Executive Summary

Background

Antioch College has been in existence for over 150 years. In its rich history which started in Yellow Springs, Ohio in 1852, there have been many changes including the number and location of its campuses and obviously in its administration, faculty and student population. What has not changed is its dedication to a very involved student body, independent study and independent thinking in the pursuit of providing an exceptional education to its students. Like many universities, the focus is and should be on education of its students. What has become a common theme for many universities has to deal with the task of efficiently managing their facilities, including the use and costs of utilities, while effectively providing for the needs of the campus to sustain the learning environment.

With aging campuses, increasing utility costs, increasing budget constraints, and growing deferred maintenance lists, the focus on planning and activities to provide budget savings and external funding support is critical to the campuses success. The reality of campus operating costs, whether it is for unexpected repairs or prioritizing projects such as deferred maintenance issues, existing facilities renovation, or new construction is to understand the existing condition of the campus.

Stanley Consultants Inc. was contracted by Antioch College to assess and document the physical condition of twenty-nine (29) buildings in a detailed report. The condition, life expectancy, capacity, and efficiency of the systems and subsystems are documented and reported noting recommended options and potential cost effective solutions to improve and extend the overall life of the buildings and systems.

The primary objective of this study was to prepare an assessment report that documents the following:

- Identification of issues to comply with the State Building Code/Local Building Codes.
- Identification of issues related to Ventilation and Indoor Air Quality, if any.
- Identify required repairs for deteriorated or damaged exterior envelope, roof, and interior finishes.
- Identification of issues to comply with ADA and Life Safety standards.
- Identify architectural modifications required for identified renovations to the HVAC, electrical, plumbing, data, and communication systems.
- Evaluation of existing building services including mechanical and electrical systems. Specifically, the evaluation will cover the plumbing, HVAC, boilers, fire protection, electrical service, electrical distribution, security, and lighting.
- Evaluation of Facilities or Building Management System, and related Sequences of Operations
- Evaluation of site civil and building structural to determine any issues that need to be addressed.
- Evaluation of site utilities including electrical and steam piping/tunnels.
- Investigate condition of parking lots, roads, sidewalks, and landscaping.
- Conceptual cost estimates for implementing recommendations, based on the issues identified during the assessment.
- Historical Significance - utilize the previous survey work for the Getty Campus Heritage Grant to identify historical importance.

The physical assessments were based on the followings:

- Structural Condition
- Roof Condition
- Exterior Envelope
- Life Safety Systems
- ADA Accessibility
- Electrical System
- Mechanical System
- Historical Significance, collected from the Campus Strategic Plan

Assessment Summary

Stanley Consultants focused on six (6) tasks in the performance of the condition assessment. Key to the success was to review the scope of work for the assessment study and confirm format, criteria, and goals for the study. We met with Antioch staff, gathered documentation, and began planning the site assessments. Multiple site assessment visits were performed consisting of physically inspecting, observing, and evaluating the facilities, their major systems, capacities, and the associated distribution system components.

Stanley Consultants performed life cycle cost analysis where a clear decision of renovate/repair versus replacement was not able to be made solely based on observation and inspection. Where life cycle cost analysis was not required, Stanley Consultants developed cost estimates for repair and replacement of existing systems in accordance with recommendations for needed facility improvements. The cost estimates are conceptual, rough order of magnitude cost estimates. The estimates will be separated by building and will include building and building services improvements, site improvements, material costs, contractor overhead and profit, contingency, administration, and engineering costs.

Facility needs lists were prioritized based on the critical nature of the facility, system, life expectancy, and energy efficiency. The information is provided in two parts; a brief summary of each building is presented; and at the end a table is summarizes the findings. The table will identify the replacement cost, renovation cost, and the Facility Cost Index (FCI) for each building. The FCI is the required renovation cost divided by the replacement cost for the facility. Detailed deficiencies related to each building are identified under individual section in this report.

Based on the assessment summary Stanley Consultants recommends the following options:

- Reduce the number of operating buildings by consolidating overall activities. This will save operating cost for Antioch College.

- Drain the water lines prior to temporarily shutting down any building. This will prevent water lines from freezing under extreme water conditions.

- Buildings with wet fire sprinkler system will be modified to dry sprinkler system. Flow and tamper switches will be installed to activate the fire sprinkler system in the event of fire.

- Stand alone building heating system will be a feasible option if total number of operating building is reduced by 50% or higher. Stand alone building heating system will consists of high efficiency condensing or modulating boiler(s), pump(s), and boiler management system. This option will allow the College to shut down the existing heating plant, which will result in operating cost reduction. Operating the existing heating plant under reduced occupied building scenario is not cost effective.

Building Summaries

The buildings were evaluated as described above and given a rating of poor, fair, and good.....based upon the condition of the building envelope and systems. Each rating is described below:

- ☑ Poor - significant damage to the structure, not energy efficient, no ADA compliance, serious safety and health threats, roofing in poor condition, poor ventilation and air quality, electrical and/or mechanical equipment is not functional or past its useful life.

- ☑ Fair - minor cosmetic damage, limited ADA compliance, some energy conservation measures are taken, electrical and/or mechanical equipment is working but will need replacement in the near future, majority of the building, mechanical, safety, fire, and electrical codes are being followed.

- ☑ Good - building is well maintained, ADA compliant, energy conservation measures are taken, electrical and mechanical equipment is in proper working condition, and building is compliant with mechanical, electrical, building, fire, and safety codes.

Building Zone Summaries

The building zone summaries were evaluated as described in the Campus Strategic Plan, by Schooley Caldwell Associates, November 17, 2006. Each rating is described below:

- ☑ Zones I and II - Buildings and spaces that are listed in or qualified for listing in the National Register of Historic Places. Buildings and spaces in Zones I and II should receive the most sensitive treatment in the future.

- ☑ Zone III - Buildings and spaces that are not yet of sufficient age to warrant National Register listing. Buildings and spaces in Zone III should receive sensitive treatment in the future.

- ☑ Zones IV and V - Buildings and spaces that have been altered to the extent that they have lost their historic character and do not make any contribution to the historic character of the campus.

Antioch Inn:

The building was built in 1957, and renovated in 1994/95. This building is approximately 40, 000 sq. ft., two (2) storied and masonry and concrete construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

There is a brick enclosure with a sloped wood truss roof off the corner of the cafeteria. The portion above the brick is wood paneled and severely deteriorated. The soffit and fascia are wood and in poor condition. The sloped roof is corrugated metal which is in fair condition.

Many interior doors are broken and/or with broken hardware. Door closures are missing or broken on doors and some of the wood frames are in poor condition. The concrete in front of the loading dock is cracked and broken.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The grounding system appears to be unreliable. There are some circuits that are grounded and some that are ungrounded. It is recommended to have a grounding system that meets National Electric Code (NEC) article 250.

The emergency lighting in most rooms (including restrooms and corridors) is not functioning properly or is not installed. All emergency lighting needs to be updated and installed to meet National Fire Protection Association (NFPA) 101 section 7 and all other relevant state and local codes.

A fire alarm system is installed in this building; however there are some locations that have missing or inadequate detectors. It is recommended to install fire alarm equipment per NFPA 72, NFPA 101, and all other relevant codes.

American Disability Act (ADA) compliance is limited on the first floor. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The kitchen is not up to code and is outdated. It should be updated to meet NEC Articles 210.50, 220.56, 422.11, and all other relevant codes.

The communication system does exists, however it is not installed throughout the building. It is recommended to update this system to match industry standards.

The existing electrical distribution system is outdated and needs to be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of hot water heating, cooling by air cooled chiller and Direct Expansion Coils. The HVAC System is difficult to control and failed to provide necessary comfort. The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly.

The existing sixty (60) ton chiller is noisy and cannot operate due to complaints from the adjacent houses. The coils in the evaporator bundle are clogged resulting in excessive pressure drop. AHU's are old and noisy.

The upstairs heating water supply pipes are busted causing no heat.

Overall condition of the HVAC System is poor and in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The plumbing system is in dire need of replacement due to several leaks in the potable water distribution pipes. The domestic water pipes are original galvanized and sanitary waste is cast iron. Cafeteria is operating without a grease trap. The plumbing system must be upgraded to satisfy the local and state code requirements.

Kettering Building:

The building was built in 1953, and renovated in 1995. This building is approximately 33, 400 sq. ft., four (4) storied and masonry and concrete construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

The main exterior concern is the numerous canopies along the length of the building and their poor drainage. The issues on the interior are primarily the top three (3) floors and their original design as laboratories. This needs to be assessed based on the intended future use of the building. The interior finishes are in poor condition in many areas due to condensation and needs to be addressed however the building is used.

Electrical:

Total Hazardous / Code Violation / Safety Condition –There is no backup power to exit and emergency lights. They are also installed in incorrect locations. It is recommended that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed. It is recommended to install the fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is no ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA guidelines.

Poor Condition - Requires Immediate Correction - The existing main electrical distribution system is fairly new. There are starters, junction boxes, and conduit that need replacement due to poor maintenance. The use and support of flexible conduit in the electrical room is not per NEC article 348. There is also communication cable running along conduit and this is against NEC

code. It is recommended that all electrical distribution equipment have clearance areas defined in NEC article 110.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

Heating is provided with hot water from the boiler in the mechanical room to the terminal units and the radiators. Cooling is provided by roof top units, and a forty (40) ton Direct Expansion Unit.

The HVAC System is difficult to control and failed to provide necessary comfort. The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly. The heating lines have met the end of their life cycle and need to be replaced to ensure proper usage.

Overall condition of the HVAC System is poor and in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The building is equipped with outdated fire alarm system and does not have a sprinkler system. This building needs to be upgraded and a new fire alarm system and sprinklers need to be installed according to the local code.

The plumbing system is in poor condition and is in need of replacement due to several leaks. The domestic water and sanitary pipes are original. The domestic water lines should be replaced with copper lines. The plumbing system must be upgraded to satisfy the local and state code requirements.

Glen Helen Building:

Zone: 3

The building was built in 1972 and approximately 7,138 sq. ft., single storied and stone, laminated beams and block construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

Limited accessibility is a problem due to the multiple levels. A study to examine alternative ways to address this issue would be needed. The glazing is also single pane set in the wood structure of

the building. An energy study of this building would help determine the practicality of changing the glazing.

Electrical:

Total Hazardous / Code Violation / Safety Condition - The light levels inside the building and in the parking lot are low in many areas. It is recommended to adjust light levels to match Illuminating Engineers Society of North America (IESNA) and local code requirements.

It is recommended to test the integrity of the grounding system to verify that it meets NEC article 250.

It is recommended to test the battery backup power to exit and emergency lights. It is suggested that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There is no fire alarm system currently installed. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is no ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA guidelines.

Poor Condition - Requires Immediate Correction – The kitchen area has some electrical receptacles that are installed in hazardous areas. It is recommended to install all kitchen receptacles per NEC Articles 210.50, 220.56, 422.11, and all other relevant codes.

Energy Savings – It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

Heating is provided with gas fired units, using forced air. Cooling is provided by three (3) air handling units (AHU) with Direct Expansion coils.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly.

Overall condition of the HVAC System is poor and in need of replacement. The AHU's and heating units are old and met the end of their life cycle and need to be replaced The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

Rebecca Pennell House:

Zone: 1

Architectural:

In the National Register of Historic Places and renovated in 1993, Pennell House is in generally good condition with the possible exception of the roof structure. Rafters are deflected and a lift is required to examine from the outside the condition along the wall below the gutter. A structural engineer should examine the roof rafters and report on their condition.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to install a grounding system that meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There are no fire alarm devices installed. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of gas fired heating units.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor and needs immediate replacement.

The plumbing system is operating marginally, and in need of immediate replacement. The plumbing system must be upgraded to satisfy the local and state code requirements.

Antioch Hall:

Zone: 1

The building was built in 1853, and renovated in 1959-1962. This building is approximately 46, 800 sq. ft., three (3) storied and masonry, concrete and wood truss construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

A historic building, the façade should be maintained in as good a condition as possible. This requires spot tuck pointing and areas of masonry repair or replacement if matching brick can be found. A lift is required to inspect closely the gutters, the roof, and the masonry below the gutter line. The source of the basement water leaks in a heavy rain should be determined and corrected. The future use of Kelly Hall auditorium should be determined and if the hall is to continue in use, a plan to update it should be included in any renovation.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The grounding system appears to be unreliable. It is recommended to have a grounding system that meets NEC article 250.

The emergency lighting in most rooms (including restrooms and corridors) is not functioning properly or is not installed. There is also no battery backup power to exit and emergency lights. It is recommended that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

A fire alarm system is installed in this building; however there are some locations that have missing or inadequate detectors. It is recommended to install fire alarm equipment per NFPA 72, NFPA 101, and all other relevant codes.

Lightning protection is missing on the telephone system. This should be installed per NFPA 780.

ADA compliance is limited on the first floor. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced.

Flexible conduit is installed in various areas in the basement. It is being improperly used. Flexible conduit should be installed and used per NEC article 348.

Energy Savings – The overall condition of lighting is that there are incandescent, compact fluorescent, and tube fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of hot water heating using steam to hot water converter. The cooling is provided by 125 ton air cooled reciprocating chiller. The hydronic system is a two (2) pipe system with manual changeover valves. The existing fan coil units were installed in 1950's. The overall temperature controls system for the HVAC System is pneumatic thermostat.

The HVAC System is in poor condition and in need of replacement. The FCU's are old and met the end of their life cycle and need to be replaced. The steam to hot water converter is showing sign of aging and severe corrosion. Cold spots are prevalent throughout building indicating

problems with air distribution. The insulation for the mechanical system is severely damaged and requires immediate repair.

The Kelly Auditorium air handling unit is located in the attic space. The unit is old and ductwork associated with this unit should be replaced.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly.

The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The Domestic Hot Water pipes are disconnected in several places due to leaks. The domestic water pipes are original galvanized and sanitary waste is cast iron pipes. The plumbing system must be upgraded to satisfy the local and state code requirements.

Sontag Fels Building:

The building was built in 1950, and renovated in 1996. This building is approximately 58,149 sq. ft., three (3) storied and masonry, and concrete construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This building has a variety of problems: rusted lintels, water damage at down spouts, water in the elevator pit, some severe masonry staining, single glazed windows, limited accessibility, and interior water staining along portions of the outside walls. There are many laboratory rooms with old and dated equipment and fixtures.

Electrical:

Total Hazardous / Code Violation / Safety Condition –There is no backup power to exit and emergency lights. All emergency and exit lighting needs to be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel. It is recommended to install fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

ADA compliance is limited on the first floor. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic

ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The North HVAC System: Cooling is provided by a direct expansion coil in the air handling units. The air cool condenser is located on the roof and air handling unit is located in the basement. Heating is provided by hot water through the radiant units. Steam to hot water converter is used for hot water heating.

The South HVAC System: Cooling is provided by chilled water from a sixty (60) ton chiller located in the basement. The air cool condenser is located on the roof. The heating and cooling air is distributed through individual fan coil units located throughout the building. Heating is provided by hot water through the radiant units. Steam to hot water converter is used for hot water heating.

The Center HVAC System: Cooling is provided by a direct expansion coil in the air handling units. The air cool condenser is located on the roof and air handling unit is located in the attic. Heating is provided by gas fired section in the air handling units

The overall HVAC System is poor and in need of replacement. Currently there are several leaks in the hydronic hot water pipes. The HVAC System should be replaced with much more energy efficient system. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile. The HVAC System should be controlled by Direct Digital Control. The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements

The Domestic Hot Water pipes are disconnected in several places due to leaks. The domestic water pipes are original galvanized and sanitary waste is cast iron pipes. The plumbing system must be upgraded to satisfy the local and state code requirements

Birch Hall:

Zone: 1

The building was built in 1945, and renovated in 1996. This building is approximately 30,000 sq. ft., two (2) storied and masonry, and concrete construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This is a well designed well built building of architectural significance. The recessed courtyard needs miscellaneous repairs and some of the interior finishes are worn but could be updated easily at a minimal cost. Accessibility is an issue that requires further in-depth study and should be included in any campus renovation.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to test the existing grounding system for integrity and that it meets NEC article 250.

There is no backup power to most exit and emergency lights. It is suggested that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced.

There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348.

Energy Savings – It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of hot water heating using steam to hot water converter. The cooling is provided by 125 ton air cooled reciprocating chiller. The hydronic system is a two (2) pipe system with manual changeover valves. The existing fan coil units were installed in 1950's. The overall temperature controls system for the HVAC System is pneumatic thermostat.

The HVAC System has out lived its useful life and is in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The building is equipped with outdated fire alarm system and does not have sprinkler system. This building needs to be upgraded and new fire alarm system and sprinklers needs to be installed according to the local code.

Curl Gym:

Zone: 1

The building was built in 1929. This building is approximately 40,000 sq. ft., masonry, and concrete construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

While the exterior masonry of this building is in generally good condition, the wood soffits, fascias, windows and gutters have been neglected. Extensive repair and/or replacement of these elements are needed. The roof is also poorly drained. Moisture is a major problem in the swimming pool with major work required on the south wall.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

There is currently no emergency lighting and the functionality of the exit lighting is questionable. It is recommended to test existing exit lighting for functionality. It is suggested that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel. It is recommended to install fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced. There is conduit in the pool area that is rusting due to humid conditions. It is recommended to install exhaust fans in humid areas and install proper conduit for humid conditions.

Energy Savings – The overall condition of lighting is that there are incandescent, HID, and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The south gym is heated with hot water using steam to hot water converter. The converter is leaking and has out lived its useful life.

Steam pipe had damaged insulation, exposing the pipe to ambient temperature, in several places throughout the facility.

The pool area is heated with hot water heating system that uses steam to hot water converter. The heating system is leaking in the mechanical room causing water ponding.

Overall condition of the HVAC System is poor and in need of replacement. The existing HVAC System should be replaced with a much more energy efficient system and controlled by Direct Digital Control.

The plumbing system has out lived its useful life and is in need of replacement due to several leaks. The pumps for the pool area are leaking through the seals, and all the equipment are in poor condition due to corrosion and water ponding. The plumbing system must be upgraded to satisfy the local and state code requirements.

Evan R. Spalt:

Zone: 2

The building was built in 1950 and renovated in 1990. This building is approximately 24,300 sq. ft., three (3) storied and concrete block construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

The major problem here is the continued presence of moisture and the resulting mold. A detailed analysis of the surrounding soil including perhaps soil borings may be the only way to determine the cause of the problem. Excavation around a portion of the perimeter foundation may also be required to inspect how the foundation walls were sealed. In addition the concrete decks at the ends of the building are also a major source of water penetrating back into the building, as they do not slope adequately to drain water.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The grounding system exists, however it is recommended to test the integrity of the system. It is recommended to have a grounding system that meets NEC article 250.

It is recommended to test existing exit and emergency lighting for functionality. It is suggested that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

Poor Condition - Requires Immediate Correction – There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348.

Energy Savings - It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The building is contaminated with mold due to high humidity and leaky pipes. The existing fan coil units were damaged during mold removal. Ventilation air is not introduced into the space through the fan coil units. All insulation and fan coils need to be replaced with new fan coil units. The fan coil units must be sized to include ventilation air and removal of the space humidity.

Overall condition of the HVAC System is poor and in need of replacement due to mold. The existing HVAC System should be replaced with a much more energy efficient system and controlled by Direct Digital Control.

McGregor Hall:

The building was built in 1968 and renovated in 1996. Building is approximately 33,100 sq. ft., two (2) storied and masonry/concrete block construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

The primary issues with this building are the deteriorated slate window sills on the outside and some of the high clerestory metal window frames which are beginning to rust. For accessibility to the second floor the elevator would need to be installed in the existing shaft.

Electrical:

Total Hazardous / Code Violation / Safety Condition – There is no emergency power in the building. There is a central battery system installed, but needs to be tested for functionality. It is recommended that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel. It is recommended to install fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced. There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348.

Energy Savings – The overall condition of lighting is that there are incandescent, mercury vapor, and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

Heating is provided with hot water from the boiler in the mechanical room to the terminal units and the radiators. Cooling is provided by roof top units, and a forty (40) ton Direct Expansion Unit.

The HVAC System is difficult to control and failed to provide necessary comfort. The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly. The heating lines have met the end of their life cycle and need to be replaced to ensure proper usage.

Overall condition of the HVAC System is fair. The existing HVAC System should be modified to make it energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

Mills Hall:

Zone: 3

The building was built in 1960. This building is approximately 15,400 sq. ft., two (2) storied and masonry/concrete block construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This building is very energy inefficient with its large single glazed wall system. In addition the concrete connecting bridge between the two (2) dorms with the steel stairs and railing are in poor condition and beyond being able to be cost effectively renovated.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to test the integrity of the grounding system to verify that it meets NEC article 250.

There is no emergency power in the building. It is recommended that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

The distribution transformer should be tested for PCB content. It is recommended to replace any equipment that contains PCB.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

The communication system does exists, however it is not installed throughout the building. It is recommended to update and install this system to match industry standards.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The ventilation system in this building is in very poor condition. The fan coil units need to be replaced and ventilation air needs to be introduced through new fan coil units for all occupied spaces, restrooms, and Janitor's closet.

A make up air unit and exhaust fan needs to be installed in the bike shop area to provide minimum of ten (10) air changes per hour to keep out harmful fumes.

The hydronic system is a two (2) pipe system with automatic changeover valves. The existing fan coil units were installed in 1960's. The overall temperature controls system for the HVAC System is pneumatic thermostat.

Overall condition of the HVAC System is poor and in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

North Hall:

Zone: 1

The building was built in 1853, and renovated in 1953. This building is approximately 23,000 sq. ft., four (4) storied and masonry/concrete block construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

A historic building, the south wall is a major problem. The random pattern of the broken brick and the age of the building may make it difficult and expensive to restore the south wall. Further investigation and a masonry consultant may be required to fully analyze the problem and arrive at a solution acceptable to the historic guidelines. This dorm is also not accessible.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to install a grounding system that meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is no lightning protection on roof. This should be installed per NFPA 780.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel and some devices are missing. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The heating system consists of hot water heating using steam to hot water converter. The hydronic system is a two (2) pipe system. The existing fan coil units were installed in the 1950's. The overall temperature controls system for the HVAC System is pneumatic thermostat.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements

The HVAC System has out lived its useful life and is in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

Olive Kettering Library:

Zone: 4

The building was built in 1955. This building is approximately 44,346 sq. ft., two (2) storied and masonry/concrete block construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This is a building that requires inspection by a structural engineer to accurately determine what corrective work is required on the exterior masonry walls. This building is also not accessible which should not be acceptable for a library. The interior has water damage to the ceiling in many areas, likely due in part to the poor masonry.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in the basement. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to test the integrity of the grounding system to verify that it meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is no lightning protection on roof. This should be installed per NFPA 780.

There are some fire alarm devices installed. It is recommended to update and install the fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors, task lighting, photocells, and dimmers can also be installed to reduce energy consumption.

Mechanical:

This building has two DX split system for cooling, 2 fan coil units with steam coil, and chill water coil for heating and cooling. Perimeter heat is provided by fin tubes along the exterior walls. The DX system and the fan coil units have out lived their useful life. The DX system and the fan coil units need to be replaced. Also the air distribution into the space is inadequate causing hot and cold spots.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor, and has out lived its useful life. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile

The plumbing system is in poor condition and in need of replacement due to several leaks. Hot water has been turned off due to numerous leaks in the hot water pipe. The domestic water pipes are original galvanized and sanitary waste is cast iron. The plumbing system must be upgraded to satisfy the local and state code requirements.

Photo House:

The building was built in 1930. This building is approximately 1,127 sq. ft., two (2) storied and masonry walls/ wood frame floors construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This small two (2) story 'house', needs major work on the exterior. The wood siding, the brick chimneys, the wood windows, the gutters, and the foundation all need extensive repair and restoration. The interior is in better condition but also needs work, depending on how the building is to be used.

Electrical:

Total Hazardous / Code Violation / Safety Condition –It is recommended to test the existing grounding system to verify that it meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is no lightning protection on roof. This should be installed per NFPA 780.

There are some fire alarm devices installed, however they are residential devices. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is exposed wiring throughout the building. It is recommended that exposed wiring be placed in conduit.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of gas fired heating units, and a non-operating AHU with DX coil.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor, and has out lived its useful life.

The plumbing system is operating marginally, and in need of immediate replacement. The plumbing system must be upgraded to satisfy the local and state code requirements.

Physical Plant Offices:

Architectural:

This building is in generally good condition. The rust on the band of windows is a problem. An inspection by the fire marshal should solve the question as to the adequacy of the wall separating the garage and the main building.

Physical Plant Storage:

Architectural:

The building exterior, except for the masonry, is in poor condition. Windows are single glazed wood with some filled in with plywood. The interior is worn with areas damaged and needing repairs.

Electrical:

Total Hazardous / Code Violation / Safety Condition – There is no battery backup power to exit signs and there are no emergency lights. It is recommended that all emergency and exit lighting be updated and installed to meet NPFA 101 section 7 and all other relevant codes.

There is no fire alarm equipment installed. It is recommended to install fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is no ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA guidelines.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of gas fired heating units, and an AHU with DX coil.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

Science Building:

Zone: 1

The building was built in 1929, and renovated in 1960. This building is approximately 64,000 sq. ft., four (4) storied and masonry /concrete construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

Built in 1929 this building is reinforced concrete and built like a bunker. There are some problems on the exterior with the tile insets below the windows and the windows are single glazed. The interior laboratories are like museum time pieces with very old equipment and furnishings. Many interior wall and floor finishes are worn and would need to be replaced in any renovation project.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to test the existing grounding system to verify that it meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there some devices are missing. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

The distribution transformer should be tested for PCB content. It is recommended to replace any equipment that contains PCB.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of steam heating for the first, second and third floors and no cooling. Heating is provided through steam to hot water converter for the fourth floor and cooling is provided by using an AHU with direct expansion coils. The overall temperature controls system for the HVAC System is pneumatic thermostat.

The laboratory fume hoods are not equipped with heat recovery units and make-up air units.

Overall condition of the HVAC System is poor and in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor, and has out lived its useful life. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The plumbing system is operating marginally, and in need of immediate replacement. The plumbing system must be upgraded to satisfy the local and state code requirements.

Sculpture Annex:

The building was built in 1960, and renovated in 1972. This building is approximately 10,850 sq. ft., single storied and concrete block, steel beam construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

Consisting of two (2) buildings, one (1) with a flat roof and one (1) with a gabled roof, these are concrete block structures in generally good condition given their use. They consist of a few large studio spaces plus an outdoor space under a roof made up of steel joists and a metal deck. While worn looking they appear quite functional. Buildings are not accessible but could be made so with relatively minor work.

Electrical:

Total Hazardous / Code Violation / Safety Condition – There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical: The HVAC system consists of gas fired heating units.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

The plumbing system is operating marginally, and in need of immediate replacement. The plumbing system must be upgraded to satisfy the local and state code requirements.

South Hall:

Zone: 1

The building was built in 1853, and renovated in 1994. This building is approximately 23,000 sq. ft., four (4) storied and masonry/wood frame construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

Renovated in 1996 this building, used for administration, is in good condition. There are some ADA issues to be addressed in order to make it fully compliant with accessibility standards.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

Poor Condition - Requires Immediate Correction – There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

Heating is provided with hot water from the boiler in the mechanical room to the terminal units and the radiators. Cooling is provided by four (4) air handling units, and an eighty (80) ton air cooled chiller.

The HVAC System is controlled by Trane Trace System, and working fairly well. The individual terminal units are controlled by zone thermostat. The terminal units are equipped with hot water reheat coils.

Overall condition of the HVAC System is fair.

The plumbing system is in fair condition.

Securities & Gathering Building- C.S. King Building:

Architectural:

Built in 1988 this masonry building is in good condition with no apparent visible problems. The shingle roof is reported to be the original so a close inspection may be needed to determine if and when it should be replaced.

The HVAC system consists of gas fired heating units, and an AHU with DX coil.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

Trailside Museum:

Zone: 3

The building was built in 1952. This building is approximately 1,460 sq. ft., single story and stone and wood construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This small building is in the Glen Helen park area across the road from the main campus. It is a one (1) story stone and wood building in fair condition. The building is not accessible either from the parking lot or into the building itself.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to install a grounding system that meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is no lightning protection on roof. This should be installed per NFPA 780.

There is no fire alarm system installed. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of gas fired heating units.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

The plumbing system is in fair condition.

Weston Hall:

Zone: 1

The building was renovated in 1996. This building is approximately 7,200 sq. ft., single story and joisted masonry construction.

Overall building condition is fair. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This is an administrative building, renovated in 1992, and generally good condition. The windows are single glazed and the exterior walls are not insulated, making the building energy inefficient.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to test the existing grounding system to verify that it meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control Panel. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is exposed wiring throughout the building. It is recommended that exposed wiring be placed in conduit.

It is recommended verify that the use of romex (non-metallic sheath) cable is acceptable by NEC standards.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

Two (2) air handling units for heating using steam coil. Perimeter heat is provided by fin tubes along the exterior walls. One (1) air handling unit uses DX coil for cooling and steam coil for heating. Perimeter offices are cold.

The HVAC System is difficult to control and failed to provide necessary comfort. The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements. The existing controls system is pneumatic and is not operating properly.

Overall condition of the HVAC System is fair. The existing HVAC System should be modified to make it an energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

Power Plant:

Zone: 1

The building was built in 1930 and renovated in 1998. This building is approximately 20,000 sq. ft., and multi-level.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

The power plant is several buildings and outside structures, some of which are no longer in use and in a run down or deteriorated condition. The interior of the actual boiler room is in generally good condition.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to verify that the existing grounding system meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There are some fire alarm devices installed, but there is no Fire Alarm Control. It is recommended to install the fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348. It is also recommended to correct all conduit penetrations that do not meet NEC code.

Energy Savings – The overall condition of lighting is that there are mainly fluorescent fixtures installed and some incandescent. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors, dimmers, and photocells can also be installed to reduce energy consumption.

Chapel:

Zone: 1

The building was built in 1920, and renovated in 1995. This building is approximately 2,280 sq. ft., two (2) storied and masonry veneer construction.

Overall building condition is good. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This building is in good condition with no apparent problems.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to install a grounding system that meets NEC article 250.

There are is no Fire Alarm Control Panel. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of gas fired heating units, and an AHU with DX coil.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

Theater Building:

Zone: 2

Architectural:

Built as a foundry by General Motors, the building is solid but has numerous problems. The windows are single glazed and the roof has many leaks due to the mechanical duct support structure which prevents the water from draining properly. The interior is mostly exposed structure. There are two (2) additional buildings attached to the main building; one (1) for prop storage and one (1) for a work shop.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to install a grounding system that meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is no fire alarm system installed. It is recommended to install a fire alarm system per NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

Energy Savings – The overall condition of lighting is that there are mainly incandescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts,

compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The HVAC system consists of radiant steam heating and blower unit with steam coil. The stage area is cooled by a roof top unit.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor and needs immediate replacement.

The plumbing system is operating marginally, and in need of immediate replacement. The plumbing system must be upgraded to satisfy the local and state code requirements.

West Hall:

Zone: 1

The building was built in 1925, and renovated in 1987. This building is approximately 6,100 sq. ft., two (2) storied and masonry construction.

Overall building condition is poor and has been closed. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

This is a vacant building, formerly used for housing with twenty (20) dorm rooms. The exterior is in generally good condition while the interior needs renovation and up-dating, partly due to some vandalism and partly due to the building being vacant and unheated. The building is not accessible.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

It is recommended to test the existing grounding system to verify that it meets NEC article 250.

It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

There is a functional fire alarm system. It is recommended to test this system to verify that it still meets NFPA 72, NFPA 101, and all other relevant codes.

There is limited ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated. It is recommended that this equipment be replaced.

There are several areas where flexible conduit is being used or installed incorrectly. It is recommended to install flexible conduit per NEC article 348.

Energy Savings – The overall condition of the lighting fixtures is poor. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

This building has two (2) DX split system for cooling, two (2) fan coil units with steam coil, and chill water coil for heating and cooling. Perimeter heat is provided by fin tubes along the exterior walls. The DX system and the fan coil units have out lived their useful life. The DX system and the fan coil units need to be replaced.

The HVAC System do not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is poor, and has out lived its useful life. The existing HVAC System should be replaced with a much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

The plumbing system is in poor condition and in need of replacement due to several leaks. Domestic water has been turned off due to numerous leaks in the water pipe. The domestic water pipes are original galvanized and sanitary waste is cast iron. The plumbing system must be upgraded to satisfy the local and state code requirements.

Unit Dorms:

Architectural:

Built in 1988, the two (2) story masonry building is in good condition. There is a two (2) story common area with individual rooms at the perimeter. Some lintels need to be replaced and the building entrance is not accessible.

Electrical:

Total Hazardous / Code Violation / Safety Condition – It is recommended to test all emergency and exit lighting to verify that it meets NPFA 101 section 7 and all other relevant codes.

Poor Condition - Requires Immediate Correction – ENT conduit is currently being used for power cables, which is a violation of NEC article 362.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

The HVAC system consists of gas fired heating units, and an AHU with DX coil.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The overall condition of the mechanical system is fair.

Art Building:

Zone: 4

The building was built in 1960, and renovated in 1972. This building is approximately 10,850 sq. ft., two (2) storied and concrete block/steel beam construction.

Overall building condition is poor. Refer to the attached table in this section for building specific deficiencies noted during Stanley Consultants visit and related cost.

Architectural:

The large area of sloped glass is very energy inefficient and has many cracked glass panes. A long term plan should include looking at alternative ways to improve the energy efficiency of the building. The plan should also include what to do with the series of overhead doors along the length of the building. The flat roof should also be replaced. The exterior bridge that extends from the main building to the foundry area is a concrete bridge supported by open web steel joists, a metal deck and poured concrete. The steel is rusting out, the edge of the concrete is breaking off and the steel handrail is rusted. This whole bridge should be replaced.

Electrical:

Total Hazardous / Code Violation / Safety Condition – The light levels are low in many areas. It is recommended to adjust light levels to match IESNA and local code requirements.

There is no backup power to exit lights. It is recommended to update and install all emergency and exit lighting to meet NPFA 101 section 7 and all other relevant codes.

There is no ADA compliance. It is recommended that all outlets, switches, lighting, and means of egress be installed per ADA guidelines.

Poor Condition - Requires Immediate Correction – The existing electrical distribution system is outdated and needs to be replaced.

There is an existing communication system; however the system is not throughout the entire building. It is recommended to update and expand the communication system.

Energy Savings – The overall condition of lighting is that there are incandescent and fluorescent fixtures installed. It is recommended to install fluorescent T8 lamps with efficient electronic ballasts, compact fluorescent bulbs, and LED lighting; where possible. Occupancy sensors and dimmers can also be installed to reduce energy consumption.

Mechanical:

The heating system consists of hot water heating using steam to hot water converter. The hydronic system is a two (2) pipe system. The overall temperature controls system for the HVAC System is pneumatic thermostat.

The HVAC System does not provide outside air or ventilation air, which is a health and safety concern and doesn't satisfy the code requirements.

The HVAC System has out lived its useful life and is in need of replacement. The existing HVAC System should be replaced with much more energy efficient system and controlled by Direct Digital Control. The overall energy consumption can be reduced significantly by replacing the existing mechanical system and improvement of the building envelope. Refer to the attached building scan images for heat loss profile.

Table 1-1 FCI Index Table

Building Name	Zone	Area (Sq.Ft.)	Replacement Cost ($)	Demolition Cost ($)	Repair Cost ($)	Contingency ($)	FCI	Recommended Action
Photo House	-	1,127	169,050	10,819	144,500	36,125	100.42%	Abandon, replace, or remove.
Glen Helen Building	III	7,138	1,070,700	34,262	610,000	152,500	69.01%	This building should be renovated or abandoned due to its Zone designation.
Antioch Inn/Student Union/Bookstore	-	40,000	6,000,000	540,000	3,417,500	854,375	65.32%	This building should be replaced.
Curl Gym	I	40,000	7,000,000	256,000	3,583,000	895,750	61.72%	This building should be replaced.
Mills Hall	III	15,400	2,310,000	147,840	1,200,000	300,000	61.03%	This building should be renovated or abandoned due to its Zone designation.
Weston Hall	I	7,200	1,080,000	43,200	542,370	135,593	60.36%	This building should be renovated or abandoned due to its Zone designation.
Rebecca Pennell House	I	3,306	495,900	15,869	238,500	59,625	58.25%	This building should be renovated or abandoned due to its Zone designation.
North Hall	I	23,000	3,450,000	257,600	1,701,000	425,250	57.35%	This building should be renovated or abandoned due to its Zone designation.
Kettering Building	-	33,400	5,010,000	601,200	2,440,000	610,000	54.36%	This building should be renovated.
Art Building	IV	10,850	1,627,500	121,520	758,000	189,500	54.17%	Abandon, replace, or remove.
Sontag Fels Building	-	58,149	8,722,350	837,346	3,260,000	815,000	42.63%	This building should be renovated.

Building Name	Zone	Area (Sq.Ft)	Replacement Cost ($)	Demolition Cost ($)	Repair Cost ($)	Contingency ($)	FCI	Recommended Action
Science Building	I	64,000	11,520,000	1,331,200	4,380,000	1,095,000	42.60%	This building should be renovated.
Antioch Hall	I	46,800	7,020,000	673,920	2,579,000	644,750	41.90%	This building should be renovated.
Evan R. Spalt	II	24,300	3,645,000	349,920	1,260,000	315,000	39.43%	This building is mold infested.
Theatre	II	15,300	2,295,000	85,680	673,000	168,250	35.34%	This building should be renovated.
Trailside Museum	III	1,460	219,000	8,760	60,500	15,125	33.20%	This building should be renovated.
Olive Kettering-Library	-	44,346	6,651,900	532,152	1,888,631	472,158	32.86%	This building must be further evaluated to understand the extent of the structural integrity.
McGregor Hall	-	33,100	4,965,000	317,760	1,288,000	322,000	30.48%	This building should be renovated.
Birch Hall	I	30,000	4,500,000	288,000	1,072,000	268,000	27.99%	This building should be renovated.
Sculpture Annex	-	10,850	1,627,500	52,080	240,000	60,000	17.86%	This building should be renovated.
South Hall	I	23,000	3,450,000	478,400	419,000	104,750	13.33%	This building should be renovated.
Chapel	I	2,280	342,000	12,768	19,826	4,956	6.99%	This building should be renovated.
Units Dorms & King Center	-	9,152	1,372,800	3,661	76,911	19,228	6.98%	This building should be renovated.