



City of West Allis

Facilities Evaluation

WEST ALLIS, WISCONSIN
JUNE 2018

FOR THE
LIFE OF
YOUR
BUILDING

Executive Summary – Facilities Evaluation

1. Purpose

The intent of this study is to provide a review of the existing conditions of the physical assets of the City of West Allis, which will contribute to the development of a long-term, capital replacement budget. The information provided in this report can assist in avoiding costly emergency repairs and other unplanned renovations, and enables City stakeholders to more effectively plan for future capital projects. This, in turn, allows for improved non-facilities project planning and resource allocation. Although the information presented in this report is based on thorough research, sound evaluation, and deep data analysis, it should be used only as a guide by City stakeholders as they build plans that will best serve their community. Likewise, all dollar values provided in this report are budgetary estimates and are not intended for use as final costs for project implementation. Lastly, all inspections conducted as part of this FCA are based on visually detectable conditions and should not take the place of legally mandated inspections, including – but not limited to – fire and life safety, ADA compliance, or asbestos and lead contamination.

2. Methodology

A Facility Condition Assessment (FCA) is an in-depth audit of the current conditions of building structure, systems, and equipment, and is used for making recommendations for repairing, replacing, and upgrading assets. It involves a review of documentation such as building plans, maintenance records, and lists of equipment with known deficiencies, which help build baseline familiarity with current facility and system conditions. The FCA also involves interviews with on-site maintenance staff and a sampling of occupants to understand their concerns, issues, and aspirations. The FCA team surveys the entire facility to capture data on the severity of needed repairs or replacements of equipment, systems, and structural elements. After the interviews and on-site audits are complete, the engineer will prepare estimates of replacement and repair costs along with recommendations for prioritization based on the most substantial needs and likely equipment failures or safety hazards. Many items have a significant increase in cost for delay if major equipment fails, such as boilers in the winter season or electrical systems that feed critical infrastructure. The report of findings will outline risks and advantages of prioritizing certain improvements and investments, and the facility consulting team will meet with building stakeholders to discuss their findings and answer any questions.

Observations were generated during site visits conducted February through May of 2018, and weather conditions ranged from below-freezing with snow to a typical spring environment. The site walk included access to the roofs of almost all buildings, while perimeter walls were reviewed from ground level or adjacent roofs. More than 6,000 photographs were taken for review and analysis. The identification of major and immediate needs was prioritized in this study, along with a chronological prioritization of changes which could impact building performance, energy efficiency, and contribution to the City's strategic vision.

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3. Production

This document combines observations and writings generated by the entire project team. This information is preliminary in nature as a more thorough review would be necessary to adequately evaluate each facility for material- or assembly-specific concerns.

McKinstry created a multi-disciplinary team to best respond to the needs of the City of West Allis for this facility evaluation. Team members who contributed to the collection and analysis of data, as well as report preparation, included:

<i>Peter Goodall, AIA</i>	<i>McKinstry</i>
<i>Ryan Dickerson, PMP, LEED AP</i>	<i>McKinstry</i>
<i>Isaac Fones</i>	<i>McKinstry</i>
<i>Robert Fuls, CCP</i>	<i>McKinstry</i>
<i>Mike Kowalick</i>	<i>McKinstry</i>
<i>Brent Schmidt, PE, CEM</i>	<i>McKinstry</i>
<i>Robert Haveman</i>	<i>Environmental Management Consulting</i>
<i>Maurizio Magalli, CPE</i>	<i>The Concord Group</i>
<i>Robert White, CEP</i>	<i>The Concord Group</i>

4. Customized Financial Data Visualization Tool (Viz Tool)

The single most valuable source of information and analysis coming out of this citywide facilities evaluation is the Viz Tool. This data visualization platform enables the City to quickly view the scores of assets, asset types, entire buildings, or even the whole City. The scoring system involved in this Viz Tool is explained below in detail, and is used to help City stakeholders in prioritizing capital budgeting and expenditure efforts. The capital budget prepared for the City as part of the evaluation extends out 30 years and is dynamically updated using the Viz Tool, meaning every single change that occurs in the City’s buildings can be immediately reflected in their long-term financial outlook. In short, the Viz Tool is now a “one-stop-shop” for preparing facilities-related financial outlooks, prioritized project lists, and year-over-year departmental financial plans.

5. Asset Scoring, the Viz Tool, and Strategic Goals

For the purposes of generating useful scores for each asset evaluated by the facility assessment team, and to enable a dynamic and accurate use of the Viz Tool, McKinstry employs a scoring system that assigns numeric values across four distinct categories. The numeric values are 1 through 5, where 1 is the most favorable and 5 is the least favorable. To assess capital assets in such a way that stakeholders can use individual categories or aggregate scores to prioritize budgetary outlays, the City and McKinstry agreed to use the following scoring categories:

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ASSET CONDITION SCORE (1 – 5)

1 – Excellent Condition New or easily restorable to “like new” condition.
2 – Good Condition Component is not new but exhibits no damage or excessive wear.
3 – Fair Condition Minor component wear, but operating properly.
4 – Poor Condition Component has significant wear and is approaching the end of its expected useful life.
5 - Unsatisfactory Component is at or past its expected useful life, has major damage, complete failure, or in need of replacement.

OCCUPANT IMPACT SCORE (1 – 5)

1 – No Occupant Impact Occupants will not be effected if the system or equipment fail.
2 – Little Occupant Impact Few occupants will be effected by the failure of the system or equipment.
3 – Moderate Occupant Impact Many occupants may be moderately or slightly impacted by the failure of the system or equipment.
4 – High Occupant Impact Many or all occupants may be highly impacted by the failure of the equipment or system.
5 – Extreme Occupant Impact Many or all occupants may not be able to perform their work because of the failure of the equipment or system.

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REVENUE IMPACT SCORE (1 – 5)

1 – No Revenue Impact Revenue will not be effected if the system or equipment fail.
2 – Little Revenue Impact Little or no revenue will be impacted by the failure of the system or equipment.
3 – Moderate Revenue Impact Minor revenue impact may occur by the failure of the system or equipment.
4 – High Revenue Impact Potential for larger revenue impact by the failure of the equipment or system.
5 – Extreme Revenue Impact Revenue will likely be impacted because of the failure of the equipment or system.

CONSTITUENT FACING (1 – 5)

1 – No Constituent Facing No or very little public access to the buildings.
2 – Low Constituent Facing Low foot traffic from public visitors.
3 – Moderate Constituent Facing Moderate foot traffic from public visitors.
4 – High Constituent Facing High foot traffic from public visitors.
5 – Extreme Constituent Facing Very high foot traffic from public visitors.

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6. Energy Use Overview

As part of the facility assessment audit process, the City of West Allis provided their baseline utility information. This data is an integral part of our preliminary energy audit as it provides the basis for determining the impact the FIMs (Facility Improvement Measures) may have within the facility. It also allows us to develop a realistic business model for the project. Utility analysis for this report was limited to City buildings with substantial and regular occupancy, and which also represent the largest City-owned properties in terms of square feet.

McKinstry uses the annual utility information to obtain a benchmark for each building. This benchmark is then compared to similar buildings in typical climates to determine the performance of each facility compared to an average. The key indicators are normalized to the square footage of the occupied spaces. The most typical indicators are kBTU/sq ft and the dollar amount/sq ft benchmarks. On average, buildings of this nature are at or around \$1.00/sq ft with some fluctuation for utility rates, and 50 to 60 kBTU/sq ft with fluctuation around overall hours of occupied operation.

Of note are facilities with higher-than-average utility costs per square foot (see table below), especially when compared to other buildings with similar purposes in the Midwestern United States. Based on these preliminary findings, McKinstry recommends a thorough energy audit of the Police Department, along with Fire Stations 1 and 2. While City Hall also shows elevated utility consumption, it is not unusually high for similar buildings regionally. Additionally, the HVAC upgrade recommendations found on Page 7 of this report will already accomplish a considerable amount toward reducing energy use at City Hall.

Based on the utility information provided, below is data compiled for the full year of 2017 use:

Location	Square Footage	Electric (kWh)	Electric (\$)	Gas (Therms)	Gas (\$)	kBTU/sq. ft.	Total (\$)	Total \$/sq.ft.
City Hall	50,130	634,812	\$68,680	27,486	\$17,419	98.0	\$86,099	\$1.718
Fire Administration	14,322	113,343	\$14,354	5,165	\$3,527	63.1	\$17,881	\$1.248
Library	50,864	400,959	\$49,129	15,632	\$10,088	57.6	\$59,217	\$1.164
Municipal Yard	122,821	82,461	\$11,346	47,084	\$29,014	32.3	\$34,173	\$0.278
Police Headquarters	57,272	982,668	\$94,253	46,307	\$27,737	139.4	\$121,989	\$2.130
Senior Center	18,278	71,803	\$9,537	6,216	\$4,159	47.4	\$13,696	\$0.749
Health Department	19,066	93,849	\$12,465	6,003	\$4,037	48.3	\$16,502	\$0.865
Fire Station 1	13,201	116,300	\$14,428	10,173	\$6,638	107.1	\$21,066	\$1.596
Fire Station 2	17,039	195,067	\$23,820	14,066	\$9,093	121.6	\$32,913	\$1.932
Fire Station 3	10,292	117,296	\$14,037	9,033	\$5,927	126.7	\$19,964	\$1.940

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GENERAL ENERGY SAVING RECOMMENDATIONS

Facility Improvement Measure	General Description
Building Envelope Improvements	Add weather stripping and sweeps to doors, caulk around windows’ cracks and crevices, spray foam roof/wall intersections and other areas to ensure a tight building envelope.
Controls Upgrades	Continue replacement of pneumatic controls with direct digital controls. Add sequences of operation to minimize ventilation and fresh air requirements when occupants are not present as well as reduce overall energy consumption of HVAC equipment.
Mechanical Upgrades	Upgrade, refurbish or replace aging or failing mechanical infrastructure. Newer, more efficient equipment can help reduce the energy and operational expenditures within City budgets.
Water Conservation	Add low-flow aerators and flush valves to minimize the water consumption and domestic hot water loads seen in the spaces due to restrooms, showers and general-purpose sinks.
Vending Machine Controls	Install occupancy sensors on vending machines to help cycle the compressors while maintain product temperature to save energy.
Behavioral Education	Implement a powerED program to educate occupants around energy consumption and environmental waste to help create internal change in City culture around energy conservation and sustainability.
Interior Lighting	Continue replacement of existing light lamps, ballasts, and/or fixtures to LED. Install daylight and occupancy sensors where applicable to reduce power consumption and runtime of the lights when the opportunity exists.
Exterior Lighting	Continue replacement of existing lamps or retrofit existing fixtures in exterior lighting applications to reduce the power consumption while maintaining adequate light and acuity levels.

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7. Recommended Facility Improvement Measures (FIMs)

Based on a combination of observed conditions and interviews conducted with more than two dozen City stakeholders, the table below represents the major projects McKinstry believes should be evaluated for expeditious implementation. The budget estimates listed should be used for planning purposes only and do not reflect final project pricing. Funding of these FIMs could be from various sources, including capital project referendum, energy performance contract, operational maintenance budget, or even a hybrid of these options.

FIM	DESCRIPTION	BUDGET ESTIMATE
City Hall HVAC Upgrade	Ranges from upgrade of only one air handling system to complete replacement of AHU-1 and AHU-2.	\$600,000-\$1,600,000
Transfer station rebuild	A total rebuild is more cost effective than facility repairs. Facility has many deficiencies that require remediation in the immediate future.	\$700,000-\$1,200,000
FS-3 HVAC Upgrade	Replace residential furnaces and condensers with modular air handling system	\$150,000-\$400,000
City Hall Boiler upgrade	Upgrade system to gain efficiency and replace obsolete steam-to-hot water equipment.	\$375,000-\$500,000
Liberty Heights Park Remodel	Structure is sound, but interior (furnishings and equipment) need complete overhaul	A: \$100,000-\$200,000 B: \$300,000-\$800,000
Police Department	Parking lot and vehicle storage expansions needed	\$400,000-\$750,000
Historical Society HVAC upgrade	In need of improved temperature and humidity control, and LED lighting, to help preserve artifacts and extend life of building and assets	\$300,000-\$600,000
Recommissioning at PD & Fire	Fire Stations and Police Department re-commissioned to determine energy-efficient controls strategies and need for equipment maintenance and updates	\$50,000-\$75,000
Municipal Yard Update*	Pending the results of the forthcoming Action Plan	TBD*
Farmer's Market Renovations	Sand-blasting of lead-based paint and application of durable sealant; Employ durable tuck-pointing solution; Roof rehabilitation; furnishings update	TBD*



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8. Recommended Evaluations

Issues or concerns that came up through the course of this evaluation but which did not rise to the level of requiring a recommended solution are presented below. These concepts reflect the concerns of the City’s building occupants and users, and should be taken seriously. However, it would not be appropriate to provide budgetary estimates given their complexity.

EVALUATION	DESCRIPTION
Street lighting circuits and substations update	Generate and evaluate options for updating citywide street lighting (all infrastructure) to high-efficiency, lower maintenance systems
City building security evaluation	Evaluate gaps in safety and security at high-public-use sites and generate options for consistent and integrated solutions
Police Department HVAC update	Police HVAC systems are in generally good condition, but will quickly age out and become increasingly inefficient. Recommend creating plan to update equipment within 5-10 years.
Energy Audit	Conduct in-depth energy use audit at Police Department and Fire Stations 1 & 2 to identify utility saving opportunities
Senior Center Space Planning	Evaluate services provided with associated costs, and generate options for streamlined operations
City Hall Space Use Renovation	Evaluate the level of need and opportunities for a citizen-centered customer service setup at City Hall. Evaluate other ways to consolidate and streamline operational space use.
Elevator assessment	Elevators at Senior Center, Library, Historical Society in questionable working order
Police Department Roofing Ice Guards	Evaluate increased quantity and improved placement of existing ice guards; addition of rib-connected components and locations to increase effectiveness
Farmer’s Market parking	In alignment with City strategic priorities, generate and evaluate options for increased parking capacity to support Farmer’s Market expansion
Library Façade	Invasive testing of façade, hangers, supporting structure needed to determine life span and safety of structure
Library Cold Storage	Evaluate storage opportunities (interior and exterior) for Library building and grounds equipment

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9. Facility Summaries

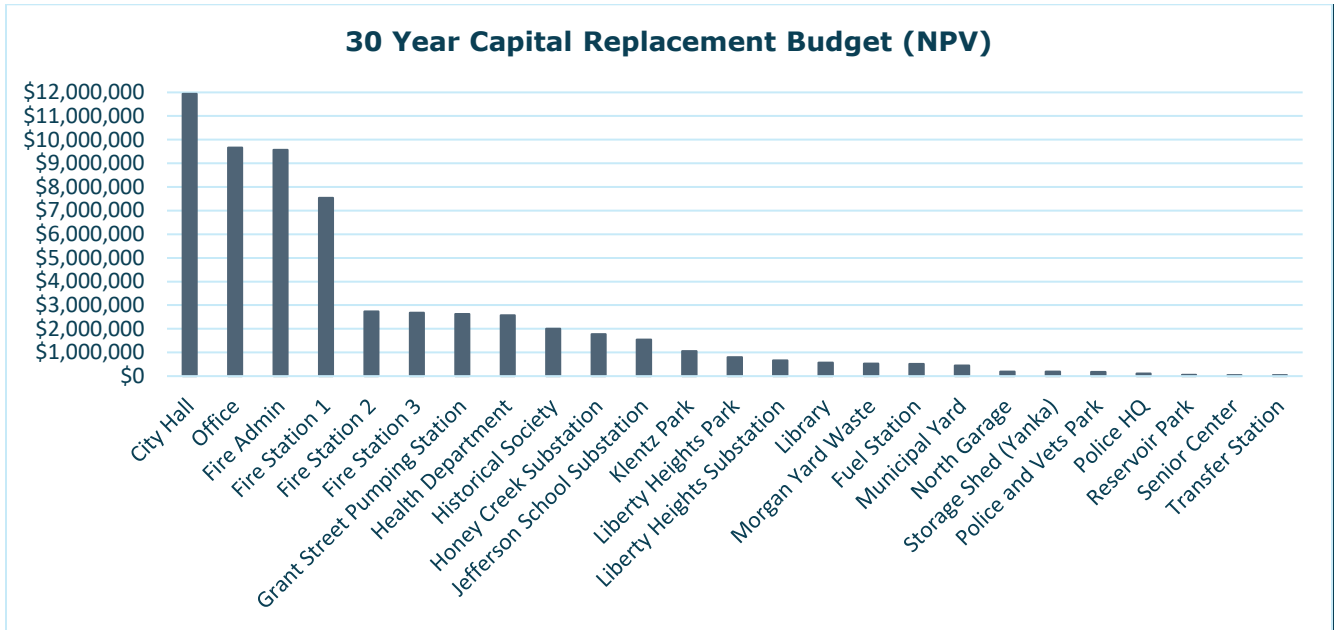
The City of West Allis properties are, in general, durable and well-maintained. The observed deficiencies were consistently due to age. However, capital improvements and component replacements were found throughout the portfolio. Typically, the systems that received the lowest scores across the portfolio were the site systems (parking lots, walkways, etc.) and exterior (e.g. wall finishes, windows, etc.). The buildings that scored the lowest across all system types were Transfer Station (4.73), Jefferson School Substation (4.14) and the Municipal Yard’s Yanka Building (4.09). Their scores indicate that all systems of the building are poor to very poor condition.

Location Name	Average Asset Condition Score
Fire Station 2	2.43
Fire Station 1	2.47
Fire Admin	2.49
Police and Vets Park	2.62
Office	2.77
Grant Street Pumping Station	2.78
Police HQ	2.81
Klentz Park	2.92
Fire Station 3	2.97
Senior Center	3.06
Morgan Yard Waste	3.10
City Average	3.12
Library	3.19
City Hall	3.24
Municipal Yard	3.34
Fuel Station	3.36
North Garage	3.38
Health Department	3.43
Reservoir Park	3.55
Liberty Heights Substation	3.91
Historical Society	3.94
Honey Creek Substation	3.94
Liberty Heights Park	4.00
Storage Shed (Yanka)	4.09
Jefferson School Substation	4.14
Transfer Station	4.73
West Allis Average	3.12*

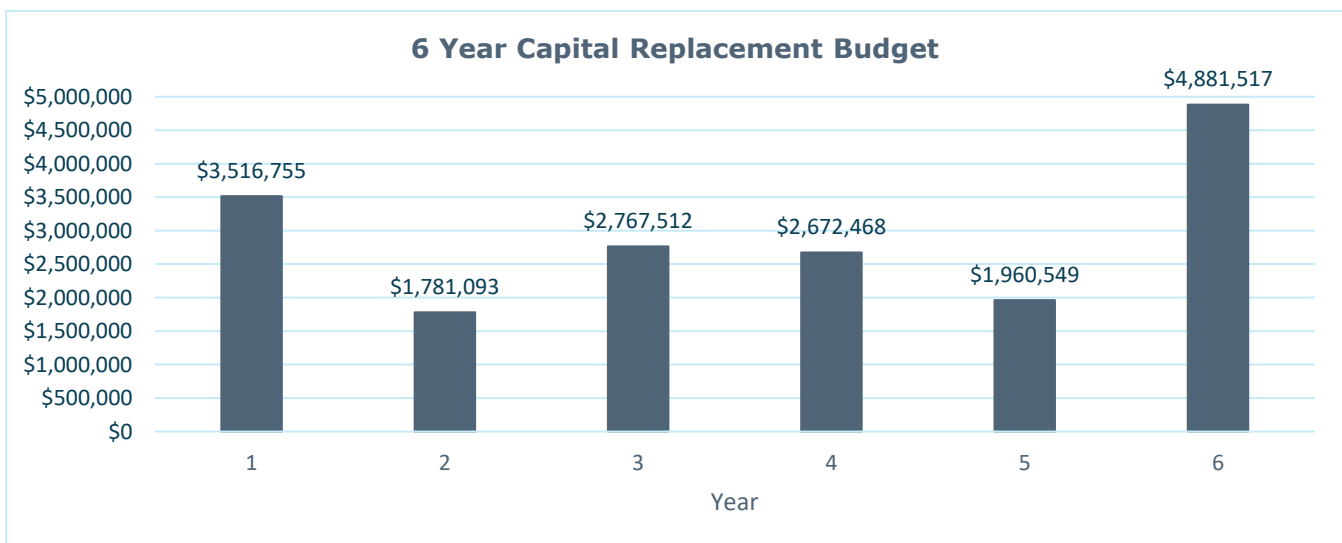
**Average is based on total asset count, not per building*

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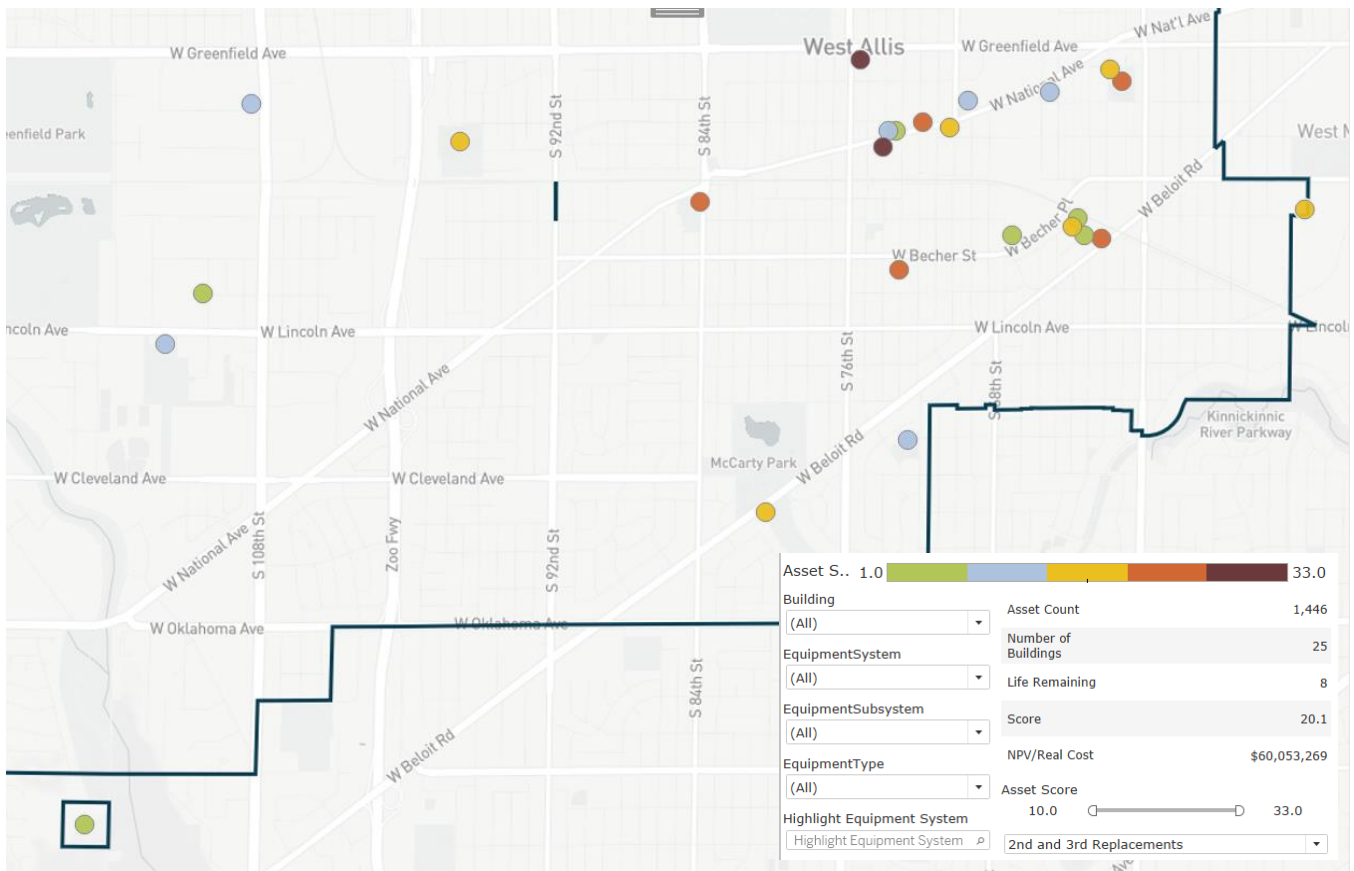
The net present value of replacing or repairing equipment reviewed in this study is \$60,053,269 over 30 years. These costs are estimates of what it will take to keep the existing assets replaced with similar systems. It does not consider potential technology upgrades or increased demand at the facilities. This equates to approximately \$2 million dollars per year that should be allocated for capital improvement projects with at least a 3% inflation per year. The future value of the inflated costs is approximately \$92,862,128.



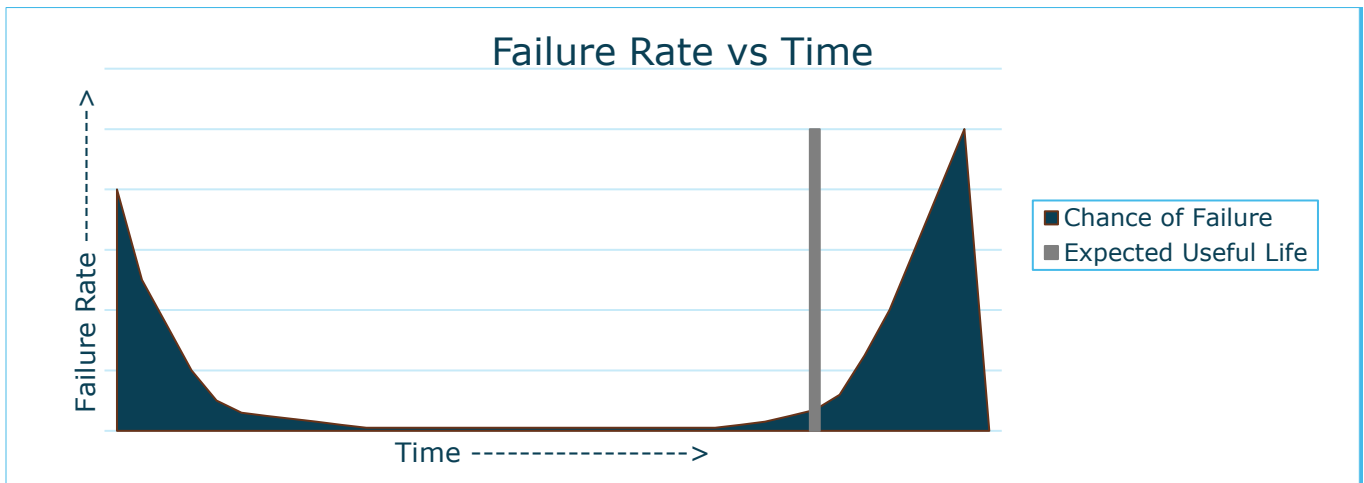
Due to aging infrastructure and some deferred capital projects, the first 6 years of capital projects average \$2.93 million dollars per year.



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In general, the average remaining life of equipment and systems portfolio-wide is 8 years. That is, 8 years until the system reaches its expected useful life. This doesn't necessarily mean that the equipment will fail, however, the probability of failure increases each year past the expected life date. This is known as the bathtub curve.



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The team applied scoring and replacement costs to 1,446 pieces of equipment or systems in the portfolio. The relative color on the Viz represents a combination of scoring criteria, not just the need for replacement. Buildings represented by *dark maroon* in the Tableau Viz Tool indicate that when compared to the rest of the portfolio, the equipment and systems' combined score is a higher priority at this time than the other buildings.

10. Facilities Analysis

Please refer to the Capital Expenditure sheet below and the facilities analysis found in the full report for more detailed information.

Appendix: Environmental Testing

An Environmental Management Consultant conducted testing of water, air, and interior sealants to investigate any potential health hazards. The levels all fell within an acceptable range, except for the paint on the ceiling deck of the Farmer's Market. This paint had a lead concentration of 130,000 parts per million, putting it above the State of Wisconsin's acceptable level. For more details on this finding, please refer to the Environmental Testing portion of this report.

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11. Capital Expenditure Sheet



PROJECT: City of West Allis
DATE: 6/19/2018

Capex NPV

Financial Data
Inflation Rate (Annual) 3.00%
Discount Rate 3.00%

Location	Building Name	NPV	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
City Hall	City Hall	\$11,940,516	\$1,795,916	\$845,682	\$293,151	\$569,666	\$569,144	\$54,599	\$89,787	\$730,595	\$130,182	\$342,884	\$916,672	\$20,764	\$7,129	\$2,203	\$1,188,139
Municipal Yard	Municipal Yard	\$9,671,145	\$280,529	\$552,394	\$634,790	\$369,451	\$370,962	\$2,089,205	\$709,572	\$63,339	\$0	\$119,582	\$5,913	\$180,220	\$176,568	\$14,685	\$42,277
Police HQ	Police HQ	\$9,564,722	\$153,308	\$25,596	\$37,132	\$165,745	\$386,761	\$24,171	\$585,148	\$584,807	\$126,963	\$3,385,495	\$0	\$75,164	\$820,839	\$526,989	\$326,568
Library	Library	\$7,546,155	\$248,012	\$7,725	\$0	\$393,950	\$45,020	\$1,640,884	\$94,684	\$921,586	\$0	\$1,119,067	\$187,982	\$704,077	\$182,515	\$0	\$64,285
Fire Station 2	Fire Station 2	\$2,733,262	\$38,200	\$7,725	\$180,671	\$50,941	\$125,195	\$32,204	\$28,943	\$197,467	\$0	\$317,712	\$114,495	\$590,726	\$8,127	\$250,223	\$0
Health Department	Health Department	\$2,675,639	\$42,066	\$68,733	\$128,049	\$218,910	\$64,153	\$0	\$8,120	\$445,374	\$25,209	\$122,090	\$0	\$43,546	\$47,571	\$367,512	\$533,476
Senior Center	Senior Center	\$2,629,093	\$49,500	\$2,266	\$106,408	\$49,932	\$149,974	\$311,935	\$56,104	\$303,809	\$77,906	\$119,243	\$215,027	\$116,919	\$0	\$0	\$176,973
Fire Admin	Fire Admin	\$2,575,164	\$79,064	\$0	\$69,861	\$22,292	\$2,532	\$147,818	\$33,423	\$216,032	\$162,527	\$138,384	\$557,188	\$198,250	\$65,307	\$0	\$285,783
Fire Station 3	Fire Station 3	\$1,999,765	\$67,148	\$186,327	\$48,963	\$38,326	\$29,670	\$346,658	\$106,402	\$127,046	\$1,267	\$30,284	\$38,962	\$87,785	\$30,871	\$0	\$158,141
Farmer's Market	Office	\$1,778,395	\$0	\$2,060	\$518,527	\$415,739	\$37,168	\$77,185	\$0	\$11,116	\$0	\$24,821	\$0	\$26,332	\$91,676	\$7,127	\$145,383
Fire Station 1	Fire Station 1	\$1,549,097	\$0	\$0	\$530	\$169,416	\$0	\$44,284	\$32,239	\$64,942	\$107,355	\$192,852	\$120,847	\$39,867	\$0	\$462,077	\$70,261
Municipal Yard	North Garage	\$1,051,082	\$5,500	\$0	\$51,639	\$58,843	\$36,855	\$15,534	\$33,433	\$34,436	\$33,063	\$454,790	\$0	\$0	\$0	\$0	\$3,933
Historical Society	Historical Society	\$800,930	\$128,285	\$30,900	\$23,552	\$66,656	\$81,037	\$64,919	\$19,702	\$47,965	\$0	\$1,305	\$15,401	\$131,502	\$12,832	\$0	\$0
Grant Street Pumping Station	Grant Street Pumping Station	\$665,795	\$500	\$20,600	\$6,949	\$9,381	\$0	\$17,389	\$3,725	\$0	\$38,256	\$26,741	\$0	\$27,685	\$579,572	\$43,322	\$0
Municipal Yard	Storage Shed (Yanka)	\$572,649	\$161,705	\$0	\$134,309	\$0	\$0	\$0	\$0	\$4,305	\$5,067	\$0	\$17,601	\$0	\$21,785	\$0	\$0
Liberty Heights Park	Liberty Heights Park	\$526,050	\$182,150	\$10,300	\$10,503	\$54,440	\$23,692	\$0	\$15,761	\$11,807	\$0	\$16,447	\$16,665	\$0	\$5,204	\$2,423	\$0
Transfer Station	Transfer Station	\$513,587	\$212,318	\$0	\$41,486	\$0	\$0	\$0	\$358	\$0	\$0	\$14,740	\$17,518	\$0	\$0	\$0	\$23,003
Police and Vets Park	Police and Vets Park	\$455,023	\$5,500	\$2,575	\$0	\$12,748	\$23,889	\$4,927	\$60,956	\$40,780	\$0	\$28,053	\$9,811	\$74,057	\$0	\$14,942	\$34,449
Honey Creek Substation	Honey Creek Substation	\$196,825	\$5,200	\$0	\$182,263	\$0	\$4,207	\$0	\$0	\$1,399	\$0	\$11,025	\$0	\$0	\$0	\$0	\$0
Jefferson School Substation	Jefferson School Substation	\$192,090	\$40,336	\$12,154	\$133,886	\$0	\$1,022	\$0	\$0	\$0	\$0	\$8,803	\$0	\$0	\$0	\$0	\$0
Liberty Heights Substation	Liberty Heights Substation	\$173,905	\$6,859	\$0	\$161,257	\$0	\$0	\$5,547	\$0	\$0	\$0	\$3,607	\$0	\$0	\$0	\$0	\$0
Morgan Yard Waste	Morgan Yard Waste	\$105,983	\$0	\$4,822	\$0	\$3,672	\$3,588	\$0	\$5,938	\$39,671	\$0	\$7,234	\$0	\$0	\$0	\$3,454	\$5,294
Reservoir Park	Reservoir Park	\$51,030	\$9,960	\$1,236	\$2,292	\$0	\$0	\$4,257	\$0	\$9,861	\$0	\$0	\$7,257	\$0	\$0	\$0	\$0
Klentz Park	Klentz Park	\$45,771	\$4,700	\$0	\$0	\$2,360	\$0	\$0	\$0	\$6,142	\$5,472	\$1,973	\$5,806	\$2,213	\$0	\$0	\$5,772
Municipal Yard	Fuel Station	\$39,598	\$0	\$0	\$1,295	\$0	\$5,680	\$0	\$4,179	\$0	\$0	\$4,032	\$1,523	\$0	\$0	\$19,275	\$2,025
City of West Allis	Yearly Total		\$3,516,755	\$1,781,093	\$2,767,512	\$2,672,468	\$1,960,549	\$4,881,517	\$1,888,474	\$3,862,479	\$713,267	\$6,491,164	\$2,248,666	\$2,319,107	\$2,049,995	\$1,714,233	\$3,065,762
Capital Renewal NPV		\$60,053,269															

Location	Building Name	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
City Hall	City Hall	\$35,054	\$120,666	\$132,228	\$647,776	\$291,626	\$426,242	\$860,809	\$708,504	\$595,599	\$10,164	\$3,270,509	\$1,105,781	\$1,305,039	\$3,432	\$1,615,873
Municipal Yard	Municipal Yard	\$749,620	\$98,208	\$38,015	\$96,187	\$145,979	\$371,457	\$1,075,045	\$1,080,395	\$562,670	\$868,633	\$3,613,861	\$382,558	\$63,529	\$14,872	\$115,236
Police HQ	Police HQ	\$11,685	\$803,079	\$141,993	\$5,192	\$535,451	\$1,035,415	\$266,121	\$386,666	\$319,089	\$437,500	\$3,350	\$402,959	\$308,333	\$700,106	\$2,685,503
Library	Library	\$0	\$134,468	\$0	\$37,113	\$1,159,474	\$855,483	\$0	\$180,302	\$261,027	\$180,943	\$1,912,121	\$164,539	\$831,540	\$26,220	\$89,898
Fire Station 2	Fire Station 2	\$46,456	\$320,620	\$42,244	\$25,536	\$159,847	\$90,306	\$5,581	\$487,211	\$0	\$99,805	\$209,743	\$60,900	\$422,882	\$4,118	\$417,112
Health Department	Health Department	\$0	\$1,204	\$173,549	\$148,112	\$9,557	\$0	\$136,789	\$213,320	\$98,679	\$244,315	\$18,216	\$0	\$596,856	\$371,178	\$107,833
Senior Center	Senior Center	\$3,116	\$0	\$45,316	\$62,967	\$610,420	\$454,779	\$9,674	\$70,129	\$208,598	\$429,712	\$101,416	\$0	\$326,675	\$0	\$0
Fire Admin	Fire Admin	\$183,684	\$35,437	\$43,793	\$18,727	\$0	\$205,897	\$73,269	\$68,606	\$20,525	\$261,379	\$579,085	\$47,624	\$237,049	\$292,397	\$25,215
Fire Station 3	Fire Station 3	\$0	\$0	\$0	\$27,278	\$200,413	\$202,820	\$363,112	\$121,486	\$82,891	\$48,417	\$441,211	\$219,131	\$44,315	\$10,891	\$13,668
Farmer's Market	Office	\$0	\$0	\$131,534	\$0	\$22,796	\$0	\$0	\$31,712	\$750,871	\$40,703	\$0	\$41,025	\$0	\$0	\$156,901
Fire Station 1	Fire Station 1	\$0	\$0	\$32,729	\$26,388	\$70,140	\$41,724	\$5,581	\$0	\$367,764	\$290,097	\$51,134	\$11,744	\$117,293	\$104,558	\$10,251
Municipal Yard	North Garage	\$0	\$0	\$0	\$0	\$57,419	\$903	\$64,134	\$0	\$106,278	\$0	\$12,353	\$0	\$115,692	\$42,555	\$625,668
Historical Society	Historical Society	\$25,473	\$48,141	\$0	\$4,214	\$18,412	\$58,626	\$0	\$35,256	\$139,138	\$4,066	\$93,173	\$0	\$71,748	\$0	\$0
Grant Street Pumping Station	Grant Street Pumping Station	\$7,143	\$0	\$0	\$6,810	\$22,971	\$0	\$54,265	\$26,356	\$0	\$0	\$31,407	\$5,650	\$10,185	\$0	\$43,667
Municipal Yard	Storage Shed (Yanka)	\$0	\$0	\$0	\$0	\$0	\$185,288	\$0	\$242,578	\$0	\$31,060	\$0	\$0	\$0	\$9,152	\$0
Liberty Heights Park	Liberty Heights Park	\$5,609	\$0	\$0	\$61,713	\$23,059	\$98,794	\$16,743	\$11,497	\$1,283	\$45,067	\$50,251	\$28,467	\$4,409	\$29,560	\$5,656
Transfer Station	Transfer Station	\$22,887	\$0	\$0	\$0	\$0	\$309,978	\$0	\$0	\$0	\$0	\$42,922	\$33,443	\$0	\$0	\$0
Police and Vets Park	Police and Vets Park	\$14,411	\$19,297	\$0	\$0	\$84,344	\$7,676	\$26,354	\$6,558	\$0	\$155,001	\$6,773	\$11,969	\$61,530	\$14,814	\$0
Honey Creek Substation	Honey Creek Substation	\$0	\$0	\$0	\$0	\$1,995	\$2,935	\$0	\$0	\$0	\$7,598	\$0	\$0	\$0	\$0	\$0
Jefferson School Substation	Jefferson School Substation	\$0	\$1,457	\$0	\$0	\$0	\$7,733	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,078	\$0
Liberty Heights Substation	Liberty Heights Substation	\$0	\$0	\$1,845	\$0	\$0	\$2,881	\$0	\$0	\$0	\$0	\$7,681	\$0	\$0	\$0	\$2,631
Morgan Yard Waste	Morgan Yard Waste	\$0	\$0	\$0	\$0	\$877	\$0	\$9,251	\$0	\$6,631	\$5,464	\$4,925	\$0	\$71,650	\$0	\$0
Reservoir Park	Reservoir Park	\$2,019	\$1,926	\$2,499	\$0	\$0	\$1,560	\$0	\$4,139	\$0	\$0	\$16,239	\$0	\$9,596	\$0	\$3,563
Klentz Park	Klentz Park	\$2,879	\$0	\$2,142	\$0	\$0	\$0	\$2,813	\$0	\$4,263	\$0	\$9,045	\$3,447	\$2,879	\$9,884	\$0
Municipal Yard	Fuel Station	\$0	\$0	\$826	\$0	\$0	\$0	\$0	\$0	\$0	\$13,889	\$0	\$1,555	\$0	\$0	\$7,282
City of West Allis	Yearly Total	\$1,105,138	\$1,582,576	\$781,402	\$1,168,013	\$3,413,901	\$4,356,056	\$2,957,476	\$3,670,575	\$3,514,410	\$3,154,457	\$10,437,525	\$2,515,791	\$4,517,073	\$1,625,931	\$5,912,482



Glossary of Terms

Term	Description
Air Compressor	Provides compressed air to pneumatic controls, shops functions, or dry type fire suppression.
Air Conditioning (AC) Unit	A unit that provides cooling for the building.
Air Dryer	Removes water vapor from compressed air lines.
Air Handling Unit (AHU)	Fan units that provide air to spaces within the building. Often will have heating and cooling coils within them to condition the space they serve.
Air Separator	Removes air from plumbing and HVAC water lines.
Automatic Transfer Switch (ATS)	Changes the sources of electricity from one to another. Typically, from normal power to a generator.
Baseboard Radiation	Heating strips typically located along the perimeter floor of a building.
Boiler	Larger water heaters that provide heated water for heating spaces or domestic water.
Cabinet Heater	Contained heating units, typically located near building entries or stairways.
Ceiling Radiation	Ceiling heating strips typically located in shop or garage spaces.
Chemical Feed System	Pumps and chemical storage used to add chemicals into a water system. Often provide anti-freeze protection or non-corroding agents in HVAC systems. Also found in use for adding chlorine to pools and domestic water softening.
Chiller	Large sources for chilled water or refrigeration used in building conditioning.
Circ Pump	Circulation pump - used for circulating water.
Circuit Breaker	Electrical breaker.
Condensate Tank	A tank that receives water from a boiler that discharges excess water.
Condensing Unit	An air conditioning unit that creates cooling for building spaces.
Convector	A heater that circulates warm air by convection.
Cooling Tower	A unit that discharges internal building heat into the outside air.
Distribution Panel	An electrical panel that serves smaller electrical panels and equipment.
Dust Collector	An exhaust unit that removes dust and debris. Typically used in a shop.
Direct Expansion (DX) Coil	Cooling system where the primary coolant is used for evaporation.
Electrical Panel	Panels that contain electrical breakers.
Exhaust Fan	A fan that pulls air or fumes from a space.
Expansion Tank	A tank that allows for expansion and contraction of water pipes as the temperature changes within the system.
Fancoil Unit (FCU)	A fan unit that has a heating and/or cooling coil within it in order to provide conditioning to a space.
Fume Collector/Hood	A contained fan booth that pulls air or fumes from a space.
Furnace	A unit that provides heating for a space.
Generator	Equipment that provides backup electrical power to a space.
Heat Exchanger	A piece of equipment that transfers heat from system to another.
Hot Water Coil	A coil that is used to introduce heat into an air supply to create hot air.
Humidifier	A device that provides humidification to the air of a space.
HVAC	Heating, Ventilation, and Air Conditioning
Infrared Heater	Ceiling heating systems typically located in shop or garage spaces.
Main Distribution Panel (MDP)	The main electrical panel for the building.
Make Up Air Unit	Air handling units that utilizes 100% outside air and conditions it.

Glossary of Terms

Term	Description
Mini Split Evaporative Unit	The inside air handling unit of the split system, the other half is the exterior condensing unit.
Motor Control Center	An electrical switching unit that controls the power of many motors from one location, rather than at the equipment itself.
Net Present Value (NPV)	Value of all current and future investments over a certain period of time expressed in today's dollars.
Protective Relay	A relay device designed to trip a circuit breaker when a fault is detected.
Pressure Relief Valve (PRV)	A valve used to control or limit the pressure in a system.
Pump	Equipment used to move water.
Radiant Ceiling Panel	A ceiling panel that provide radiant heat to occupants.
Radiant Tube Heater	Ceiling heating systems typically located in shop or garage spaces.
Reheat Coil	A coil that is used to reheat the air supply.
Return Fan (RF)	A fan used to return air that has already been heated or cooled once to mix with fresh/outside air. Typically used to save energy costs associated with heating/cooling a building.
Rooftop Unit (RTU)	An air handling unit located on the roof.
Space Cooler	A mobile air conditioning unit or smaller size evaporative unit.
Split System Condensing Unit	The exterior cooling unit of the split system, the other half is the interior evaporative unit.
Split System Evaporative Unit	The inside air handling unit of the split system, the other half is the exterior condensing unit.
Split System Heat Pump	The exterior heating and cooling unit of a split system, the other half is the interior evaporative unit.
Sump Pump	A pump used to remove water that accumulates in a water collecting sump basin.
Switchboard	The main electrical switch for the building.
Transformer	A transformer is an electrical device that transfers electrical energy between two or more circuits through electromagnetic induction.
Unit Heater	A unit heater is a heating device designed to provide heat for a specific area. Typically found in garages and storage areas.
Unit Ventilator	A wall mounted or ceiling hung cabinet designed to use a fan to blow outside air across a coil, thus conditioning and ventilating the space which it is serving.
Variable Air Volume (VAV)	Equipment used downstream of the main air handling unit to control the volume of air blown into a space depending on the demand of the space. They can also have their own heating/cooling coils and fans to provide supplemental support of the larger system.
Variable Frequency Drive (VFD)	A type of motor controller that drives an electric motor by varying the frequency and voltage of its power supply, allowing it to regulate the speed to save energy.
Waste Oil Furnace	A furnace that uses waste oil as fuel. Often found in shops where waste oil is abundant.
Water Heater	Equipment used to heat water, typically for domestic or potable use.