

# Comparative Energy Analysis Report

Prepared for  
City of Culver City

Prepared by  
The Energy Coalition

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

Date  
7/10/2020

## Table of Contents

1. Overview	1
2. Total Energy Portfolio	2
3. Water Pumping	3
4. Street & Traffic Lights	4
5. Building Summary	5
6. Outdoor & Park Lights	6
7. ENERGY STAR Portfolio Manager - Energy Use Intensity	7
Appendix A - Annual Comparison	9
Appendix B - Methodology	10

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## 1. Overview

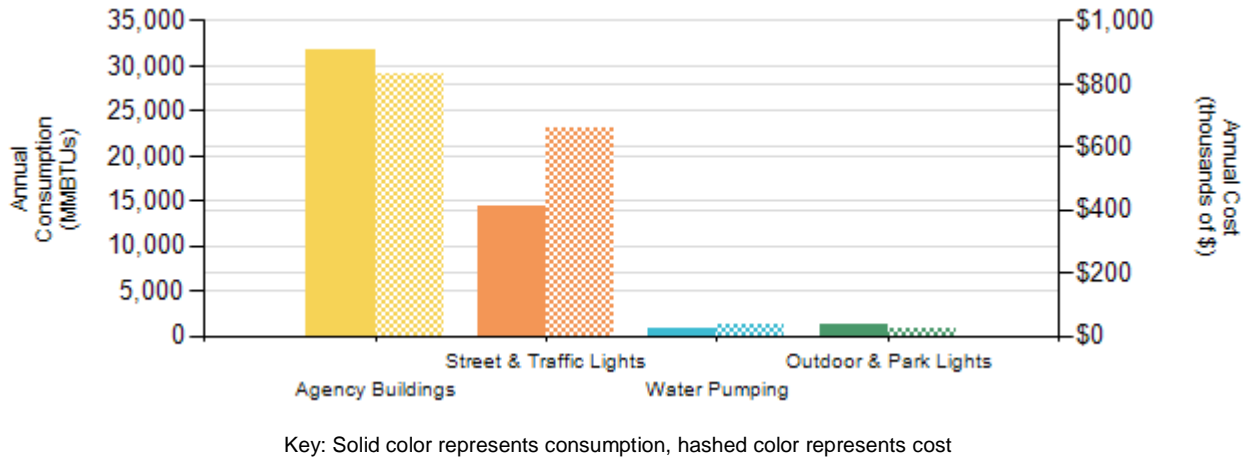
This report is intended to provide a framework for the Culver City, referred to as “Agency” herein, to identify inefficient facilities and infrastructure and prioritize further investigation and energy efficiency retrofit work. This analysis uses only total floor area and energy billing data provided 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 Network ([www.socalren.org](http://www.socalren.org)). Any questions about this report can be directed to your assigned Project Manager, Ken Gonzales at [kgonzales@energycoalition.org](mailto:kgonzales@energycoalition.org).

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## 2. Total Energy Portfolio

Your Total Annual Energy Cost is **\$1,546,937**



Annual Energy Costs

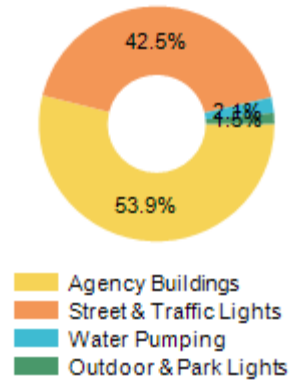


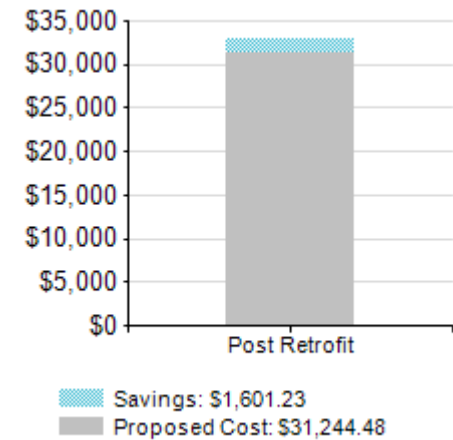
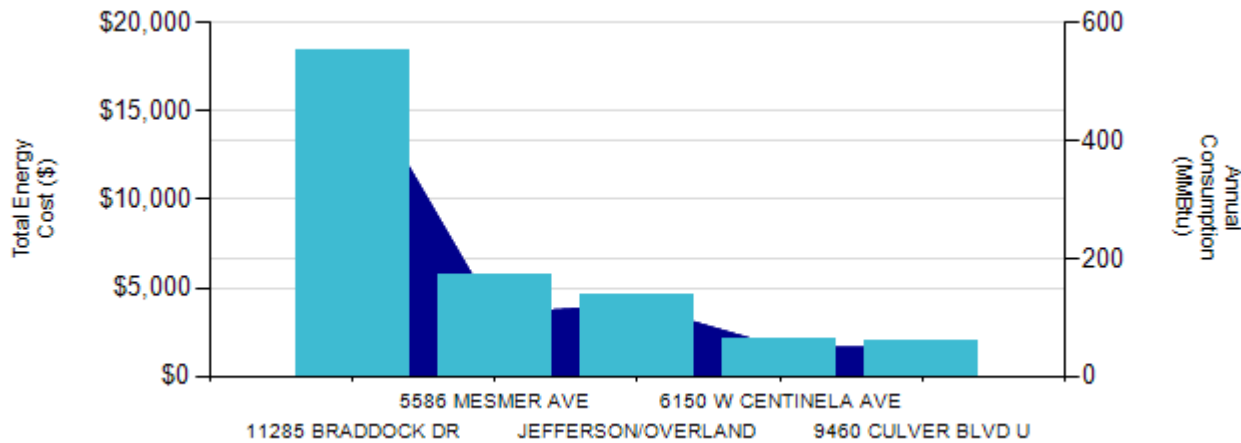
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MMBTus)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Agency Buildings	5,307,653	\$732,606	137,324	\$101,307	31,842	\$833,913	2,744,057
Street & Traffic Lights	4,189,706	\$657,088	0	\$0	14,295	\$657,088	2,166,078
Water Pumping	246,938	\$32,846	0	\$0	843	\$32,846	127,667
Outdoor & Park Lights	330,705	\$23,090	0	\$0	1,128	\$23,090	170,974



### 3. Water Pumping

Your Annual Energy Cost for Water Pumping is **\$32,846** and **2.1%** 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)
Water Pumping	11285 BRADDOCK DR	151,943	\$18,385	\$0.12
Water Pumping	5586 MESMER AVE	31,100	\$5,716	\$0.18
Water Pumping	JEFFERSON/OVERLAND	35,242	\$4,641	\$0.13
Water Pumping	6150 W CENTINELA AVE	14,304	\$2,067	\$0.14
Water Pumping	9460 CULVER BLVD U	14,349	\$2,036	\$0.14

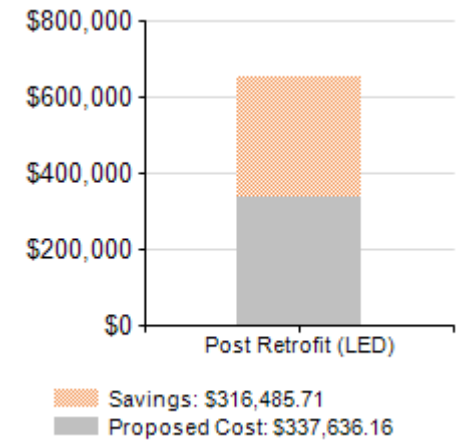
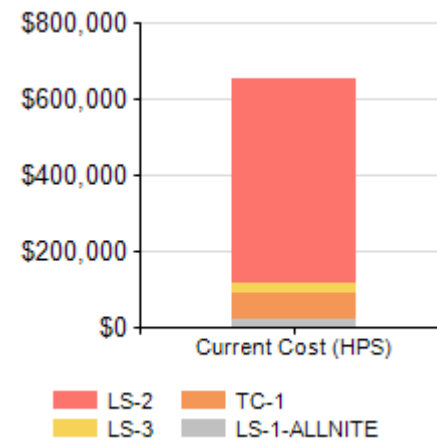
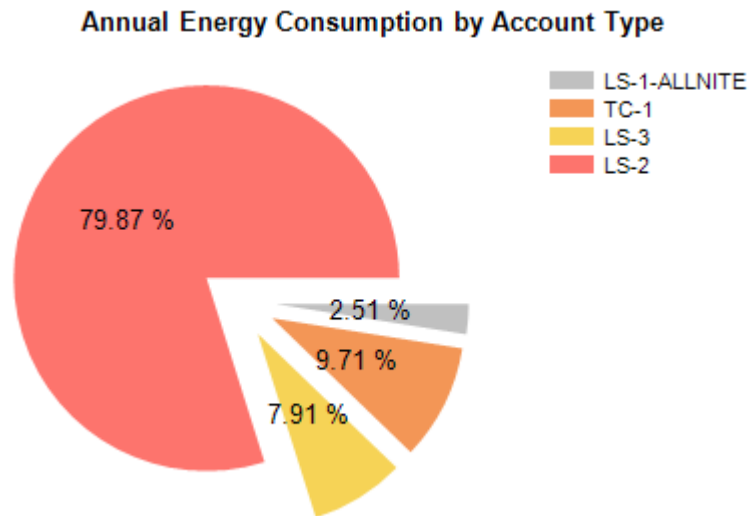
**Assumption** - 65% of all pumps need to be upgraded. Those pumps will reduce consumption by 7.5% kWh post retrofit.

**Calculation** - projected savings are 7.5% of 65% of the total PA consumption (for ALL pump accounts)



## 4. Street & Traffic Lights

Your Annual Energy Cost for Street & Traffic Lights is **\$657,088** and **42.5%** of the Total Cost.



**Assumption** -agencies can save 50% on annual street & traffic light kWh consumption by converting HPS to LED.

**Calculation** – projected savings are 50% of the total kWh consumption of agency owned street and traffic lights (TC-1, LS-2, and LS-3). LS-1 street lights are not included in projected savings.

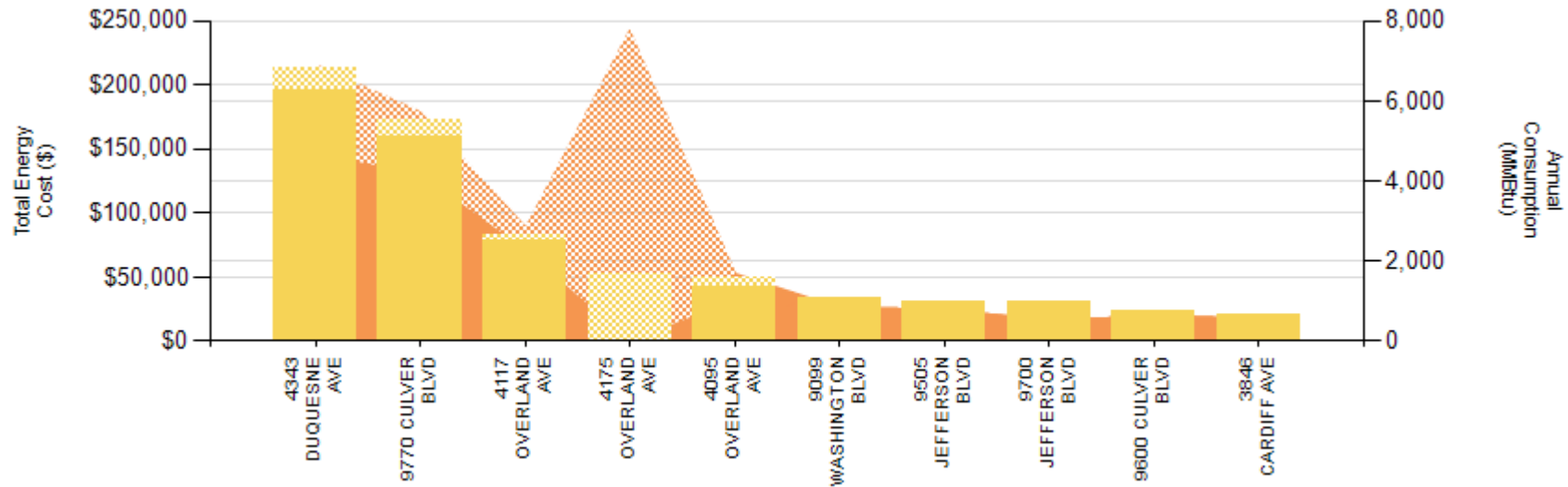
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
LS-2	Street Lights (Agency Owned - unmetered)	3,340,396	\$540,039	0.16
TC-1	Traffic Signal Lights (Agency Owned)	406,254	\$67,192	0.17
LS-3	Street Lights (Agency Owned - metered)	330,917	\$25,740	0.08
LS-1-ALLNITE	Street Lights (SCE Owned)	104,965	\$21,150	0.20

## 5. Building Summary



Your Annual Energy Cost for Buildings is **\$833,913** and **53.9%** 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. Facilities over 50,000 sq/ft are required to be in compliance with the California Energy Benchmarking Public Disclosure Program (AB 802).

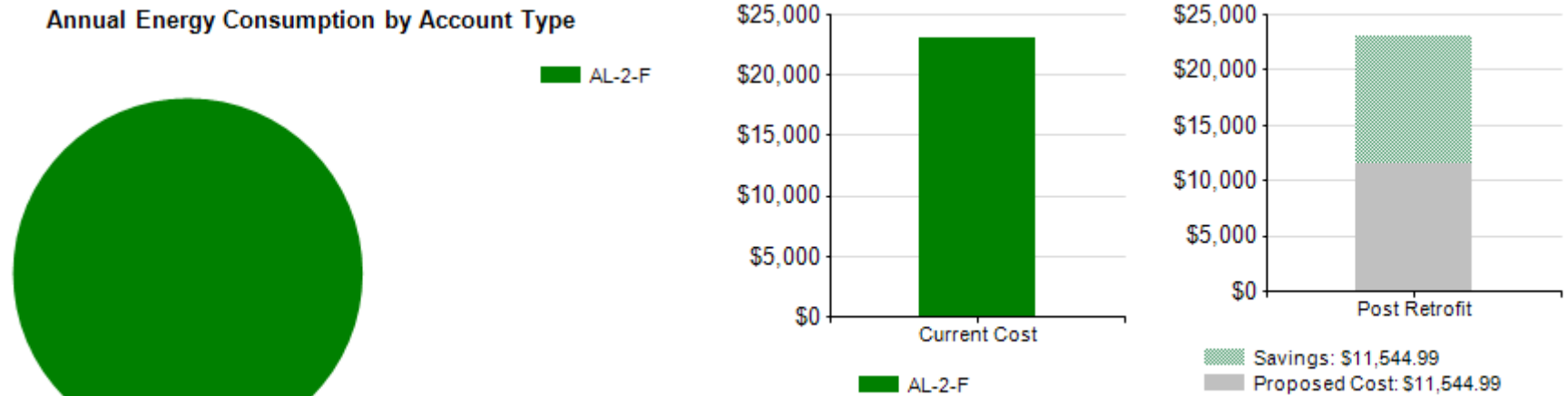
Table 4: Building Summary (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)
TRANSPORTATION SERVICES	4343 DUQUESNE AVE	1,365,484	\$195,270	\$0.14	22,396	\$17,831	\$0.80
CITY HALL	9770 CULVER BLVD	1,221,441	\$160,375	\$0.13	15,659	\$12,440	\$0.79
VETERANS MEMORIAL PARK	4117 OVERLAND AVE	662,216	\$78,080	\$0.12	5,924	\$5,315	\$0.90
POLICE DEPARTMENT	4040 DUQUESNE AVE	528,148	\$63,499	\$0.13	7,931	\$6,735	\$0.85
CITY POOL	4175 OVERLAND AVE	0	\$0	\$0.00	77,698	\$52,182	\$0.67
SENIOR CENTER	4095 OVERLAND AVE	297,968	\$43,086	\$0.14	6,746	\$5,979	\$0.89
INCE PARKING STRUCTURE	9099 WASHINGTON BLVD	248,275	\$34,088	\$0.14	0	\$0	\$0.00
PUBLIC WORKS	9505 JEFFERSON BLVD	233,094	\$31,561	\$0.14	0	\$0	\$0.00
CULVER CITY PARK	9700 JEFFERSON BLVD	153,669	\$31,410	\$0.20	0	\$0	\$0.00
FIRE STATION #1	9600 CULVER BLVD	186,444	\$23,473	\$0.13	0	\$0	\$0.00

## 6. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$23,090** and **1.5%** of the Total Cost.



**Assumption** -agencies can save 50% on annual outdoor & park light kWh consumption by converting HPS to LED.

**Calculation** – projected savings are 50% of the total kWh consumption of outdoor & park lights.

Table 5: Outdoor & Park Lights (Annual)

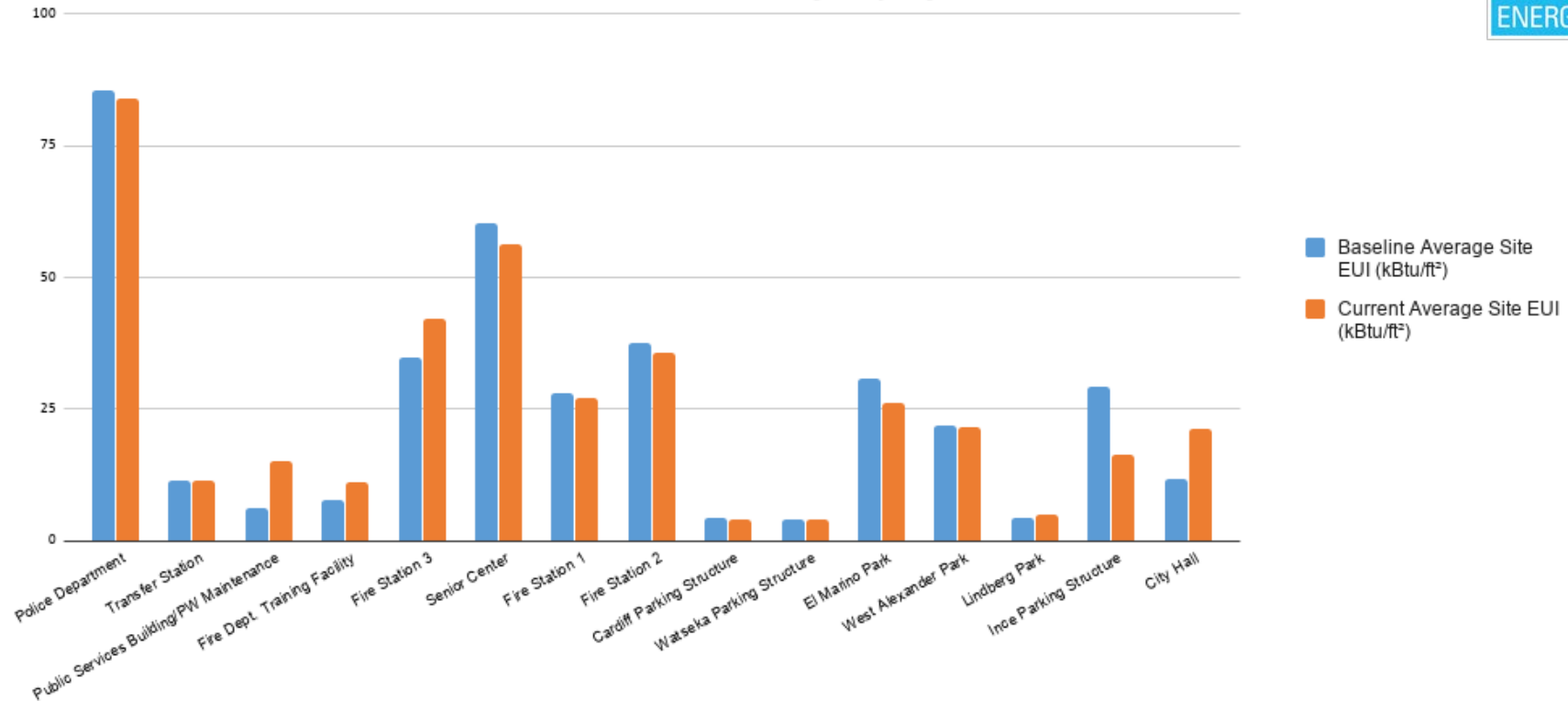
Name	Address	Tariff	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
Area Lighting	Various	AL-2-F	330,705	\$23,090	\$0.07



## 7. ENERGY STAR Portfolio Manager - Energy Use Intensity



Site EUI by Property



### Portfolio Average Site EUI

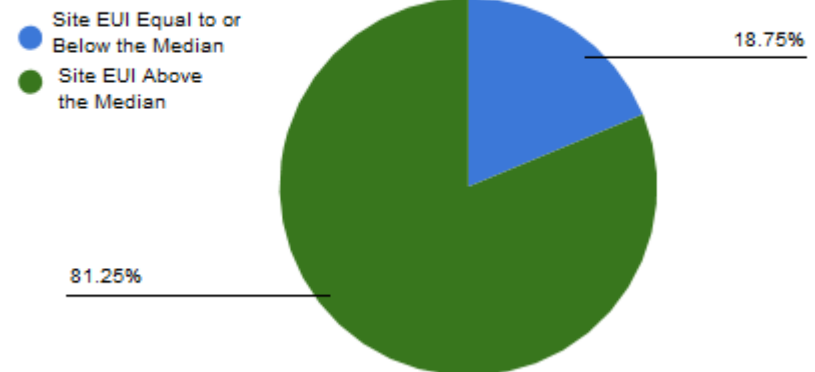
**-0.2** ▶ Change in Average Site EUI

**88.4** ▶ Current Average Site EUI

**88.6** ▶ Baseline Average Site EUI

Properties Included: 16

### Your Properties Compared to the National Median Site EUI



## Site EUI Summary Table

Site Name	Property Type - Portfolio Manager-Calculated	Square Footage ft <sup>2</sup>	Baseline Average Site EUI (kBtu/ft <sup>2</sup> )	Baseline Year	Current Average Site EUI (kBtu/ft <sup>2</sup> )	Current Year	Current National Median Average Site EUI(kBtu/ft <sup>2</sup> )
Police Department	Police Station	41,400	85.6	03/31/2019	83.8	12/31/2019	52.2
Transfer Station	Distribution Center	29,144	11.5	09/30/2018	11.6	01/31/2020	15
Public Services Building/PW Maintenance Yard	Office	82,212	6.1	12/31/2016	15	12/31/2019	77
Fire Dept. Training Facility	Office	4,965	7.8	03/31/2019	11.1	12/31/2019	50.8
Fire Station 3	Fire Station	11,000	34.7	09/30/2018	42.3	01/31/2020	44.6
Senior Center	Social/Meeting Hall	27,237	60.3	03/31/2019	56.4	12/31/2019	50
Fire Station 1	Fire Station	28,967	28.1	03/31/2019	27	12/31/2019	51.9
Fire Station 2	Fire Station	11,620	37.6	02/28/2019	35.6	12/31/2019	57.3
Cardiff Parking Structure	Parking	130,950	4.4	09/30/2017	4.1	02/29/2020	
Watseka Parking Structure	Parking	111,930	4	09/30/2017	4	02/29/2020	
El Marino Park	Other - Recreation	1,975	30.8	02/28/2018	26.1	01/31/2020	40
West Alexander Park	Other - Recreation	9,433	21.9	02/28/2019	21.7	12/31/2019	40.2
Lindberg Park	Other - Recreation	10,968	4.4	03/31/2019	5.1	12/31/2019	61.3
Ince Parking Structure	Parking	50,830	29.4	09/30/2017	16.5	02/29/2020	
City Hall	Office	273,687	11.9	12/31/2016	21.3	03/31/2019	70.6
Transportation Facility	Transportation Terminal/Station	99,000	1039.1	12/31/2018	1032.9	01/31/2020	99.2

## Appendix A – Annual Comparison

Site Name	Address	Prior Year Electric Consumption (kWh)	Current Year Electric Consumption (kWh)	Annual Change in Electricity (%)	Prior Year Gas Consumption (therms)	Current Year Gas Consumption (therms)	Annual Change in Gas (%)	Annual Change in Energy MMBtus
CITY POOL	4175 OVERLAND AVE	-	-	-	56,060	67,504	20.4%	20.4%
TRANSPORTATION SERVICES	4343 DUQUESNE	1,373,775	1,349,120	-1.8%	8,115	18,184	124%	16.7%
POLICE DEPT	4040 DUQUESNE	792,763	528,148	-33.4%	7,903	7,931	0.2%	-25.7%
CITY HALL	9770 CULVER BLVD	1,362,959	1,215,501	-10.8%	14,822	13,878	-6.4%	-9.7%
INCE PARKING STRUCTURE	9099 WASHINGTON BLVD	285,890	237,061	-17.1%	-	-	-	-17.1%
VETERANS MEMORIAL PARK	4117 OVERLAND AVE	929,817	918,076	-1.2%	3,336	4,762	42.7%	3.0%
FIRE STATION #3	6030 BRISTOL PKWY	109,775	131,039	19.4%	-	-	-	19.4%
CULVER CITY PARK	9700 JEFFERSON BLVD	130,940	150,367	14.8%	-	-	-	14.8%
5900 SEPULVEDA	5900 SEPULVEDA BLVD	21,427	28,747	34.2%	-	-	-	34.2%
SENIOR CENTER	4095 OVERLAND AVE	311,849	295,099	-5.4%	4,746	5,532	16.6%	13.9%

Key: Displays Buildings with the top 10 absolute change in MMBtu from baseline period to analysis period. Usage data in Appendix A is not weather-normalized.

## Appendix B – Methodology

### 1. Data Sources

- Building information, energy usage and cost data used in this analysis were derived from: ENERGY STAR Portfolio Manager and 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 September 1, 2018 – August 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 and energy intensity, 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 CO<sub>2</sub>/MWh + 11.91 lbs CO<sub>2</sub>/therm [1,2].

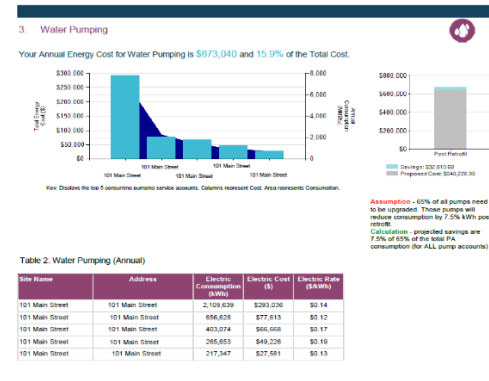
## 2. Total Energy Portfolio

- 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
  - Outdoor & Parks Lights



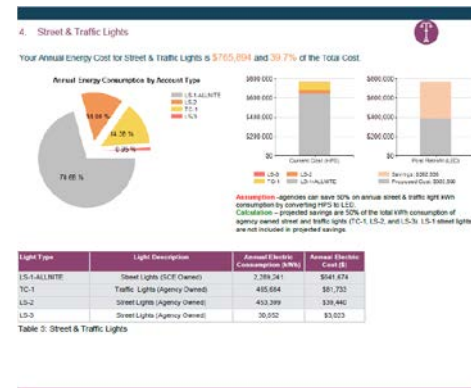
## 3. Water Pumping

- 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].



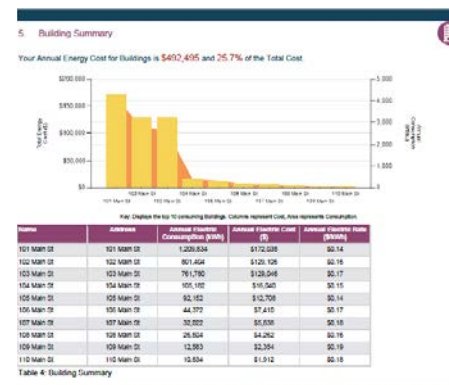
## 4. Street & Traffic Lights

- 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].



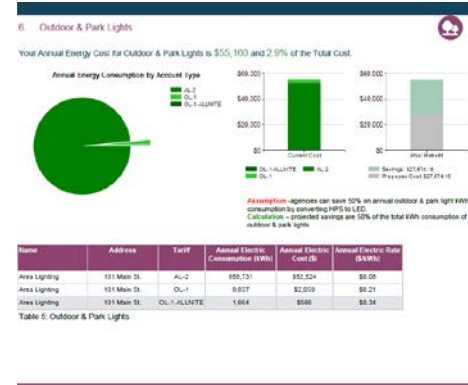
## 5. Building Summary

- 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).
- Police Department was manually added. SCE billing data had no information for June-August 2019.



## 6. Outdoor & Park Lights

- Outdoor & park lights data represents an analysis of annual energy costs, annual energy consumption (kWh) and total annual energy costs per SCE outdoor and park lighting tariff type.



## Appendix A - Annual Comparison

- Annual comparison data includes the following metrics for the agency buildings with the greatest change (absolute value) in annual energy consumption (MMBtu) from baseline period to analysis period: annual energy costs, annual energy consumption (kWh and therms).
- Baseline period for electricity and gas results were based on usage during September 1, 2017 – August 31, 2018.
- Analysis period for electricity and gas results were based on usage during September 1, 2018 – August 31, 2019.

Appendix A - Annual Comparison

Site Name	Address	Prior Year Electric Consumption (kWh)	Current Year Electric Consumption (kWh)	Annual Change in Electricity Consumption (%)	Prior Year Gas Consumption (therms)	Current Year Gas Consumption (therms)	Annual Change in Gas (%)	Annual Change in Energy Expenditure
CITY POOL	4175 OVERLAND AVE	58,060	87,004	20.4%	-	-	-	20.4%
TRANSPORTATION SERVICES	4343 DUQUESNE	1,373,775	1,348,120	-1.8%	8,115	18,184	124%	16.7%
POLICE DEPT	4040 DUQUESNE	792,763	528,148	-33.4%	7,803	7,891	0.2%	-25.7%
CITY HALL	9778 CULVER BLVD	1,382,959	1,215,501	-10.8%	14,822	13,878	-6.4%	-9.7%
RICE PARKING STRUCTURE	9098 WASHINGTON BLVD	265,890	227,061	-17.1%	-	-	-	-17.1%
VETERANS MEMORIAL PARK	4117 OVERLAND AVE	829,817	918,076	11.2%	3,338	4,762	42.7%	3.0%
FIRE STATION #3	6030 BRISTOL PKWY	108,775	131,039	19.4%	-	-	-	19.4%
CULVER CITY PARK	8700 JEFFERSON BLVD	136,840	150,367	14.8%	-	-	-	14.8%
5900 SEPULVEDA	5900 SEPULVEDA BLVD	21,427	28,747	34.2%	-	-	-	34.2%
SENIOR CENTER	4055 OVERLAND AVE	311,840	295,050	-5.4%	4,746	5,532	16.6%	13.0%

Key: Display Buildings with the top 10 absolute change in MMBtu from baseline period to analysis period. Usage data in Appendix A is not auditor-confirmed.

## Endnotes

[1] Corporate Responsibility Report. (2015). In Southern California Edison. Retrieved from [https://www.sce.com/wps/wcm/connect/c0fcef5-e04a-4287-8301-8e66e3e5fbac/2014\\_Corporate+Responsibility+Report\\_FINAL+single-page.pdf?MOD=AJPERES&ContentCache=NONE](https://www.sce.com/wps/wcm/connect/c0fcef5-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](https://www.arb.ca.gov/cc/scopingplan/document/appendices_volume2.pdf)

[3] Based on SoCalREN previous project estimates.

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