

Comparative Energy Analysis Report

Prepared for
City of Paramount

Prepared by
The Energy Coalition

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

Date
8/15/2019

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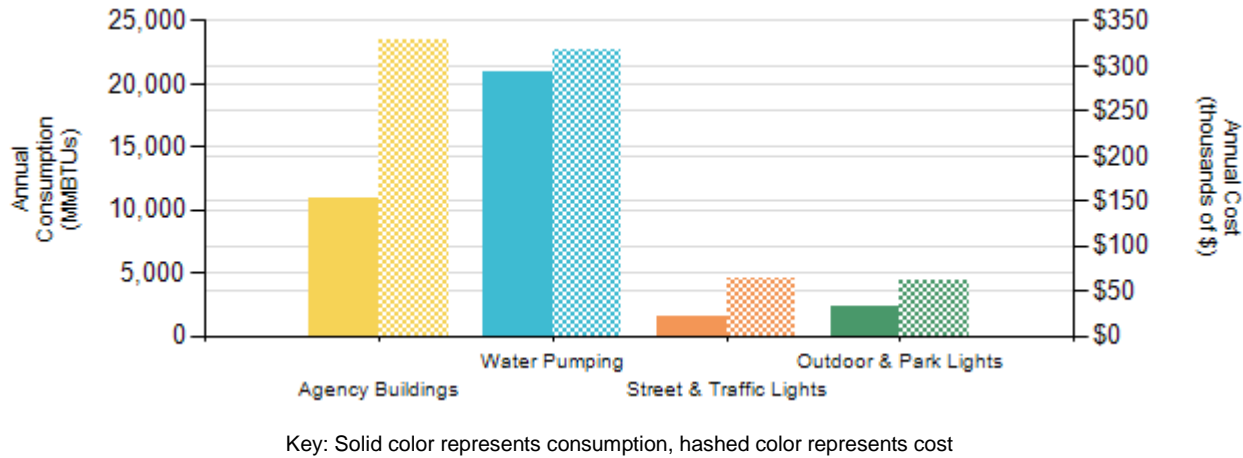
1. Overview

This report is intended to provide a framework for the City of Paramount, 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 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 **\$771,989**



Annual Energy Costs

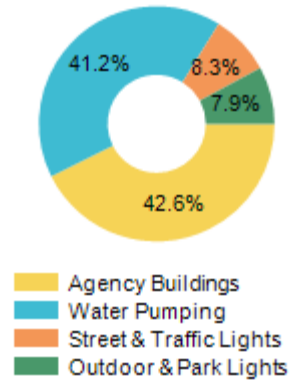


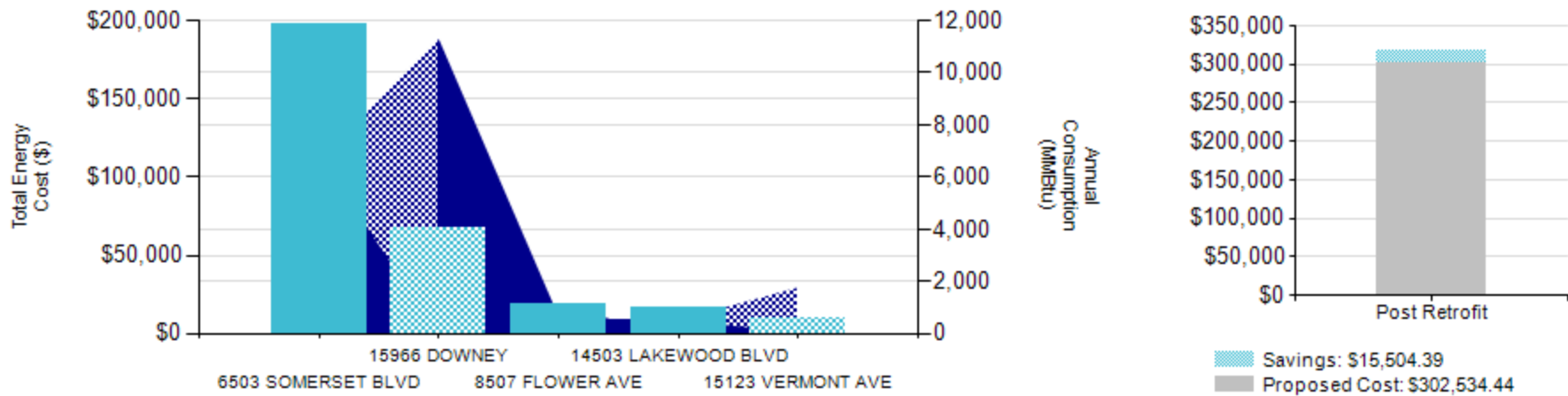
Table 1: Total Energy Portfolio (Annual)

Agency Energy Use	Electric Consumption (kWh)	Electric Cost (\$)	Gas Consumption (therms)	Gas Cost (\$)	Total Energy Consumption (MBTUs)	Total Energy Cost (\$)	GHG Emissions (lbs CO2)
Agency Buildings	1,668,849	\$297,401	52,832	\$31,699	10,974,013	\$329,100	862,795
Water Pumping	2,311,102	\$240,102	129,895	\$77,937	20,870,358	\$318,039	1,194,840
Street & Traffic Lights	453,919	\$64,036	0	\$0	1,547,864	\$64,036	234,676
Outdoor & Park Lights	662,119	\$60,815	0	\$0	2,257,826	\$60,815	342,316



3. Water Pumping

Your Annual Energy Cost for Water Pumping is **\$318,039** and **41.2%** of the Total Cost.



Key: Displays the top 5 consuming pumping service accounts. Columns represent Cost, Area represents Consumption. Electricity is the solid shade, Natural Gas is the hashed shade.

Table 2: Water Pumping (Annual)

Site Name	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)
WELL #15	6503 SOMERSET BLVD	1,959,256	\$197,689	\$0.10	0	\$0	\$0.00
WELL #14	15966 DOWNEY	0	\$0	\$0.00	112,539	\$67,523	\$0.60
FOUNTAIN	8507 FLOWER AVE	168,382	\$18,387	\$0.11	0	\$0	\$0.00
FOUNTAIN	14503 LAKEWOOD BLVD	147,226	\$16,813	\$0.11	0	\$0	\$0.00
WELL #13	15123 VERMONT AVE	0	\$0	\$0.00	17,356	\$10,414	\$0.60

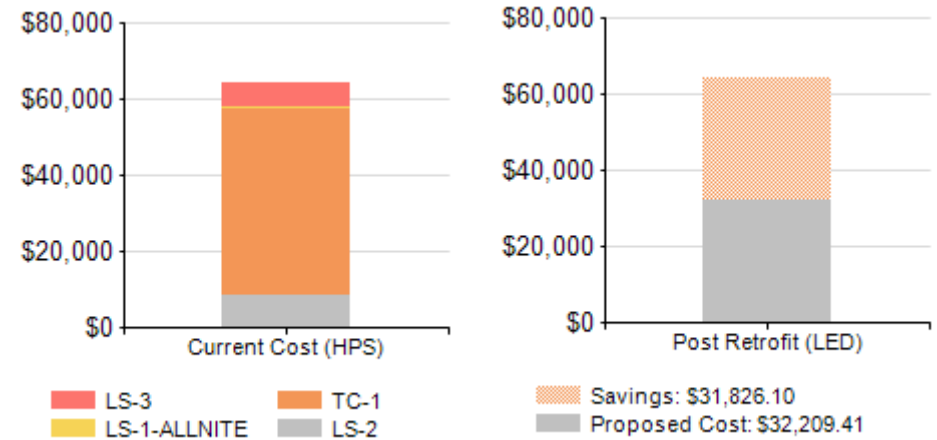
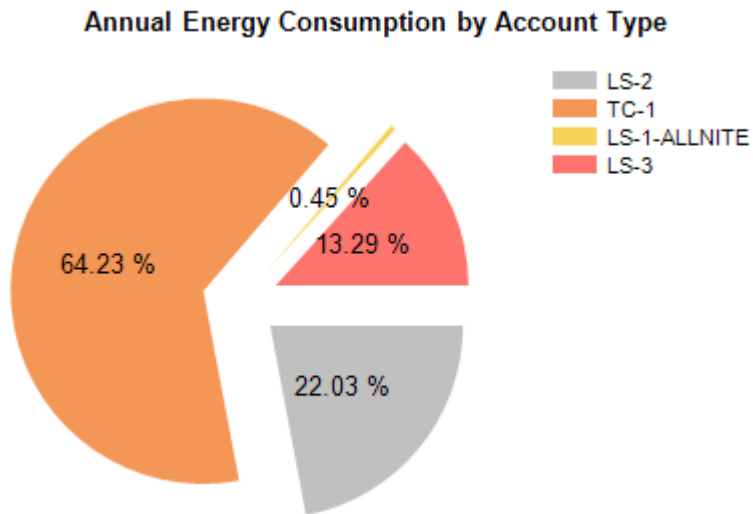
Assumption - 65% of all pumps need to be upgraded. Those pumps will reduce consumption by 7.5% kWh post retrofit.

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 **\$64,036** and **8.3%** 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.

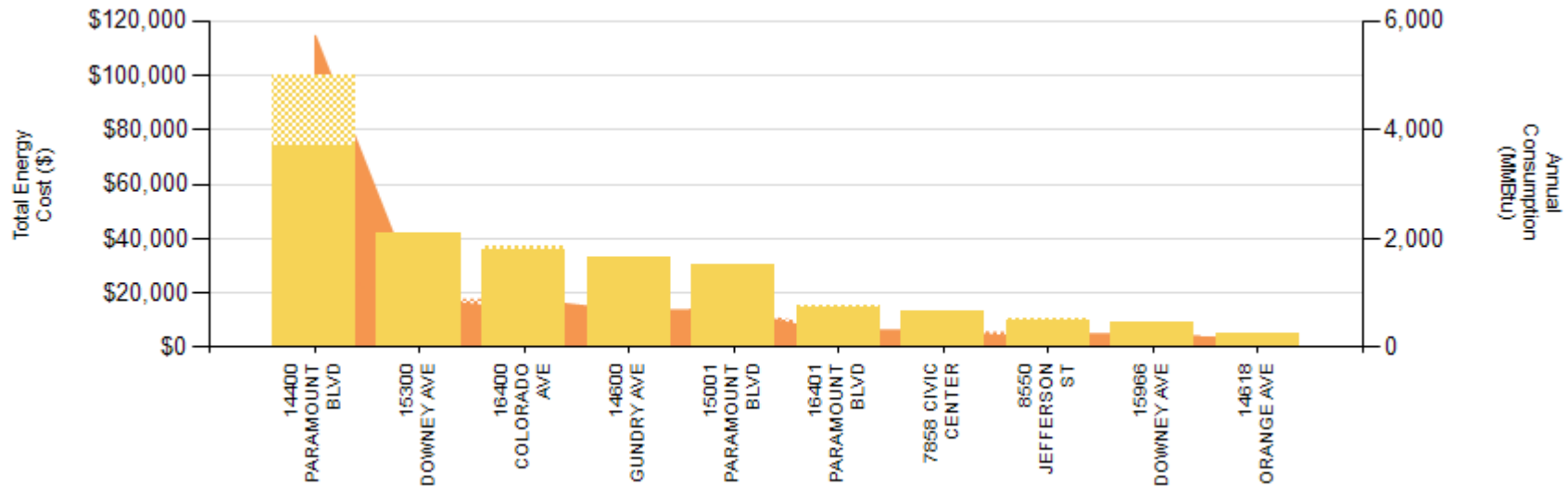
Table 3: Street & Traffic Lights (Annual)

Tariff	Tariff Description	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)
TC-1	Traffic Signal Lights (Agency Owned)	291,541	\$48,992	0.17
LS-2	Street Lights (Agency Owned - unmetered)	99,996	\$8,521	0.09
LS-3	Street Lights (Agency Owned - metered)	60,342	\$6,140	0.10
LS-1-ALLNITE	Street Lights (SCE Owned)	2,040	\$383	0.19



5. Building Summary

Your Annual Energy Cost for Buildings is **\$329,100** and **42.6%** 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.

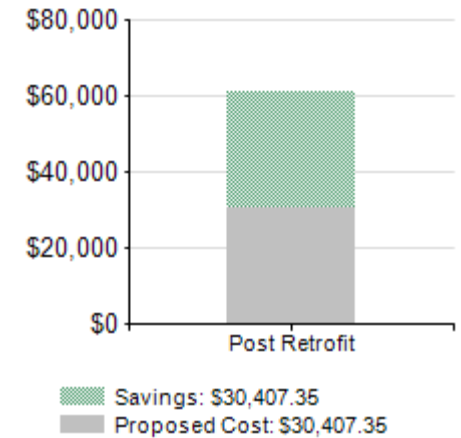
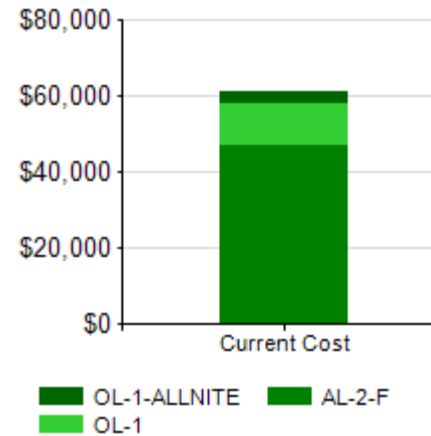
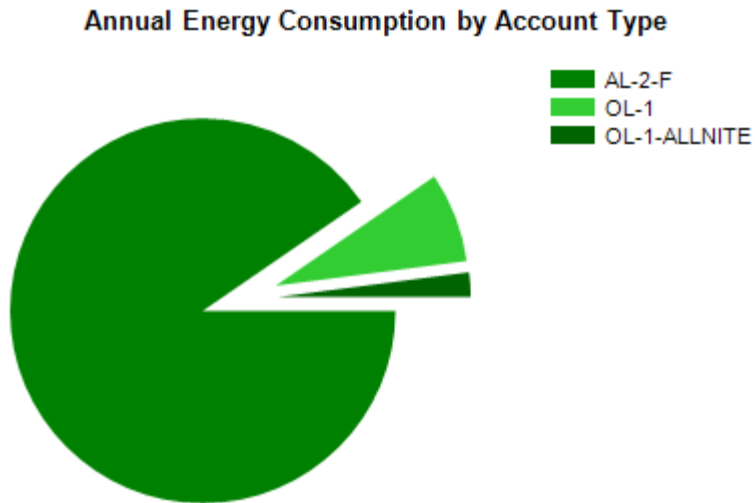
Table 4: Building Summary (Annual)

	Address	Electric Consumption (kWh)	Electric Cost (\$)	Electric Rate (\$/kWh)	Gas Consumption (therms)	Gas Cost (\$)	Gas Rate (\$/therm)	Disadvantaged Community? (Y/N)
PARAMOUNT PARK	14400 PARAMOUNT BLVD	396,384	\$73,939	\$0.19	43,796	\$26,277	\$0.60	Y
PUBLIC WORKS DEPT	15300 DOWNEY AVE	258,284	\$41,997	\$0.16	0	\$0	\$0.00	Y
CITY HALL	16400 COLORADO AVE	207,033	\$35,941	\$0.17	1,810	\$1,086	\$0.60	Y
SPANE PARK	14600 GUNDRY AVE	196,827	\$32,732	\$0.17	0	\$0	\$0.00	Y
SHERIFF STATION	15001 PARAMOUNT BLVD	201,374	\$30,530	\$0.15	0	\$0	\$0.00	Y
GATEWAY CITIES	16401 PARAMOUNT BLVD	71,997	\$14,810	\$0.21	895	\$537	\$0.60	Y
CIVIC CTR FOUNTAINS	7858 CIVIC CENTER	87,428	\$12,913	\$0.15	0	\$0	\$0.00	Y
MARIPOSA CENTER	8550 JEFFERSON ST	46,661	\$9,892	\$0.21	940	\$564	\$0.60	Y
WELL #14 BLDG	15966 DOWNEY AVE	73,707	\$8,978	\$0.12	0	\$0	\$0.00	Y
SPLASH ZONE	14618 ORANGE AVE	36,341	\$5,277	\$0.15	0	\$0	\$0.00	Y

6. Outdoor & Park Lights



Your Annual Energy Cost for Outdoor & Park Lights is **\$60,815** and **7.9%** 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	598,531	\$46,843	\$0.08
Area Lighting	Various	OL-1	50,004	\$10,917	\$0.22
Area Lighting	Various	OL-1-ALLNITE	13,584	\$3,055	\$0.22

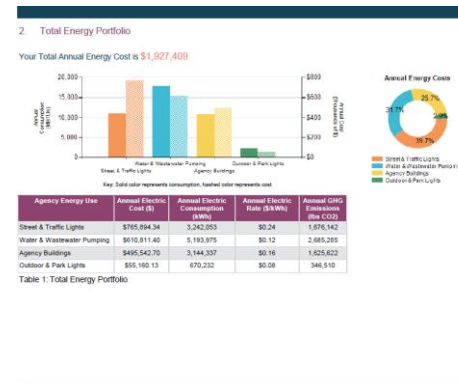
Appendix A - Methodology

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
- All electricity and gas results were based on usage during period May 1, 2018 – April 30, 2019.
- In the absence of SCG gas cost data, an assumed rate of \$0.60/therm was used for this analysis.
- 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].

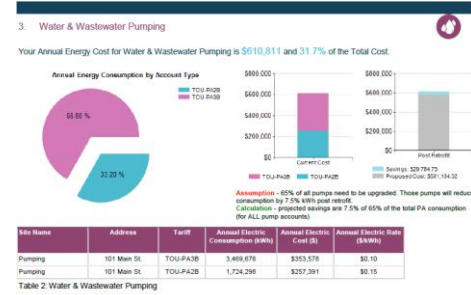
2. Total Energy Portfolio

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



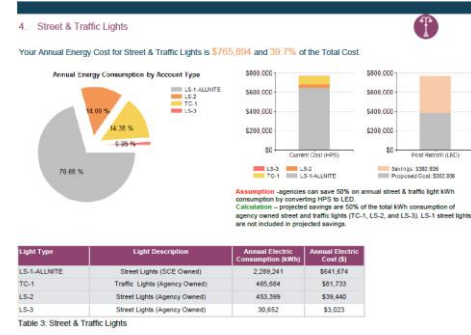
3. Water Pumping

- Water pumping data represents an analysis of the top five highest energy consuming water and wastewater pumping SCE service accounts annual energy costs, annual energy consumption (kWh), GHG Emissions, and total annual energy costs based on MBtus.
- 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].



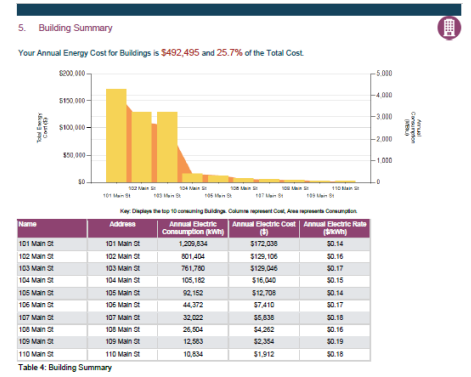
4. Street & Traffic Lights

- Street & traffic light data represents an analysis of annual energy costs, annual energy consumption (kWh), GHG Emissions 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].



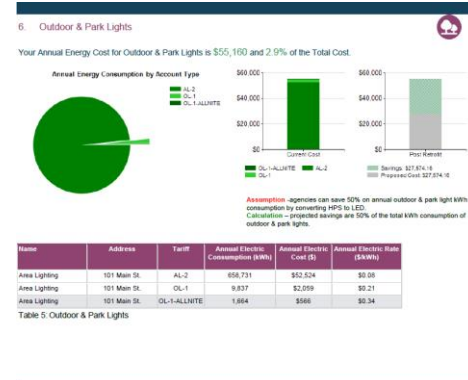
5. Building Summary

- Building summary data represents an analysis of the top ten highest energy consuming agency buildings annual energy costs, annual energy consumption (kWh), GHG Emissions, and total annual energy costs based on MBtus.



6. Outdoor & Park Lights

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



Certain properties did not have energy usage data for the range of the analysis period and were excluded:

- Electric
 - Garfield W/S Rosecrans – Service Account #1062441
 - Somerset W/O Downey – Service Account #1184706
- Gas
 - 14618 Orange Ave – Service Account #1597062900

Certain properties could not be matched to gas or electricity usage data and were excluded:

- Electric
 - 14007 Garfield Ave – Service Account #1461143
 - 14501 Paramount Blvd – Service Account #530675
 - 14601 Downey Ave – Service Account #4662738
 - 15001 Paramount Blvd – Service Accounts #31504509, 31504533
- Rosecrans SS/ Garfield – Service Account #1184705

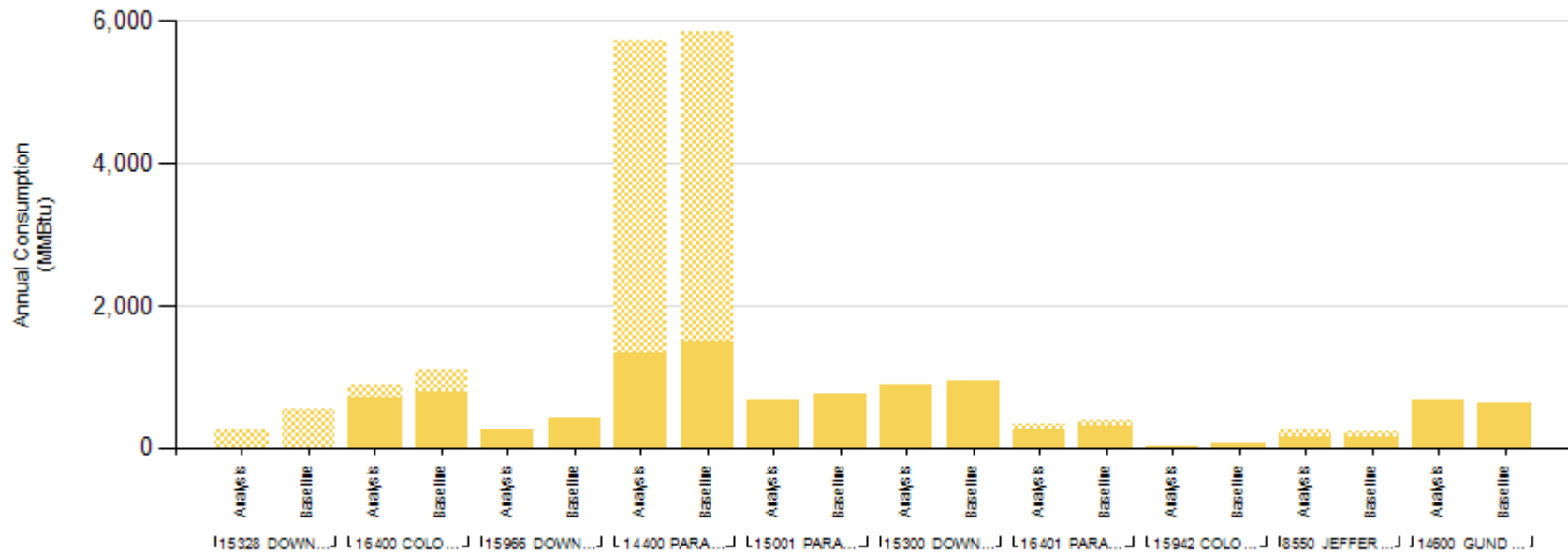
Endnotes

[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

[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.

Appendix B - Annual Comparison



Key: Displays Buildings with the top 10 absolute change in MBtu. Per Building: Baseline columns represents prior year, Analysis represents current year. Electricity is the solid shade, Natural Gas is the hashed shade.

Table 6: 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 MBtu
15328 DOWNEY AVE	15328 DOWNEY AVE	-	-	0.0%	5,460	2,462	-54.9%	-299,805
16400 COLORADO AVE	16400 COLORADO AVE	228,185	207,033	-9.3%	3,226	1,810	-43.9%	-213,700
15966 DOWNEY AVE	15966 DOWNEY AVE	124,395	73,707	-40.7%	-	-	0.0%	-172,846
14400 PARAMOUNT BLVD	14400 PARAMOUNT BLVD	436,353	396,384	-9.2%	43,669	43,796	0.3%	-123,613
15001 PARAMOUNT BLVD	15001 PARAMOUNT BLVD	225,438	201,374	-10.7%	-	-	0.0%	-82,058

15300 DOWNEY AVE	15300 DOWNEY AVE	278,432	258,284	-7.2%	-	-	0.0%	-68,707
16401 PARAMOUNT BLVD	16401 PARAMOUNT BLVD	87,222	71,997	-17.5%	1,005	895	-11.0%	-62,946
15942 COLORADO AVE PLL	15942 COLORADO AVE PLL	17,518	5,971	-65.9%	-	-	0.0%	-39,375
8550 JEFFERSON ST	8550 JEFFERSON ST	40,825	46,661	14.3%	864	940	8.9%	27,573
14600 GUNDRY AVE	14600 GUNDRY AVE	183,927	196,827	7.0%	-	-	0.0%	43,988