3-Ton DX cooling and steam heating classroom unit ventilators have mostly exceeded their life expectancy and should be replaced with new heating water/chilled water classroom unit ventilators. | 2 | \$ 7,550.00 | - | | X |
| High School Administration Unit | 1500 | cfm | Existing DX cooling and steam heating air handling unit service the HS administration area has exceeded its life expectancy and should be replaced with a new chilled water and heating water variable air volume air handling unit and 7 VAV reheat terminals. | 1 | \$ 12.35 | - | | X |
| Junior High Administration System | 800 | cfm | Existing DX cooling system serving the JH administration area has recently been replaced and is in good condition. The existing steam heating radiators should be replaced with new heating water fin-tube radiation. | | \$ - | - | | |
| High School Gymnasium Unit | 4000 | cfm | The existing heating and ventilating gymnasium air handling unit is nearing the end of its life and should be replaced with a new chilled water cooling and heating water air handling unit. | 2 | \$ 9.50 | 38,000 | X | |
| Junior High Gymnasium Unit | 10,000 | cfm | The existing heating and ventilating gymnasium air handling units have exceeded their life expectancy and should be replaced with a new chilled water cooling and heating water air handling unit. | 1 | \$ 9.50 | 95,000 | X | |
| Science Wing Outdoor Air Rooftop Unit | 5500 | cfm | The existing science wing outdoor air unit was installed in 2000 and is in good condition. | 3 | \$ - | - | | |
| Orchestra Air Handling Unit | 3000 | cfm | The existing system serving the Orchestra Area was installed in 2005 and is in good condition. | 3 | \$ - | - | | |
| 2005 Locker Room System | 4000 | cfm | The locker room heating and exhaust systems were installed in 2005 and are in good condition | 3 | \$ - | - | | |
| Window Air-Conditioning Units | 40 | ea | The existing window air conditioning units are in fair condition, but are not very efficient. They should be removed and replaced with the chilled water systems as noted above. | 2 | \$ 150.00 | - | | X |
| 2005 Addition VAV Rooftop Unit | 6000 | cfm | The VAV rooftop unit and VAV terminals were installed in 2005 and are in good condition | 3 | \$ - | - | | |
| Exhaust Systems - High School/Junior High | 164,082 | sf | The toilet room and general exhaust fans serving with original buildings are of various ages but are in good condition. Allow for 50% to be replaced. | | \$ 0.25 | 20,510 | X | |
| Exhaust Systems - 2005 Addition | 14,156 | sf | The toilet room exhaust fans were installed in 2005 and are in good condition. | 3 | \$ - | - | | |
| Temperature Controls - High School/Junior High | 164,082 | sf | Existing temperature controls consist of pneumatic with limited DDC. The system needs to be replaced completely. | 1 | \$ 3.20 | 525,062 | X | |
| Temperature Controls - 2005 Addition | 14,156 | sf | The existing system is DDC, but will need to be replaced along with the system in the High School/Junior High. | 2 | \$ 3.20 | 45,299 | X | |
| Chilled Water System | 400 | tons | A new chilled water system including (2) outdoor, air-cooled chillers, pumps, piping, specialties, etc. shall be installed to serve the existing DX and un-air-conditioned spaces. | | \$ 1,917.50 | 767,000 | X | |
| Subtotal Project Costs | | | | | | 4,556,536 | | |

Requirement Forecast Report - Electrical

| Client: | | Oakwood City Schools | | | | 1. End of useful life | | <div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> | |
|----------------|---|-----------------------------------|----|--|-----------|----------------------------------|------------|--|----|
| Campus: | | High School / Junior School | | | | 2. In need of Repair/Replacement | | | |
| Asset: | | Oakwood High School / Junior High | | | | 3. Condition is satisfactory | | | |
| Building Area: | | 178,238 | sf | | | 4. Recently replaced | | | |
| | | | | | | 5. New work Recommended | | | |
| | | Quantity | | Detail (models, sizing, etc.) | Condition | Unit Cost | Total Cost | Prioritization | |
| | | | | | | | | Yes | No |
| Electrical | | | | | | | | | |
| | New Electrical Service | 1 | ls | New 1200A 480V electrical service to serve new HVAC (chiller) loads. Consists of a 1200A distribution panelboard with approximately 10 circuit breakers. | 5 | 42,980.00 | 42,980 | X | |
| | Incoming Electrical Service | 4 | ea | 2x800's 2x400's | 3 | | - | | |
| | Switchboards | 5 | ea | Newer Undamaged Distribution Panels (serving as switchgear). (2) 800A, (3) 400A. | 3 | - | - | | |
| | | 1 | ea | Older 800A switchgear (Square D). Needs replaced. | 2 | 36,300.00 | 36,300 | X | |
| | Panelboards | 14 | ea | Old/Damaged Panelboards. Need Replaced. Assume 42 ckt. 225A. | 2 | 5,325.00 | 74,550 | X | |
| | | 31 | ea | Newer Undamaged Panelboards. Average of >15 year life remaining. | 3 | - | - | | |
| | Disconnects | 6 | ea | Old/Damaged Disconnects. Need Replaced | 2 | 1,200.00 | 7,200 | X | |
| | | 8 | ea | Newer Undamaged Disconnects. Average of >15 year life remaining. | 3 | - | - | | |
| | Emergency System | - | ea | No emergency generator or fire pump | | - | - | | |
| | Interior Lighting | 164,082 | sf | Circuiting as needed for new lighting fixtures denoted below | 2 | 1.50 | 123,062 | X | |
| | Classrooms | 564 | ea | T8 troffers. Upgrade to LED (number assumes 12 fixtures per classroom) | 2 | 310.00 | - | | X |
| | Labs | 176 | ea | T8 troffers. Upgrade to LED (number assumes 16 fixtures per Lab) | 2 | 310.00 | - | | X |
| | Corridors | 363 | ea | T8 troffers (primarily). Upgrade to LED | 2 | 310.00 | 112,530 | X | |
| | Gymnasium - HS | 15 | ea | Incandescent downlights. Upgrade to LED. | 2 | 295.00 | 4,425 | X | |
| | Gymnasium - JR HS | 29 | ea | Surface mounted metal halide high bay fixtures. Upgrade to LED. | 2 | 775.00 | 22,475 | X | |
| | Auditorium | 30 | ea | Recessed incandescent lighting. Upgrade to LED | 2 | 375.00 | 11,250 | X | |
| | Cafeteria | 59 | ea | Direct/Indirect T12 suspended fixtures. Replace with LED. | 2 | 390.00 | 23,010 | X | |
| | Kitchen | 15 | ea | T8 troffers (4-lamp). Upgrade to LED. | 2 | 310.00 | 4,650 | X | |
| | Media Center | 28 | ea | 10 Decorative Pendants, 10 recessed downlights (10" aperature), and 8 decorative sconces. Upgrade all to LED. | 2 | 550.00 | - | | X |
| | Administration | 50 | ea | T8 troffers. Upgrade to LED. | 2 | 310.00 | - | | X |
| | Restroom | 67 | ea | T12 surface fixtures. Cove lighting in 2 small bathrooms. 1'x4' T8 troffers in 10 medium sized bathrooms. Upgrade to LED. | 2 | 350.00 | - | | X |
| | General | 77 | ea | Mostly damaged and aged T12 surface or suspended wraparound type fixtures. Upgrade to LED. | 2 | 310.00 | - | | X |
| | Switching (2 per classroom & lab, all else 1) | 168 | ea | Good Condition. | 3 | - | - | | |
| | | 42 | ea | Damaged/Aged. (20%) | 2 | 63.15 | - | | X |

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Electrical

| | | | | | | | | |
|-------------------------------|---------|----|--|------------------------|----------|---------|---|---|
| Classroom Receptacles | 188 | ea | Good Condition. | 3 | - | - | | |
| | 188 | ea | Damaged/Aged. (50%) | 2 | 157.00 | - | | X |
| Lab Receptacles | 88 | ea | Good Condition. | 3 | - | - | | |
| | 22 | ea | Damaged/Aged. (20%) | 2 | 157.00 | - | | X |
| Corridor Receptacles | 24 | ea | Good Condition. | 3 | - | - | | |
| | 6 | ea | Damaged/Aged. (20%) | 2 | 157.00 | - | | X |
| Receptacles - All other areas | 50 | ea | Good Condition. | 3 | - | - | | |
| | 50 | ea | Damaged/Aged. (50%) | 2 | 157.00 | - | | X |
| Receptacle Circuiting | 164,082 | sf | Circuiting as needed for new receptacles | 2 | 1.50 | 49,225 | | X |
| Mechanical Equipment Power | 164,082 | sf | Disconnect and reconnect HVAC systems | 2 | 1.50 | 246,123 | X | |
| Fire Alarm System | 1 | ea | Devices and panels appear to be in excellent condition. Typically these systems are replaced every 15 years. | 4 | - | - | | |
| Exit/Emergency Lighting | 164,082 | sf | All exit signs have been recently replaced. | 3 | - | - | | |
| Exterior Lighting | 9 | ea | Decorative Post top luminaires on 15' poles. Poles in good condition. Luminaires need upgraded to LED. | 2 | 1,100.00 | - | | X |
| | 7 | ea | Inground luminaires. Need re-aimed. | 3 | 50.00 | - | | X |
| | 8 | ea | Inground luminaires. Need replaced/upgraded to LED | 2 | 845.00 | - | | X |
| | 7 | ea | Decorative Wall Sconce at Entrances. Replace/Upgrade to LED | 2 | 710.00 | - | | X |
| | 3 | ea | Jelly Jar Lights above side entry doors. Replace/Upgrade to LED | 2 | 255.00 | - | | X |
| | 8 | ea | Over door sconce. Upgrade to LED | 2 | 710.00 | - | | X |
| | 15 | ea | Trapezoid Wallpacks. Upgrade to LED | 2 | 685.00 | - | | X |
| | 16 | ea | Soffit Can lights. Replace with LED | 2 | 385.00 | - | | X |
| | | | | Subtotal Project Costs | | 757,779 | | |

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Technology

Requirement Forecast Report - Technology

Ratings to be based on the following scoring system

| | | | | | | | | |
|---------------------------------------|-----------------------------------|----|--|------------------|----------------------------------|-------------------|-----------------------|-----------|
| Client: | Oakwood City Schools | | | | 1. End of useful life | | | |
| Campus: | High School / Junior School | | | | 2. In need of Repair/Replacement | | | |
| Asset: | Oakwood High School / Junior High | | | | 3. Condition is satisfactory | | | |
| Building Area: | 178,238 | sf | | | 4. Recently replaced | | | |
| | | | | | 5. New work Recommended | | | |
| | | | | | | | | |
| Building Envelope | Quantity | | Detail (models, sizing, etc.) | Condition | Unit Cost | Total Cost | Prioritization | |
| | | | | | | | Yes | No |
| Technology | | | | | | | | |
| Paging System and Speakers | 178,238 | sf | The existing paging system has reached the end of it's life. Replacement parts and support are not available for the existing system. Existing speakers are outdated and some are also damaged throughout the building. It is recommended that a new paging system be provided for the entire building. This would include a new headend, new speakers, and new cabling. | 1 | \$ 0.75 | - | | X |
| Clock System | 178,238 | sf | The existing clocks are a mixture of digital clocks in corridors and non-synchronous clocks in classrooms and misc. spaces. It is recommended the the entire building be provided with a synchronous clock system that is tied into other systems within the building. | 2 | \$ 0.40 | - | | X |
| Phone System and Phones | 90 | ea | The existing analog phone system has reached the end of it's life. When existing phones stop working, the only phones available for replacement with the existing system are refurbished ones. It is recommended that a new IP phone system be provided. This will include a new phone switch or managed system, and all new IP phones. | 1 | \$ 675.00 | 60,750 | X | |
| Horizontal Cabling Infrastructure | 178,238 | sf | The data cabling in the building is currently a mixture of Category 5, SE, and 6. There are many existing locations where the cabling appears to be damaged. It is recommended that the cabling to support wireless access points be upgdgraded to Category 6A to support higher bandwidth. This will allow the wireless network to support more wireless devices at higher speeds. It is also recommended that all the Category 5 and 5e cabling in the building be replaced with Category 6A cabling. This will also support higher bandwidth. | 2 | \$ 1.80 | 320,828 | X | |
| Fiber Backbone Cabling Infrastructure | 3,000 | lf | The existing fiber backbone is currently 62.5 multi-mode fiber optic cable. This will only support a 1 Gb backbone for the network. It is recommended that this cable be replaced with 50 micron multi-mode fiber optic cable. This will support a 10 Gb backbone to support higher bandwidth speeds and more devices on the the network. | 1 | \$ 8.00 | 24,000 | X | |
| Pathways for Horizontal Data Cabling | 178,238 | sf | The existing raceway and junctions boxes for many of the data locations have been damaged. Raceway is torn of the wall, boxes are hanging by the data cables, etc. It is recommended that all new pathways be provided to support the horizontal data cabling. | 1 | \$ 1.00 | 53,471 | | X |

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Technology

| | | | | | | | | |
|-------------------------------|---------|----|---|---|--------------|------------------|--|---|
| Classroom AV Cabling | 65 | ea | The existing AV cabling in classrooms is analog VGA cabling. Computers are refreshed every 4 years, and newer computers will no longer support analog VGA video. It is recommended that the classrooms be upgraded with digital HDMI cabling between the teacher's computer and video display. | | \$ 495.00 | - | | X |
| Classroom Displays | 35 | ea | There is a mixture of new LED ceiling mounted projectors and older discontinued LCD projectors in the building. It is recommended that the older LCD projectors be replaced with the new LED ceiling mounted projector. | 2 | \$ 2,750.00 | - | | X |
| Classroom Sound Systems | 65 | ea | The existing sound system in the classrooms consists of a single speaker typically mounted on the teaching wall. This speaker has reached the end of its life. It is recommended that a new small amplifier and 2 ceiling speakers be provided in each room for the audio from the teacher's PC to be evenly distributed in the room. | 2 | \$ 1,200.00 | - | | X |
| Network Switching | 178,238 | sf | The existing core switch has recently been replaced and does not need to be upgraded. The edge switching throughout the building has reached the end of its life. It is recommended that the edge switches be replaced to support a 10 Gb network. | 2 | \$ 1.10 | 196,062 | | X |
| Wireless Network | 178,238 | sf | The existing wireless network was estimated to be updated within the last 3-4 years. The existing licensing agreement for the existing access points expire in May, 2019. It is recommended that the wireless access points be replaced with newer models of wireless access points. This will allow the wireless network to support more devices at higher speeds. | 2 | \$ 1.25 | 222,798 | | X |
| | | | | | | | | |
| Security | | | | | | | | |
| Access Control | 7 | ea | Currently there is no Access Control System in the school. An access control system is recommended to be provided with card readers at 7 doors. It is also recommended that the access control system be used with a panic/lockdown button in the main reception to lock down identified doors in an emergency. Work scope includes complete door and hardware replacement. | 1 | \$ 11,100.00 | 77,700 | | X |
| Video Surveillance | 74 | ea | Currently there are 30 interior and 7 exterior analog video surveillance cameras. It is recommended to replace the existing analog cameras with higher resolution IP cameras and add an additional 21 interior and 16 exterior IP cameras to provide better video surveillance coverage in the building. | 1 | \$ 1,300.00 | 96,200 | | X |
| Intrusion Detection | 85,347 | sf | Currently there is only intrusion detection located in computer labs. Intrusion detection is recommended for the entire first floor. This would be accomplished by providing door contacts on all exterior doors and motion detectors on the first floor. | 1 | \$ 0.69 | - | | X |
| | | | | | | | | |
| Subtotal Project Costs | | | | | | 1,051,809 | | |

Oakwood City Schools
Assessment Prioritization for Junior High / High School
Architectural

Requirement Forecast Report - Architectural

Ratings to be based on the following scoring system

| | | | | | | | | |
|---|-----------------------------------|----|--|------------------|------------------|----------------------------------|-----------------------|-----------|
| Client: | Oakwood City Schools | | | | | 1. End of useful life | | |
| Campus: | High School / Junior School | | | | | 2. In need of Repair/Replacement | | |
| Asset: | Oakwood High School / Junior High | | | | | 3. Condition is satisfactory | | |
| Building Area: | 178,238 | sf | | | | 4. Recently replaced | | |
| | | | | | | 5. New work is Recommended | | |
| | | | | | | | Prioritization | |
| Building Envelope JH | Quantity | | Detail (models, sizing, etc.) | Condition | Unit Cost | Total Cost | Yes | No |
| Single-Ply Membrane - Fully Adhered | 7,150 | sf | Gym roof was replaced approximately 1994 and has exceeded the system's life expectancy. Also includes outdated membrane roofing over locker room areas. | 2 | \$ 12.00 | 85,800 | X | |
| Slate Tile Roofing (Original) | 18,250 | sf | Individual tiles are brittle, cracked, broken, missing throughout the roof areas. Nails are reported as brittle and breaking causing tiles to come loose. Flashings appear worn throughout, and are staining tiles at drip areas. (Area is estimated with slope) | 1 | \$ 27.00 | 394,200 | X | |
| Slate Tile Roofing (2005 Additions) | 6,450 | sf | Area of Slate installed in 2005 is in satisfactory condition. | 3 | \$ - | - | | |
| Modified Bitumen Roofing | 7,500 | sf | Built-up roofing appears to be very worn and past the useful life of the system. Flashings appear worn. Recommend to replace with single-ply membrane roofing to match existing membrane. | 1 | \$ 15.00 | 112,500 | X | |
| Single-Ply Membrane - Fully Adhered | 5,270 | sf | Miscellaneous membrane roofing areas installed in 2005, and within the past few years. | 3 | \$ - | - | | |
| Gutters and Downspouts | 200 | lf | 5-10% of Miscellaneous gutters and downspouts need immediate repair and/or replacement. | 2 | \$ 17.75 | 3,550 | X | |
| | | | | | | | | |
| Interior Renovations for Building Systems - JH | | | | | | | | |
| Interior Walls - Plaster Renovation | 500 | sf | Assumed for Patch / Repair for HVAC replacements. | 2 | \$ 30.00 | 15,000 | X | |
| Interior Walls - Plaster Renovation | 250 | sf | Assumed for Patch / Repair for Elec/Tech replacements. | 2 | \$ 30.00 | 7,500 | X | |
| Interior Walls - CMU Renovation | 1,000 | sf | Assumed for Patch / Repair for HVAC replacements. | 2 | \$ 45.00 | 45,000 | X | |
| Interior Walls - CMU Renovation | 250 | sf | Assumed for Patch / Repair for Elec/Tech replacements. | 2 | \$ 45.00 | 11,250 | X | |
| Concrete Renovation for Systems | 2,150 | sf | Assumed for Cutting Openings for vertical HVAC piping and ductwork and sanitary piping replacement. | 2 | \$ 52.50 | 45,150 | X | |
| Plaster Ceiling Renovation | 5,100 | sf | Remove portion of ceiling to accommodate new Building Systems, and replace after Building Systems. | 2 | \$ 13.50 | 68,850 | X | |
| ACT Ceiling Renovation | 1,000 | sf | Remove ceiling tiles, protect, and replace after new Building Systems are installed. | 2 | \$ 3.00 | 3,000 | X | |
| Custom Millwork Renovation | 1,200 | lf | At media center, remove millwork, protect, and replace after new HVAC piping is installed. | 5 | \$ 15.00 | 18,000 | X | |
| | | | | | | | | |
| | | | | | | | | |

