

Comparative Energy Analysis Report

Prepared for
City of Woodlake

Prepared by
The Energy Coalition

On Behalf of
The Southern California Regional Energy Network Public Agency Project Delivery Programs

Date
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Table of Contents

1. Overview	1
2. Total Energy Portfolio	2
3. Water Pumping	3
4. Street & Traffic Lights	4
5. Building Summary	5
Appendix A – Energy Star Portfolio Manager ®	6
Appendix B – Methodology	7

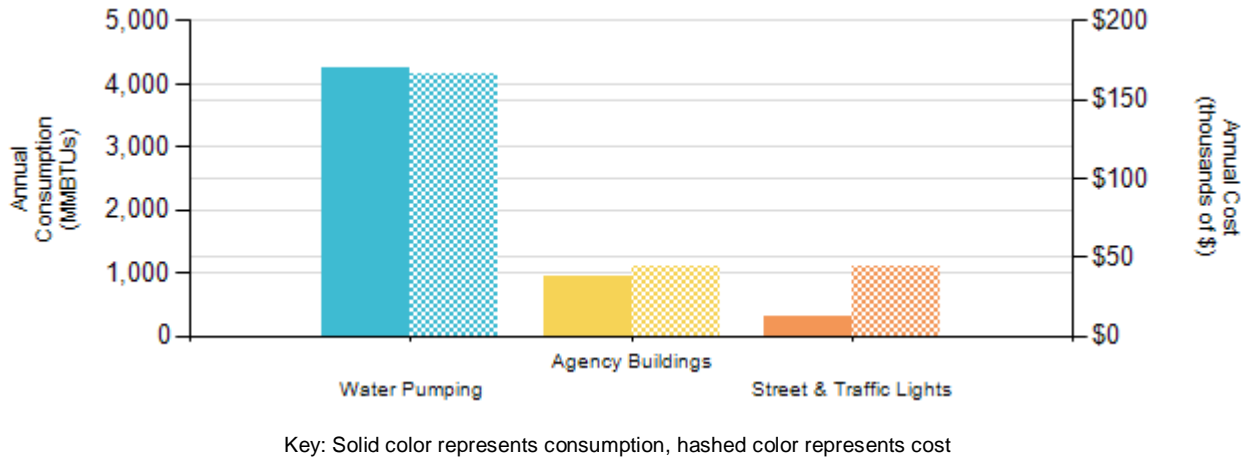
1. Overview

This report is intended to provide a framework for the City of Woodlake, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only energy billing data provided by the Agency to analyze energy use across Agency assets, and to help identify opportunities for energy efficiency improvements. Many factors affect the energy use in different assets, including age, type of heating, ventilation, air conditioning (HVAC), and lighting equipment, facility occupancy and hours, plug loads, and climate. Once individual opportunities with the greatest potential for energy savings are identified, a more detailed screening of those facilities can be performed to identify the specific sources of the inefficiencies.

This report was created by The Energy Coalition on behalf of the Southern California Regional Energy Network (www.socalren.org). Any questions about this report can be directed to your assigned Project Manager, Jake Anderson at janderson@energycoalition.org.

2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$253,552**



Annual Energy Costs

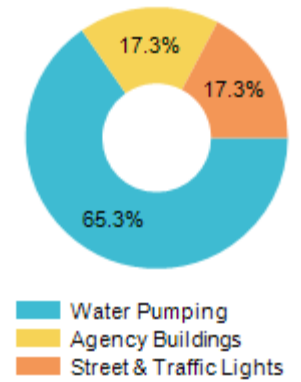


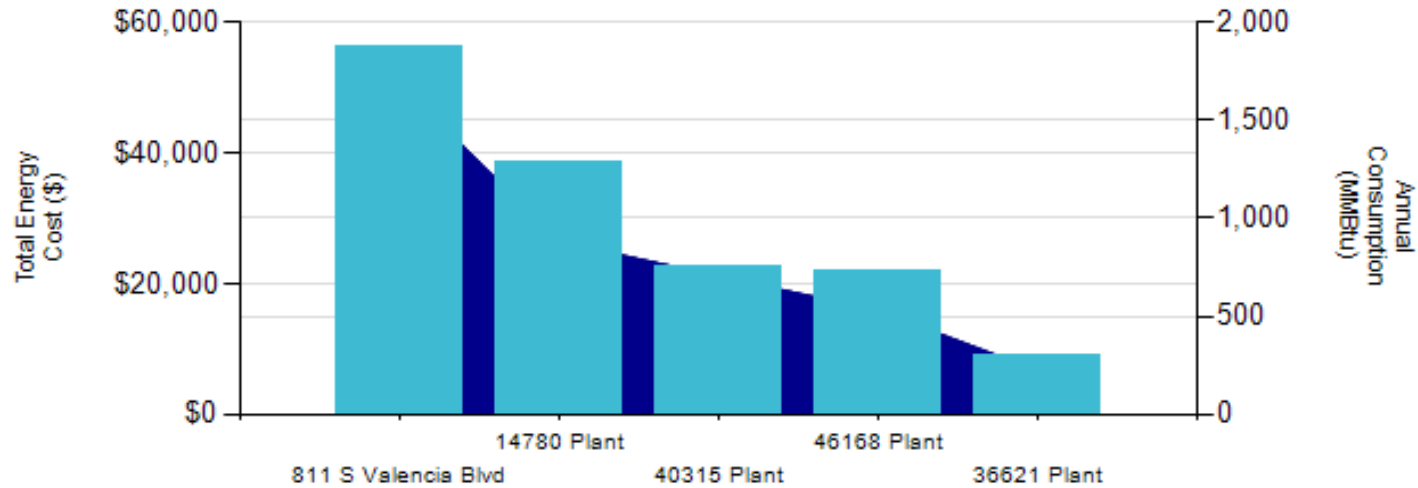
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MMBTus)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Water Pumping	1,248,601	\$165,668	0	\$0	4,260	\$165,668	645,527
Agency Buildings	203,453	\$42,583	2,325	\$1,395	927	\$43,978	105,185
Street & Traffic Lights	93,137	\$43,906	0	\$0	318	\$43,906	48,152



3. Water Pumping

Your Annual Energy Cost for Water Pumping is **\$165,668** and **65.3%** of the Total Cost.



Key: Displays the top 5 consuming pumping service accounts. Columns represent Cost, Area represents Consumption.

Table 2: Water Pumping (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Wastewater Treatment Plant	811 S Valencia Blvd	494,327	\$56,353	\$0.11
Well 10	14780 Plant	257,723	\$38,452	\$0.15
Well 12	40315 Plant	205,969	\$22,801	\$0.11
Well 13 & Well 14	46168 Plant	154,879	\$21,807	\$0.14
Well 11	36621 Plant	64,969	\$9,226	\$0.14

4. Street & Traffic Lights



Your Annual Energy Cost for Street & Traffic Lights is **\$43,906** and **17.3%** of the Total Cost.

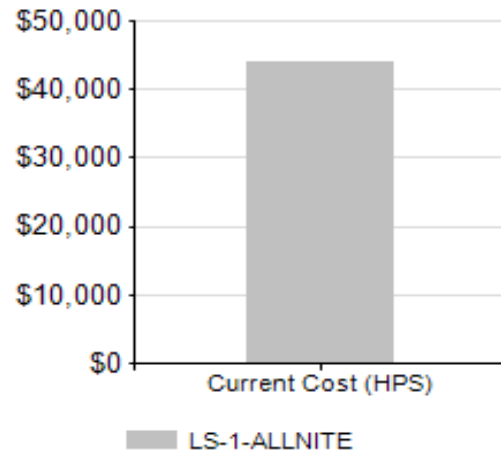


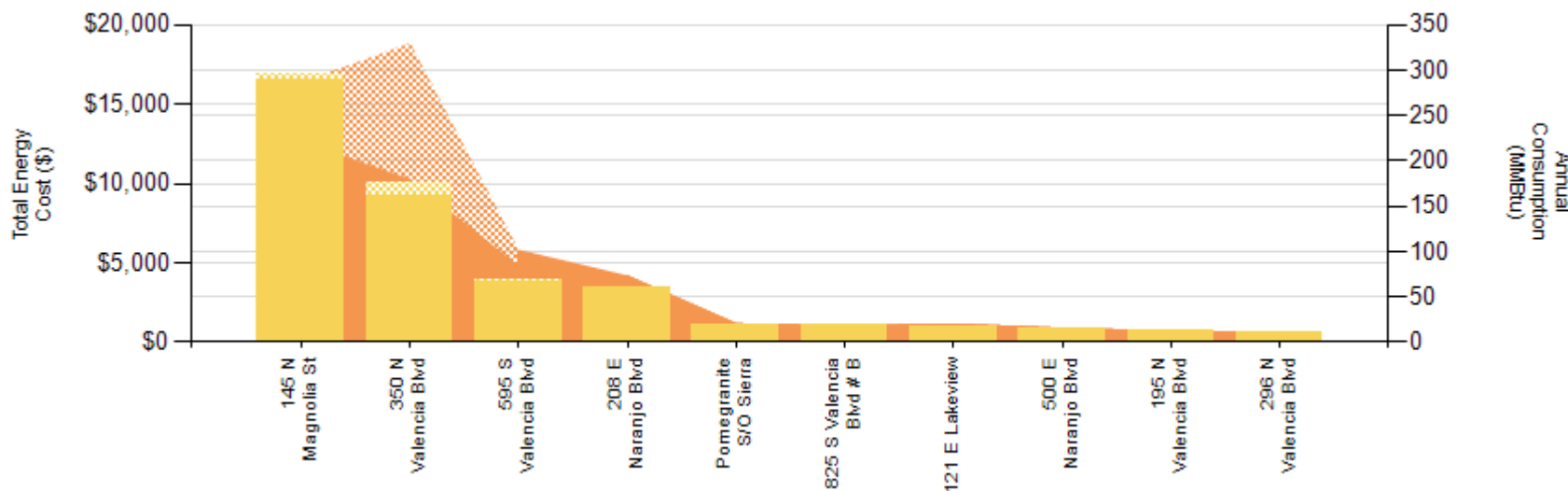
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-1-ALLNITE	Street Lights (SCE Owned)	93,137	\$43,906	0.47

5. Building Summary



Your Annual Energy Cost for Buildings is **\$43,978** and **17.3%** of the Total Cost.



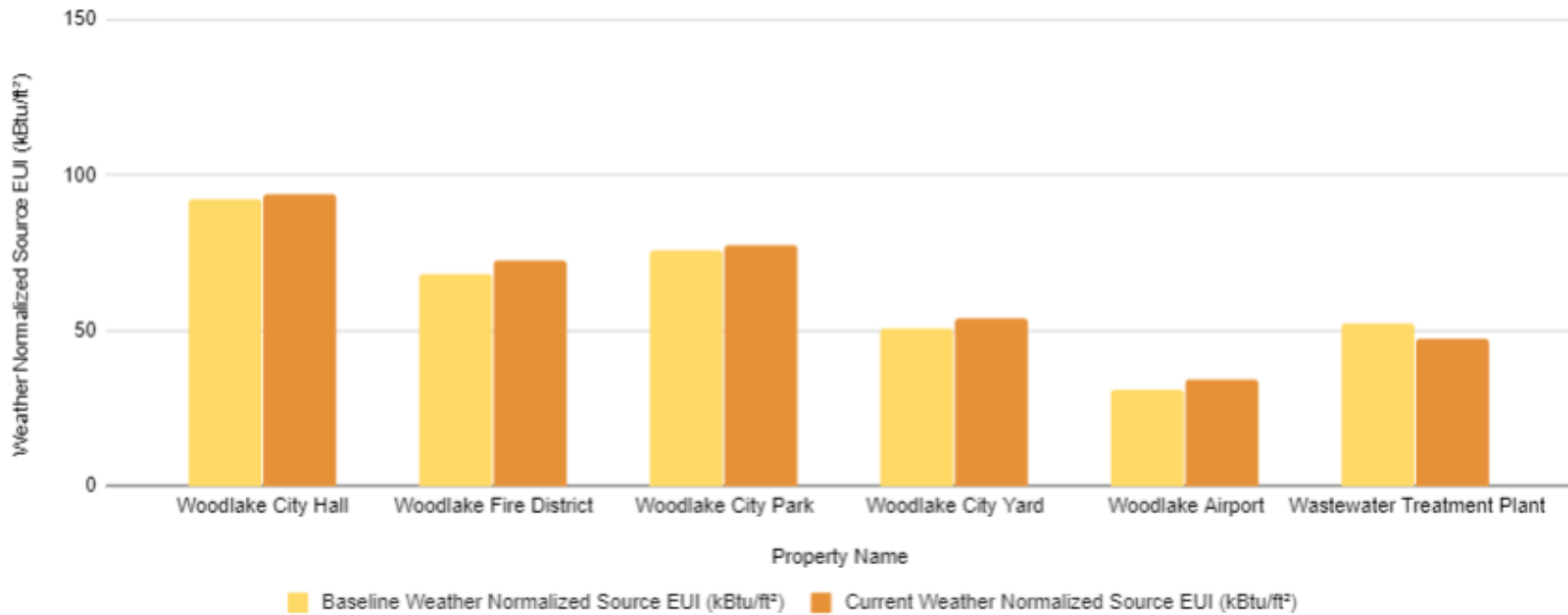
Key: Displays the top 10 consuming Buildings. Yellow columns represent Cost, Orange area represents Consumption. Electricity is the solid shade, Natural Gas is the hashed shade.

Table 4: Building Summary (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)
Community Center	145 N Magnolia St	64,625	\$16,492	\$0.26	657	\$394	\$0.60
City Hall/Police Department	350 N Valencia Blvd	52,580	\$9,179	\$0.17	1,495	\$897	\$0.60
City Yard	595 S Valencia Blvd	24,584	\$3,874	\$0.16	174	\$104	\$0.60
Fire District	208 E Naranjo Blvd	21,256	\$3,465	\$0.16	0	\$0	\$0.00
Pomegranate S/O Sierra	Pomegranate S/O Sierra	5,891	\$1,155	\$0.20	0	\$0	\$0.00
825 S Valencia Blvd # B	825 S Valencia Blvd # B	5,252	\$1,091	\$0.21	0	\$0	\$0.00
Aqua Stop	121 E Lakeview	5,784	\$960	\$0.17	0	\$0	\$0.00
500 E Naranjo Blvd	500 E Naranjo Blvd	4,474	\$907	\$0.20	0	\$0	\$0.00
195 N Valencia Blvd	195 N Valencia Blvd	3,502	\$752	\$0.21	0	\$0	\$0.00
296 N Valencia Blvd	296 N Valencia Blvd	2,968	\$622	\$0.21	0	\$0	\$0.00



Weather Normalized Source EUI by Property



Property Name	Property Type	Square Footage (ft²)	Baseline Source EUI (kBtu/ft²)	Baseline Year	Current Source EUI (kBtu/ft²)	Current Year	% Change
Woodlake City Hall	Office	6500	92	4/30/2019	93.9	4/30/2020	2.07
Woodlake Fire District	Fire Station	3000	68.1	4/30/2019	72.5	4/30/2020	6.46
Woodlake City Park	Other - Recreation	600	75.7	5/31/2015	77.7	5/31/2016	2.64
Woodlake City Yard	Office	5000	50.6	4/30/2019	54.1	4/30/2020	6.92
Woodlake Airport	Restaurant	1502	30.8	4/30/2019	34.1	4/30/2020	10.71
Wastewater Treatment Plant	Wastewater Treatment Plant	100000	52.4	4/30/2019	47.4	4/30/2020	-9.54

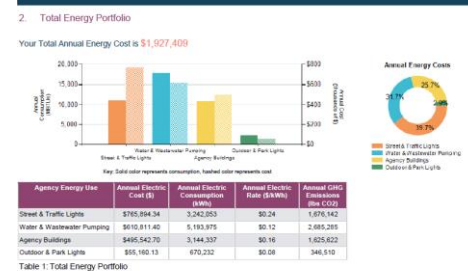
Appendix B - Methodology

1. Data Sources

- Building information, energy usage and cost data used in this analysis were derived from utility consumption billing data provided by agency staff.
- Utility consumption billing data used in this analysis were derived from SCG gas tariffs and SCE electric tariffs
- For more information about the utility tariffs included in this analysis refer to:
 - SCG Gas Tariffs: [For more information about Southern California Gas tariffs](https://www.socalgas.com/regulatory/tariffs/tariffs-rates.shtml); <https://www.socalgas.com/regulatory/tariffs/tariffs-rates.shtml>
 - SCE Electric Tariff: [For more information about Southern California Edison tariffs](https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices); <https://www.sce.com/wps/portal/home/regulatory/tariff-books/rates-pricing-choices>
- Analysis period for electricity and gas results were based on usage during period January 1, 2019 – December 31, 2019.
- In some cases, multiple meters were associated with a single facility or asset type. For such facilities, to generate estimates of facility-wide energy use, energy usage and cost values were aggregated by summing energy usage and cost values for each day in the analysis period.
- GHG emissions data used in this analysis were calculated using the conversion: 517 lb CO2/MWh + 11.91 lbs CO2/therm [1,2].
- The data utilized in Appendix A was derived from Energy Star Portfolio Manager ® (ESPM) and may not match the consumption data references elsewhere in this report. The most recent two years of available ESPM data were utilized for each site.
- Certain properties did not have energy usage data for the range of the analysis period and were excluded:
 - 497 Crestwood – Service Account #20092693
 - 39071 Plant – Service Account #47465264
- Certain properties could not be matched to gas or electricity usage data and were excluded:
 - 618 Antelope – Service Account #2589222
 - 15646 Plant – Service Account #48441913

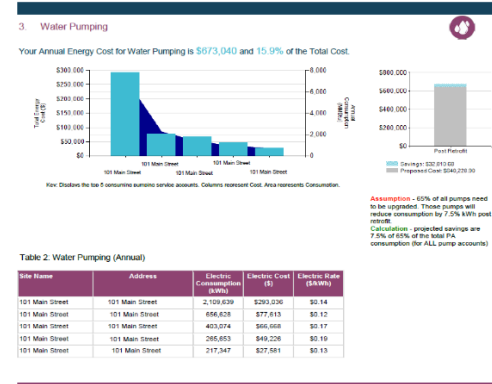
2. Total Energy Portfolio

- Total Energy Portfolio data represents an analysis of each agency facility type annual energy costs, annual energy consumption (kWh and therms), GHG Emissions and total annual energy costs for agency facility types based on MMBtus.
- The following agency assets are included in the Total Energy Portfolio:
 - Water Pumping
 - Street & Traffic Lights
 - Buildings



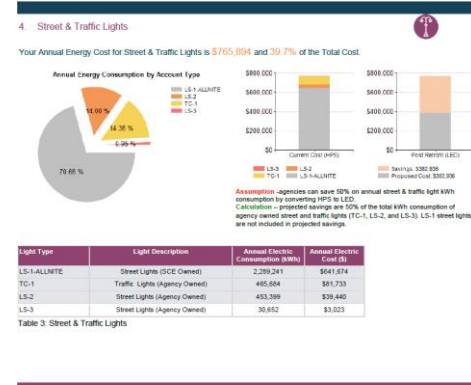
3. Water Pumping

- Water pumping data represents an analysis of the top five highest energy consuming water and wastewater pumping SCE and SCG service accounts annual energy costs, annual energy consumption (kWh and therms) and total annual energy costs.
- Water pump conversion data used in this analysis is derived on the assumption that 65% of all existing pumps need to be upgraded. Of the 65% of pumps requiring upgrades, it is assumed that the pumps will save 7.5% of their annual kWh consumption [3].



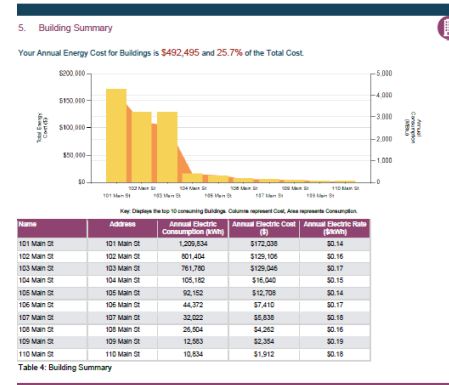
4. Street & Traffic Lights

- Street & traffic light data represents an analysis of annual energy costs and annual energy consumption (kWh) per SCE street & traffic light tariff type.
- Annual cost savings reflects only agency owned street lights in the analysis; assumed cost savings conversion is based on converting HPS to LED agency owned traffic and street lights [3].
- On average, agencies can save 50% on annual kWh consumption by converting HPS to LED, which also results in cost savings [3].



5. Building Summary

- Building summary data is weather normalized and includes the following metrics for the top ten highest energy-consuming agency buildings' (total annual energy costs): annual energy costs and annual energy consumption (kWh and therms).



Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from https://www.sce.com/wps/wcm/connect/c0fceef5-e04a-4287-8301-8e66e3e5fbac/2014_Corporate+Responsibility+Report_FINAL+single-page.pdf?MOD=AJPERES&ContentCache=NONE

[2] Adams, L.S., Nicols, M.D., Goldstene, J. N. (2008). Climate Change Scoping Plan. In California Air Resources Board. Retrieved from https://www.arb.ca.gov/cc/scopingplan/document/appendices_volume2.pdf

[3] Based on SoCalREN previous project estimates.