9/29/2023

Winter Park Magnolia Water Plant

ASHRAE Level II Energy Audit

15 lightyears
Energy Testing | Solar Power | Green Certification

TLC ENGINEERING SOLUTIONS

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Executive Summary

TLC Engineering Solutions (TLC) and 15 Lightyears performed an ASHRAE Level 2 facility energy audit of the Winter Park Magnolia Plant Operations Building as a part of a contract with the City of Winter Park.

This report is related to the energy-consuming systems only and is intended to fulfill the requirements of an ASHRAE Level 2 Energy Audit, per the guidelines set forth by the ASHRAE document "Procedures for Commercial Building Energy Audits." The purpose was to observe existing conditions and gather information that would enable TLC to render an opinion concerning conditions or deficiencies that could affect efficient use of this facility, and to identify potential areas for improvement. Neither the field visits nor this report is intended to uncover hidden defects or the presence of hazardous materials.

TLC reviewed the current utility bills from January 2021 through June 2023, subsequent project documentation, and visited the site in January 2023 to review the mechanical and electrical equipment, the HVAC and lighting controls systems, and observe each space type and its general energy use intensity. In the course of its work, TLC obtained extensive photo documentation of the conditions of the facility. Several of the photographs are included in Appendix B of this report, and the reader is encouraged to thoroughly review the photographs and descriptions, as they are intended to support and supplement the observations described herein.

After the time on site, TLC developed energy saving spreadsheets to assist with the analysis of recommended Energy Conservation Measures (ECMs) and Facility Improvement Measures (FIMs). The combination of all the walkthrough and post-walkthrough activities led to the development of the ECM and FIM list. A complete description and analysis of each ECM, as well as a table summarizing estimated cost and savings of each measure, can be found later in this report in the Energy Saving Opportunities section.

Project Information & Contacts

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General Facility Description

The Winter Park Magnolia Plant Operations Building consists of two (2) single-story buildings of approximately 4600 square feet combined. An aerial view of the Magnolia Plant is shown below.

Figure 1: Aerial View of the Magnolia Plant Operations Building

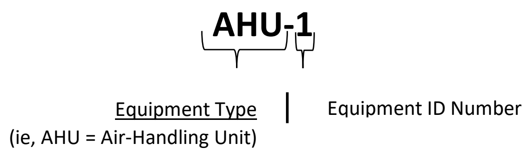
The building holds offices, restrooms, and other support spaces for the operations of the plant.

Mechanical Systems

The Magnolia Plant Operations Building features mechanical systems including DX air handling units, an energy recovery ventilator, and exhaust fans. Mechanical system information was obtained via a combination of resources, including information gathered during TLC's audit walk-through of the building and construction document review. The below breakdown of the mechanical systems and areas they serve is TLC's best attempt to consolidate all avenues of information into one master list.

Equipment Naming Convention

The general naming convention used on the mechanical drawings is shown below. Please note, this convention applies to most of the equipment, but not all equipment.



Air Handling Units

Air conditioning for the majority of the facility is provided by five (5) Split-System Air Handling Units serving various spaces throughout the building. In addition to the split systems, the building includes one (1) packaged rooftop unit. Each unit operates as a single-zone unit and is controlled via a wall-mounted thermostat.

Exhaust Fans

Exhaust fans were observed on the rooftop, providing general exhaust for restrooms and other spaces located within the Operations Building.

Building Controls

The site is not currently controlled by a centralized Building Automation System (BAS). Each system within the Wellness Place, including all lighting, water heating, and HVAC, is a standalone system.

Lighting Systems

Interior lighting throughout the facility is predominantly linear fluorescent fixtures. The audit team noted that the interior lighting included occupancy controls to prevent unoccupied operation of lighting.

Domestic Water Fixture (Plumbing) Systems

The building is served by one (1) Electric Water Heater. The water heater has a 30-gallon water storage capacity, and a 4,500 watt heater capacity.

Electrical Systems

The building is served by one (1) fuel-operated generator. The generator is manufactured by Cummins. Limited information was available for the generator due to illegible information on the equipment nameplates.

Building Envelope

The building envelope consists of stucco over tilt-up concrete panels. The roof is a flat, built-up roof construction, with mechanical equipment located on the rooftop. No building envelope issues were observed related to the scope of the energy auditing procedure.

Key Operating Parameters

The building is currently operated 24/7 due to the nature of the building mission. There are some areas that will experience typical office hours, but these areas do not currently have any controls schedule or temperature setbacks.

Site Visit

The site was audited by TLC engineers and 15 Lightyears personnel in January 2023. A full evaluation of existing energy consuming systems, compliant with ASHRAE Standard 211-2019 was performed. During the audit, TLC personnel were escorted by the City of Winter Park Facilities manager, Leif Bouffard. He, as well as any facility staff that were available for comment, were questioned on system operation, condition, and maintenance of the building systems.

Utility Analysis

Historical Utility Data

The building is currently provided with electricity and water utilities. Electrical utility consumption values were provided for the months of January 2021 through June 2023. The monthly consumption profile is as expected, where values increase in the warmer months due to cooling needs. No specific costs or utility bills were provided, but a blended rate for kWh savings was determined based on the published rates for consumption and demand. TLC noted that the utility consumption data provided to the audit team was missing a data point for May 2022. Calculation of the blended utility rate takes into account the non-fixed costs associated with electrical utilities use by the facility, including fuel charges, per-kWh cost, demand charges, etc. Table 3 details the components of the blended rate calculation.

Please note that the utility consumption data provided to the audit team appears to include the entire Magnolia Plant site, and does not represent the utilization of the operations building exclusively.

Table 1: Annual Baseline Energy Consumption

Utility	Total
Annual Electrical Consumption (kWh)	1,984,359
Annual Electrical Cost	-

The following graph and table show the total consumption per monthly billing period for electricity.

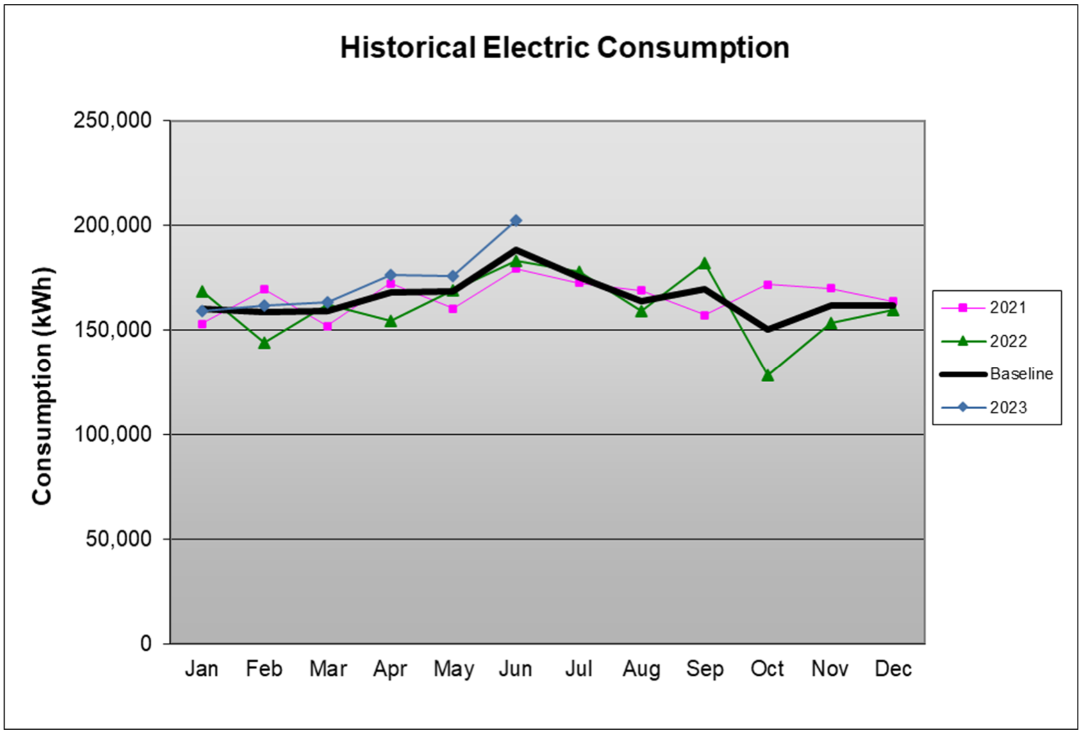


Figure 2: Magnola Plant Operations Building Electric Consumption

Table 2: Magnola Plant Operations Building Electricity Consumption Data

Date	Consumption (kWh)	Demand (kW)
Jan-21	153,000	703
Feb-21	169,500	820
Mar-21	152,000	772
Apr-21	172,300	827
May-21	160,300	942
Jun-21	179,300	865
Jul-21	172,700	864
Aug-21	168,800	839
Sep-21	157,200	795
Oct-21	171,800	803
Nov-21	170,043	900
Dec-21	163,676	879
Jan-22	168,317	1,383
Feb-22	143,918	963
Mar-22	162,054	1,590
Apr-22	154,617	1,385
May-22	--	856
Jun-22	183,131	1,391
Jul-22	177,896	1,397
Aug-22	159,273	1,344
Sep-22	182,225	1,361
Oct-22	128,438	1,262

Date	Consumption (kWh)	Demand (kW)
Nov-22	153,168	1,366
Dec-22	159,663	1,282
Jan-23	159,297	1,544
Feb-23	161,861	1,378
Mar-23	163,094	1,371
Apr-23	176,401	1,399
May-23	176,082	1,370
Jun-23	202,391	1,402

Benchmarking

TLC compared energy consumption for the Magnolia Plant using common benchmarks to gauge how the site compares to similar ones both regionally and nationally, principally through the use of Energy Star Portfolio Manager. The building's Energy Use Intensity (EUI), which is used by energy engineers to determine overall energy consumption to a common unit of measure, was compared to other similar buildings throughout the United States. The Energy Use Intensity measures annual consumption of electricity per square foot, in kBTU/sf/year.

These benchmark tools were developed by the Department of Energy and are based on feedback from building operators all over the country. Using the utility billing information and observing the system operation allows the energy profiles to be broken down to greater detail. However, due to the nature of the building as a water treatment plant, no baseline for comparison was available.

Based on most recent 24 months of utility data, the calculated EUI of the Magnolia Plant is 1,471.9 kBTU/sf. TLC and 15 Lightyears noted that the utility information provided to the audit team seemed to indicate that the entire Magnolia Plant is provided with a single meter, so it was not possible to separate the consumption of the Operations Building. Equipment within other locations on the site significantly impacting the EUI calculation include aeration equipment and large pumps operating 24/7. However, the energy conservation measures detailed in this report will serve to decrease the EUI of the Operations Building itself through efficiency increases.

Utility Rate Analysis

The building is provided with electricity by Duke Energy, following the rate schedule for GSDT-1. The utility rate charges shown below were used to calculate the costs associated with the provided consumption and demand. Energy savings calculated for this building have been assigned a blended rate of $0.1285/kWh, which is the calculated blended rate not including fixed customer charges.

Table 3: Utility Rate Schedule

Description	Charge
Demand Charges:	
Base Demand Charge	$2.12 per kW
Mid-Peak Demand Charge	$4.31 per kW
On-Peak Demand Charge	$1.23 per kW
Energy Charges:	
Non-Fuel Energy Charge:	$0.3276 per On-Peak kWh $0.2696 per Off-Peak kWh $0.01620 per Super-Off-Peak kWh
Fuel Energy Charge:	$0.0685 per On-Peak kWh $0.0561 per Off-Peak kWh $0.0416 per Super-Off-Peak kWh

Average Rates

As noted above, a blended cost per kWh has been calculated from the rate schedule. Savings for this building have been calculated using the blended rate. The following table details the average rate over the period of analysis.

Water rates are based off the utility rate tables from the City of Winter Park under the assumption of a 2" water meter for combined water and sewer under Block 3 pricing. This table outlining these water rates are attached as Appendix D. The following table details the average rate over the period of analysis.

Table 4: Average Utility Rate

Utility	Average
Electricity	$0.1285/kWh
Water	$10.08/kgal

Energy Saving Opportunities

The operation and condition of equipment at the Magnolia Plant Operations building was observed to offer a few different avenues for improvement. This is to be expected given the age of the equipment itself and how long it has been in service. Improvements can be made by replacing the aging equipment as well as optimizing the control sequences and settings. The following table summarizes the recommended ECMs for this facility that should be considered for future projects. In addition, the table distinguishes between measures specifically intended to save energy (ECMs) and facility improvement measures (FIM) that benefit the overall operation of the facility but may not provide significant energy savings.

Table 5: ECM/FIM Summary

Energy Savings Measure	FIM/ECM	ECM Category	Annual kGal Savings	Annual kWh Savings	Annual $ Savings	Cost $	Payback (years)
DX Retrofits	ECM	Medium Cost	--	7,179	$923	$20,000	21.7
HVAC Controls Optimization	ECM	Low Cost	--	1,829	$235	$900	3.8
Plumbing Retrofits	ECM	Low Cost	2.5	--	$25	$708	28
Lighting Improvements	ECM	Low Cost	--	1,027	$132	$131	1
Totals			**2.5**	**10,035**	**$1,315**	**$21,739**	**16.5**

*ROI calculations exclude capital improvement items, as they are intended more for facility improvement than for energy savings.

The cost and paybacks shown in the table above are estimates based on the information gathered during the auditing process. TLC utilized RSMeans 2023, as well as engineering best practices, to estimate the cost of these suggested measures. Final pricing will vary based on contractors' estimation and final equipment selections. Final payback periods are also dependent on contractor pricing and the facility's negotiated utility price.

DX Unit Retrofit

General Description

This measure proposes replacing the existing Addison split system equipment, which is at or nearing the end of its predicted useful life. The existing unit also uses a type of refrigerant that is no longer in production which may make repairs costly. Direct expansion (DX) air conditioning equipment consists of a refrigerant loop, in which the refrigerant is compressed and expanded at different points of the loop to transfer thermal energy. Typically, a refrigerant coil is placed directly in the supply air stream, where the refrigerant absorbs thermal energy as it evaporates and expands. Thermal energy is rejected at a compressor, where the refrigerant is compressed and condenses, rejecting the heat that was removed from the supply air steam.

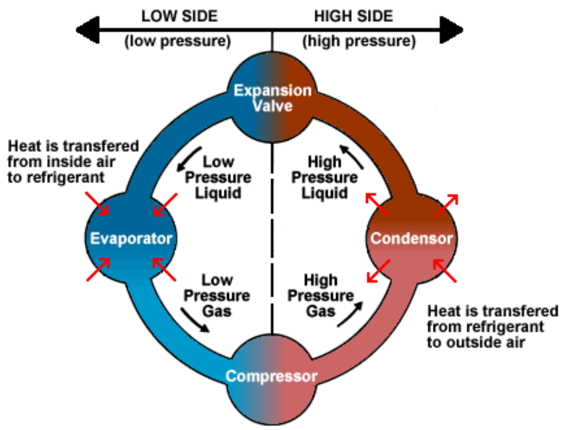


Figure 3: The Refrigeration Cycle

Over time, HVAC units degrade in operational efficiency as coil surfaces oxidize on the exterior and sometimes scale on the interior which reduces heat transfer efficiency. The moving mechanical components also wear, which further reduces the operational efficiency of the equipment. The new equipment will be installed in place of the existing equipment, including providing new refrigerant line sets for all split systems.

Advances in technology and improvements necessitated by energy code updates have led to DX equipment available today with far higher efficiencies than what was used in the past. Replacing the existing systems with new higher efficiency systems will reduce energy consumption and provide improved occupant comfort.

Site Specifics

The Addison split system was observed to be nearing the end of its expected useful life and in need of replacement. This measure proposes to replace the existing split system with a like-for-like replacement with a 14 SEER efficiency rating. As stated above, the newer system will be more efficient than the existing system and will result in slight energy savings.

HVAC Controls Optimization

General Description

The scope for this ECM involves optimizing the building HVAC controls through one or multiple controls strategies. For this project, the controls strategy recommended would be occupancy scheduling with setback temperatures.

Consistent occupied and unoccupied temperature settings will be implemented based on the building type and their needs. Occupied schedules for the HVAC controls will be set up to dictate the hours when the building is considered occupied versus unoccupied. Whenever a building enters unoccupied mode, the building HVAC controls will utilize the unoccupied settings in lieu of the occupied settings.

Site Specifics

While the building overall is considered a 24/7 occupancy building, there are areas that are not occupied outside of regular office hours. These noncritical areas would be optimized with controls schedules based on the hours these areas are typically occupied. HVAC controls will be given setback temperature settings to use during unoccupied conditions as well as a setback from the observed temperature setpoint of 69F during occupied hours. Operating portions of the building at setback temperatures will result in energy savings due to the HVAC systems not having to work as hard to condition these areas when unoccupied.

Plumbing Fixture Retrofit

General Description

This measure proposes to replace existing plumbing fixtures, such as toilets, urinals, sinks, and showers, with low-flow fixtures. Toilets and urinals are rated based on the amount of water per flush, while showers and sinks are rated on their flow rate during use. Over time, building codes have changed to mandate lower flow fixtures than were previously allowed. Advances in technology allow for new low-flow fixtures to provide similar performance while using a fraction of the water.

The existing fixtures will be replaced, including all wear parts, with new low-flow equivalents. Replacing wear components puts the entire assembly back to its original condition and eliminates any potential for existing degradation to affect the new fixtures. While existing low flow fixtures may be excluded from this measure, including the replacement of their wear components will lead to standardized parts as well as resetting the expected lifespan of the fixtures, both of which reduce maintenance costs.

Site Specifics

The faucet and toilet observed in the facility are both standard flow rated fixtures. Adding low flow aerators on sinks will reduce the gallons per minute flow rate. A new lower flow toilet will produce water savings by using less water per flush. Additionally, energy savings should also be produced in addition to these savings by using less hot water for the sinks.

Lighting Improvements

General Description

This measure involves converting older style lighting fixtures, such as fluorescent and incandescent, to modern LED lighting fixtures and lamps. Unless a building has been built or renovated in the past few years, it is common to find extensive use of fluorescent and incandescent fixtures throughout the building. Fluorescent and incandescent lighting technologies are a product of their time and often remain without intentional replacement. Older lighting technologies require more wattage to produce the same amount of light as LED fixtures. This also results in a higher heat output from the lamps which raises HVAC cooling costs.

Existing fluorescent and incandescent lighting fixtures will be replaced/retrofitted with new LED lighting fixtures. This will greatly reduce the energy required to illuminate the building. Additionally, cooling systems will have to run less often to offset the heat generated by the lighting. There are several additional benefits to LED lighting technology. LED lighting has longer burn hour life, faster on/off response time, and easier dimming capabilities compared to fluorescent and incandescent technologies. Because LED light fixtures have longer burn hour life, this will reduce the material and time cost of replacing burned out lamps.

Site Specifics

The facility was observed to have predominantly linear fluorescent fixtures with T8 lamps. Existing non-LED lighting will be replaced with new LED lighting on a one-for-one basis. Existing lighting material waste will be disposed of according to local regulations.

Calculation Methodology – Spreadsheet System Models

Savings for this report were evaluated using spreadsheet building models for the lighting and HVAC systems. The methodologies used for each measure are described separately in this section. Industry Standard methods of evaluation were used and are detailed in this section. Additionally, assumptions made to calculate the energy savings are detailed.

DX Unit Retrofits

Savings for this measure have been based on an improvement in the efficiency of the DX equipment. The following table shows the major inputs used in the calculation of savings for this measure.

Table 6: DX Unit Retrofit Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Addison CU Rated Capacity	Addison CU	5.0 tons	Manufacturer info
Addison CU Existing Efficiency	Addison CU	11.75 SEER	Mfg. info and typical degradation for age
Proposed Replacement Efficiency	Addison CU	14.0 SEER	Engineering judgment
Effective Full Load Hours	Addison CU	8,760 hr./yr.	Known to serve a 24 hour space

Calculations:

Savings for this measure were based on calculating the energy consumption of the DX equipment with the existing and proposed efficiencies. The unit's energy consumption in kWh was calculated with the following formula.

$$Energy\ Consumption = Tons \times \left(\frac{12}{SEER}\right) \times Effective\ Full\ Load\ Hours$$

In the formula, the terms in the bracket yield efficiency in kW/ton.

HVAC Controls Optimization

Savings for this measure have been based on a reduction in cooling energy due to setting back non-critical portions of the building that are not always occupied. The following table shows the major inputs used in the calculation of savings for this measure.

Table 7: Controls Optimization Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
% Cooling Energy Reduction	Entire building	1%	Engineering judgment

Calculations:

Savings for this measure were based on calculating the annual cooling energy and saving a percentage of it. The existing annual cooling energy was calculated from the electric utility baseline as the sum of all the electrical consumption for each month exceeding the lowest month's consumption. The following formula was used to calculate existing annual cooling energy.

$$Existing\ Cooling\ kWh = Annual\ Total\ kWh - (12 \times Baseload\ Month\ kWh)$$

Plumbing Retrofits

Savings for this measure are based on a reduction in the water consumption by the replacement of sinks and toilets with more efficient fixtures with lower gallons per minute flow rate and gallons per flush ratings respectively. The following table shows the major inputs used in the calculation of savings for this measure.

Table 8: Plumbing Retrofits Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Number of people	Entire building	2	Engineering judgement
Minutes of sink use/person/day	Entire building	1.5	Engineering judgement
Existing Sink Flow Rate	Entire building	2.0 GPM	Engineering judgement
Proposed Sink Flow Rate	Entire building	0.5 GPM	Engineering judgement
Flushes/person/day	Entire building	2	Engineering judgement
Existing Gallons Per Flush	Entire building	1.6	Engineering judgement
Proposed Gallons Per Flush	Entire building	1.0	Engineering judgement

Calculations:

Savings for this measure were comprised of water savings. The water savings were the difference in the existing and proposed annual water consumption based on assumed annual usage and flow rate of the fixture in GPM (gallons per minute) or GPF (gallons per flush). The water usage for existing and proposed fixtures were calculated using the following formulas for sinks and toilets respectively.

$$Water\ Usage = Number\ of\ people \times GPM \times Minutes\ of\ use\ per\ day \times 365\ days/year$$

$$Water\ Usage = Number\ of\ people \times GPF \times Flushes\ per\ day \times 365\ days/year$$

Lighting Improvements

Savings for this measure have been based on a reduction in the lighting energy based on a reduction in lighting installed wattage. The following table shows the major inputs used in the calculation of savings for this measure.

Table 9: Lighting Improvements Major Inputs

Input Name	Bldg./Area Affected	Input Value	Basis of Input
Building Area	Entire building	800sf	Provided value
Existing Lighting Power Density	Entire building	1.0 W/sf	Typical value for T8 lamps throughout
Proposed Lighting Power Density	Entire building	0.6 W/sf	Typical value for LED lamps throughout
Annual Burn Hours	Entire building	3,210	Building schedule

Calculations:

Savings for this measure were comprised of energy savings. The energy savings were the difference in the existing and proposed kWh for all the lighting fixtures in the building. The energy usage in kWh for the building was calculated using the following formula.

$$Energy\ Usage = \frac{Building\ Area \times LPD \times Hours}{1{,}000}$$

Appendix A – Mechanical Equipment

The following table shows a listing of all recorded major equipment in the building.

Building	Type	Equip	Location Served	Tag	Qty	Capacity	Units	Make	Model	Serial Number	Year
Magnolia Plant Op	AHU	Air Handling Unit			1	1/2	HP	Addison	VCA071C04E	20807102001	2002
Magnolia Plant Op	AHU	Air Handling Unit			1	2.4	HP	Carrier	40RUAA12A1A6 0A0A0	2317U06909	2017
Magnolia Plant Op	AHU	Air Handling Unit			1	1/3	HP	Goodman	ARUF42C14AD	1406217153	2014
Magnolia Plant Op	AHU	Air Handling Unit			1	1/3	HP	Trane	TEM4A0B30S31SBA	22044W683V	2022
Magnolia Plant Op	AHU	Air Handling Unit			1	1/3	HP	Trane	TEM4A0B30S31SBA	2204452P3V	2022
Magnolia Plant Op	CU	Condensing Unit			1	2.5	Tons	Trane	4TTR4030L1000BA	22135MNF1F	2022
Magnolia Plant Op	CU	Condensing Unit			1	2.5	Tons	Trane	4TTR4030L1000BA	22135ME11F	2022
Magnolia Plant Op	CU	Condensing Unit			1	4.9	Tons	Addison	RCA061004E	20807101001	2002
Magnolia Plant Op	CU	Condensing Unit			1	3.5	Tons	Goodman	GSX130421BC	1401015968	2014
Magnolia Plant Op	CU	Condensing Unit			1	10.0	Tons	Carrier	38AUZA12A0B6A0A0A0	1117C90249	2017
Magnolia Plant Op	EWH	Electric Water Heater - 30 Gallon			1	4500.0	Watt	State	P63020RTGW	A03317078	2003
Magnolia Plant Op	ERV	Energy Recovery Ventilator			1			RenewAire			
Magnolia Plant Op	EF	Exhaust Fan		30-EF-1.	1	1 1/2	HP	Greenheck	CUBE-220-15-X	06A11940	2006
Magnolia Plant Op	EF	Exhaust Fan		30-EF-1.	1	1 1/2	HP	Greenheck	CUBE-220-15-X	06A11941	2006
Magnolia Plant Op	G	Generator			1			Cummins			
Magnolia Plant Op	RTU	Packaged Rooftop Unit			1			Trane			

Appendix B – Site Walkthrough Photos

 C-1: Trane Condensing Units	 C-2: Exterior Lighting
 C-3: Exterior Generator Equipment	 C-4: Addison Condensing Unit

C-5: Goodman and Carrier Condensing Units

C-6: Office

C-7: Restroom Fixtures

C-8: Interior Lighting

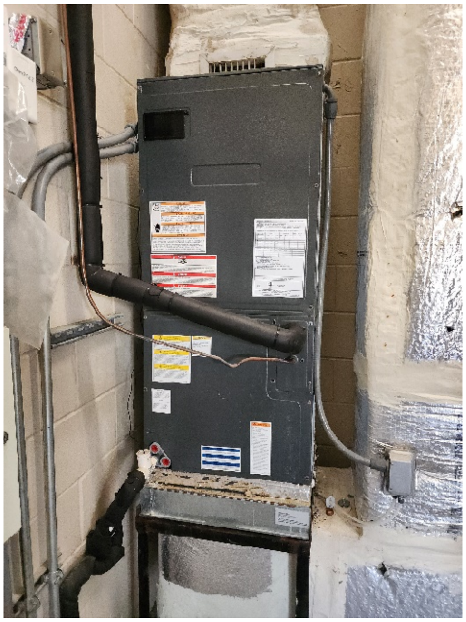
C-9: Electric Water Heater

C-10: Thermostat

C-11: Addison AHU

C-12: Exhaust

C-13: Carrier AHU



C-14: Goodman AHU

C-15: Generator

C-16: RTU and Exhaust Fans

 C-17: Trane AHU (1)	 C-18: Trane AHU (2)

Appendix C – Water Rates for City of Winter Park

COUNTY
WATER & SEWER (COMMERCIAL & PUBLIC AUTHORITY)

Effective 10/01/2022

DEPOSIT REQUIREMENTS

	3/4" Mtr	1" Mtr	1 1/2" Mtr	2" Mtr	3" Mtr	4" Mtr	6" Mtr	8" Mtr	10" Mtr
Water Service	75.00	100.00	130.00	165.00	270.00	375.00	690.00	Avg x 3	Avg x 3
Water & Sewer Service	145.00	165.00	195.00	570.00	675.00	780.00	1,140.00	Avg x 3	Avg x 3

WATER RATES

Meter Size	Availability (Base)	Block 1		Block 2		Block 3		Block 4		Block 5	
		(1,000 gallons)	($$ per 1,000)	(1,000 gallons)	($$ per 1,000)	(1,000 gallons)	($$ per 1,000)	(1,000 gallons)	($$ per 1,000)	(1,000 gallons)	($$ per 1,000)
3/4"	11.87	(4) 1 to 4	1.68	(4) 5 to 8	2.48	(4) 9 to 12	3.55	(8) 13 to 20	4.72	21 & Greater	6.07
1"	29.70	(10) 1 to 10	1.68	(10) 11 to 20	2.48	(10) 21 o 30	3.55	(20) 31 to 50	4.72	51 & Greater	6.07
1 1/2"	59.39	(20) 1 to 20	1.68	(20) 21 to 40	2.48	(20) 41 to 60	3.55	(40) 61 to 100	4.72	101 & Greater	6.07
2"	95.03	(32) 1 to 32	1.68	(32) 33 to 64	2.48	(32) 65 to 96	3.55	(64) 97 to 160	4.72	161 & Greater	6.07
3"	190.05	(64) 1 to 64	1.68	(64) 65 to 128	2.48	(64) 129 to 192	3.55	(128) 193 to 320	4.72	321 & Greater	6.07
4"	296.96	(100) 1 to 100	1.68	(100) 101 to 200	2.48	(100) 201 to 300	3.55	(200) 301 to 500	4.72	501 & Greater	6.07
6"	593.91	(200) 1 to 200	1.68	(200) 201 to 400	2.48	(200) 401 to 600	3.55	(400) 601 to 1,000	4.72	1,001 & Greater	6.07
8"	950.24	(320) 1 to 320	1.68	(320) 321 to 640	2.48	(320) 641 to 960	3.55	(640) 961 to 1,600	4.72	1,601 & Greater	6.07
10"	1,365.98	(460) 1 to 460	1.68	(460) 461 to 920	2.48	(460) 921 to 1,380	3.55	(920) 1,381 to 2,300	4.72	2,301 & Greater	6.07

SEWER RATES

	Availability Charge (Base)		3/4" Mtr	1" Mtr	1 1/2" Mtr	2" Mtr	3" Mtr	4" Mtr	6" Mtr	8" Mtr	10" Mtr
			14.03	35.07	70.14	112.21	224.43	350.67	701.33	1,122.13	1,613.08
	(1,000 gallons)	($$ per 1,000)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)	(Base + Cons)
6.53	1	6.53	20.56	41.60	76.67	118.74	230.96	357.20	707.86	1,128.66	1,619.61
	2	13.06	27.09	48.13	83.20	125.27	237.49	363.73	714.39	1,135.19	1,626.14
	3	19.59	33.62	54.66	89.73	131.80	244.02	370.26	720.92	1,141.72	1,632.67
	4	26.12	40.15	61.19	96.26	138.33	250.55	376.79	727.45	1,148.25	1,639.20
	5	32.65	46.68	67.72	102.79	144.86	257.08	383.32	733.98	1,154.78	1,645.73
	6	39.18	53.21	74.25	109.32	151.39	263.61	389.85	740.51	1,161.31	1,652.26
	7	45.71	59.74	80.78	115.85	157.92	270.14	396.38	747.04	1,167.84	1,658.79
	8	52.24	66.27	87.31	122.38	164.45	276.67	402.91	753.57	1,174.37	1,665.32
	9	58.77	72.80	93.84	128.91	170.98	283.20	409.44	760.10	1,180.90	1,671.85
	10	65.30	79.33	100.37	135.44	177.51	289.73	415.97	766.63	1,187.43	1,678.38
	11	71.83	85.86	106.90	141.97	184.04	296.26	422.50	773.16	1,193.96	1,684.91
	12	78.36	92.39	113.43	148.50	190.57	302.79	429.03	779.69	1,200.49	1,691.44

County Commercial Public Water