
ENERGY EXPENDITURE PLAN



Webster Elementary School

3602 Winter Canyon Road

Malibu, CA 90265

P: (310) 456-6494

PREPARED FOR:

California Energy Commission

Energy Division

Local Assistance and Financing Office, MS-23

1516 Ninth Street

Sacramento, Ca 95814



PREPARED ON:

5/17/2017

Table of Contents

| | |
|--|----|
| Section 1: Facility Background..... | 3 |
| Webster Elementary School..... | 3 |
| Utility Costs and Rate Schedules..... | 4 |
| Benchmarking..... | 5 |
| Section 2: Energy Efficiency Measures (EEM) Summary..... | 6 |
| Lighting Systems Retrofit..... | 7 |
| Appendix – A..... | 8 |
| School Schedules and Maps..... | 8 |
| Daily Bell Schedule and Academic Calendar..... | 9 |
| Webster Elementary School Map..... | 11 |
| Appendix – B..... | 12 |
| Energy Utilization Analysis..... | 12 |
| Appendix – C | 15 |
| Lighting Systems Audit..... | 15 |

Section 1: Facility Background

Webster Elementary School

Webster Elementary School is located at 3602 Winter Canyon Road in Malibu, CA 90265. It is an elementary school serving approximately 292 students ranging from grades K-5 and provides instruction using 8 permanent buildings and 3 portable buildings. The total amount of occupied space is 36,384 SF. For a complete map of the campus, see Appendix A.

The campus operates on an academic calendar that begins in late August and ends in late June. Winter Break is a two week break that begins at the end of December and goes to the first week of January. Spring Break is a one week break that begins in early-April. School is in session beginning at 8:40 a.m. and continuing until 3:00 p.m., Monday through Friday. For a complete academic calendar and bell schedule, refer to Appendix A.



Utility Costs and Rate Schedules

The Webster Elementary School facilities receive electricity services from Southern California Edison (SCE) and gas services from SoCalGas (SCG). Monthly utility data is considered separately for each utility meter and each energy type (electricity, natural gas, propane, diesel, and water).

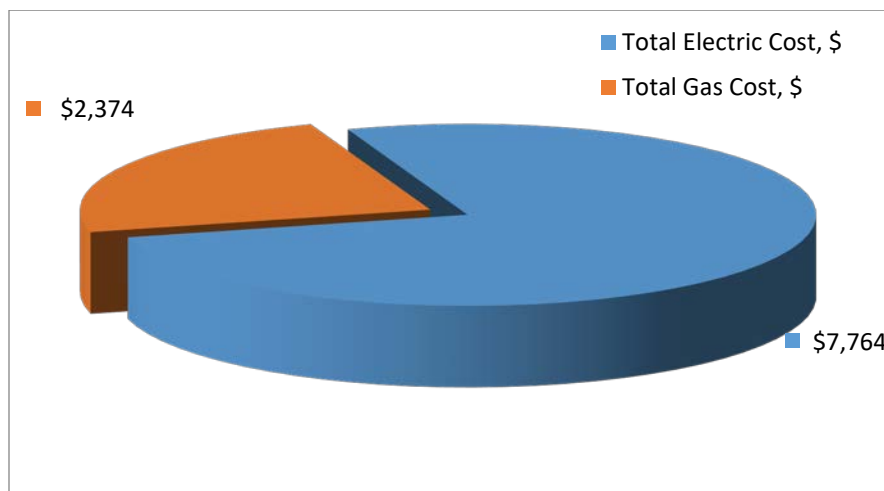
The following is a list of the meters associated with each energy type utilized at Webster Elementary School:

| Table 1: Electric Meter Numbers and Rate Schedules | | |
|--|---------------|---------------|
| Account Number | Meter Number | Rate Schedule |
| 3-001-9056-09 | 259000-068024 | TOU-GS-2-R |

| Table 2: Gas or Propane Meter Numbers and Rate Schedules | | |
|--|--------------|---------------|
| Account Number | Meter Number | Rate Schedule |
| 705035367 | 10903611 | GN-10 |

Also located on site is a 93.4 kW photovoltaic array, installed in 2013, that produced 135,696 kWh from July, 2015 to June, 2016.

The utility data provided uses the data recovered from each of these meters during the period of July, 2015 to June, 2016. The cost comparison of Webster Elementary School’s gas and electricity costs can be seen in the table below:



Benchmarking

As part of the site evaluation we determined the Energy Utilization Analysis (EUA) to provide important information about the energy usage of the school. Listed in the table below is the Benchmarking Report for Webster Elementary School:

| Energy Use Intensity Calculator | | | | | |
|---------------------------------|----------------|-------------|--------------------------|-------------|----------------|
| Electricity | | Natural Gas | | Other Fuels | |
| 0.00 | <i>W/SF</i> | 0.07 | <i>Therms/SF</i> | 0.00 | <i>Gals/SF</i> |
| 5.91 | <i>kWh/SF</i> | \$ 0.07 | <i>Cost/SF</i> | \$ 0.00 | <i>Cost/SF</i> |
| \$ 0.21 | <i>Cost/SF</i> | | | | |
| Energy Costs/SF/Year | | \$ 0.28 | Energy Use(Kbtu)/SF/Year | | 70.58 |

The main purpose of this report is to assess the current energy usage of Webster Elementary School. Energy consumption is analyzed compared to the site's actual weather data expressed in Cooling Degree Days (CDD) & Heating Degree Days (HDD). Graphs comparing the energy consumption to the CDD and HDD can be found in Appendix B.

The Baseline Energy Utilization Analysis (EUA) report compiles the monthly energy data from all meters on site. The EUA is useful in identifying critical energy consuming benchmarks like kWh/SF, kBtu/SF, and Cost/SF for each fuel type and individual school site. This report is a great resource to have for identifying the lowest energy performing schools. The report ranking will present the schools that consume the most energy when compared to others within the district or other comparable districts. The considered school is rated at 5.91 kWh/SF/yr.

The baseline EUA summary of all the meters for Webster Elementary School can be found in Appendix B.

Section 2: Energy Efficiency Measures (EEM) Summary

Energy savings are based on the difference between annual energy use under existing conditions and annual energy use under proposed conditions. These annual energy savings, and the corresponding annual energy cost savings, are used to determine the cost-effectiveness of the projects. Demand savings are calculated as the different between the electricity demand of the existing equipment and electricity demand of proposed equipment. The table below shows the Energy Efficiency Measures proposed and the corresponding savings associated with them.

| EEM Number | Energy Efficiency Measure | Demand Savings (kW) | Electricity Savings (kWH/yr) | Natural Gas or Fuel Savings (therms or gal/yr) | Annual Cost Savings (\$) | Rebates and Grants (\$) | Installed Measure Cost (\$) |
|------------|---|---------------------|------------------------------|--|--------------------------|-------------------------|-----------------------------|
| Lighting | Lighting – Interior Fixture Retrofit | 15 | 28,290 | | \$2,772.00 | \$36,000.00 | \$72,235.00 |
| Lighting | Lighting – Exterior Fixture Retrofit | 3 | 11,819 | | \$1,158.00 | \$13,000.00 | \$27,278.00 |
| Lighting | Lighting – Retrofit Interior Lamps to LED | 9 | 14,029 | | \$1,375.00 | \$17,000.00 | \$34,591.00 |
| | Totals | 27 | 54,138 | | \$5,305.00 | \$66,000.00 | \$134,104.00 |

Lighting Systems Retrofit

A significant portion of a facilities electrical costs comes from lighting, making lighting retrofits one of the quickest and simplest methods for reducing utility costs. In most cases the retrofits will result in improved light quality and reduced maintenance costs in addition to the estimated energy savings.

The method used for calculating energy savings is outlined below:

$$\text{Annual Saving, } \$ = (\text{Existing Watts} - \text{New Watts}) / 1000 \times \text{Hours/Year} \times \text{Utility Rate} \times N$$

Where,

Existing Watts – Wattage rating for the existing (Baseline) light fixture

New Watts – New wattage rating for the existing light fixture

Hours/Year – Annual number of “burn-hours” (run hours for different areas; see detailed audit in Appendix C)

Utility Rate – Actual weighted composite utility rate, \$/kWh

N – Number of light fixtures of the particular type (see below & in Appendix C for the actual quantities).

The current interior lighting systems in the Webster Elementary School buildings consist of a combination of 1st generation T-8, T-12, compact fluorescent, and incandescent lamps and fixtures. Following examination of the data collected, a full retrofit of the lighting system with LED lamps and fixtures is recommended.

The current exterior lighting systems in the Webster Elementary School buildings consist of compact fluorescent, 1st generation T-8, metal halide, high pressure sodium, and incandescent lamps and fixtures. Following examination of the data collected, a full retrofit of the lighting system with LED lamps and fixtures is recommended.

This retrofit will generate more saving, electrical demand reduction and better payback than other Energy Conservation Measures such as HVAC replacements. Upon installment of the new system, the campus will conserve 27.9227 kW and 54,138 kWh per year. The cost savings per year will be approximately \$5,305.49. A full detailed audit of the current lighting system implemented in the entire campus can be found in Appendix C.

Appendix – A

School Schedules and Maps

Daily Bell Schedule and Academic Calendar

| <u>REGULAR SCHEDULE</u> | <u>MINIMUM DAY SCHEDULE</u> | <u>WEDS LATE START</u> |
|--|--|---|
| <u>TK and Kindergarten</u> | <u>TK and Kindergarten</u> | <u>TK and Kindergarten</u> |
| 8:40am School Begins | 8:40am School Begins | 10:00am School Begins |
| 10:15am – 10:30am Recess | 10:15 – 10:30am Recess | 12:10pm – 1:00pm Lunch |
| 12:10pm – 1:00pm Lunch | 11:45am School Dismissed | 1:45pm School Dismissed |
| 1:45pm School Dismissed | | |
| <u>REGULAR SCHEDULE</u> | <u>MINIMUM DAY SCHEDULE</u> | <u>WEDS LATE START</u> |
| <u>1st and 2nd grades</u> | <u>1st and 2nd grades</u> | <u>1st and 2nd grades</u> |
| 8:40am School Begins | 8:40am School Begins | 10:00am School Begins |
| 10:15am – 10:30am Recess | 10:15am – 10:30am Recess | 12:10pm – 1:00pm Lunch |
| 12:10pm – 1:00pm Lunch | 12:15pm – 12:45pm Lunch | 3:00pm School Dismissed |
| 3:00pm School Dismissed | 1:15pm School Dismissed | |
| <u>REGULAR SCHEDULE</u> | <u>MINIMUM DAY SCHEDULE</u> | <u>WEDS LATE START</u> |
| <u>3rd, 4th and 5th grades</u> | <u>3rd, 4th and 5th grades</u> | <u>3rd, 4th, and 5th grades</u> |
| 8:40am School Begins | 8:40am School Begins | 10:00am School Begins |
| 10:00am – 10:15am Recess | 10:00am – 10:15am Recess | 11:45am – 12:30pm Lunch |
| 11:45am – 12:30pm Lunch | 11:45am – 12:15pm Lunch | 3:00pm School Dismissed |
| 3:00pm School Dismissed | 1:15pm School Dismissed | |

SANTA MONICA-MALIBU UNIFIED SCHOOL DISTRICT
2016-2017 District Calendar

Approved by the Board of Education: 3/19/15

| July 2016 | | | | | August 2016 | | | | | September 2016 | | | | |
|-----------|----|----|----|----|-------------|----|----|----|----|----------------|----|----|----|----|
| M | T | W | Th | F | M | T | W | Th | F | M | T | W | Th | F |
| 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 |
| 11 | 12 | 13 | 14 | 15 | 8 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 |
| 18 | 19 | 20 | 21 | 22 | 15 | 16 | 17 | 18 | 19 | 19 | 20 | 21 | 22 | 23 |
| 25 | 26 | 27 | 28 | 29 | 22 | 23 | 24 | 25 | 26 | 26 | 27 | 28 | 29 | 30 |

| October 2016 | | | | | November 2016 | | | | | December 2016 | | | | |
|--------------|----|----|----|----|---------------|----|----|----|----|---------------|----|----|----|----|
| M | T | W | Th | F | M | T | W | Th | F | M | T | W | Th | F |
| 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | | | | | 28 | 29 | 30 | | | | | | | |

| January 2017 | | | | | February 2017 | | | | | March 2017 | | | | |
|--------------|----|----|----|----|---------------|----|----|----|----|------------|----|----|----|----|
| M | T | W | Th | F | M | T | W | Th | F | M | T | W | Th | F |
| 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 10 | 11 | 12 | 13 | 14 | 6 | 7 | 8 | 9 | 10 | 6 | 7 | 8 | 9 | 10 |
| 15 | 16 | 17 | 18 | 19 | 13 | 14 | 15 | 16 | 17 | 13 | 14 | 15 | 16 | 17 |
| 23 | 24 | 25 | 26 | 27 | 20 | 21 | 22 | 23 | 24 | 20 | 21 | 22 | 23 | 24 |
| 30 | 31 | | | | 27 | 28 | 29 | 30 | 31 | 27 | 28 | 29 | 30 | 31 |

| April 2017 | | | | | May 2017 | | | | | June 2017 | | | | |
|------------|----|----|----|----|----------|----|----|----|----|-----------|----|----|----|----|
| M | T | W | Th | F | M | T | W | Th | F | M | T | W | Th | F |
| 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 8 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 15 | 16 | 17 | 18 | 19 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 22 | 23 | 24 | 25 | 26 | 26 | 27 | 28 | 29 | 30 |
| | | | | | 29 | 30 | 31 | | | | | | | |

- Legend:**
- = First/Last Day of School
 - = Legal Holiday
 - = Local Holiday (schools/offices closed)
 - = School Recess (classes not in session)
 - = Pupil Free Day (no school for students)
 - = Elem. Pupil Free Day (no school -elem students)
 - = Sec. Pupil Free Day (no school -sec students)
 - = Minimum Day for all students
 - = Certificated Staff Development Days

Employee Work Dates:

Sept. 1, 2016-June 30, 2017: * Classified 11-Month
 *must work 22 days in July/August, 2016

Aug. 8, 2016-June 21, 2017: Classified 10+10

Aug. 15, 2016-June 14, 2017: Classified 10-Month

Aug. 17, 2016-June 9, 2017: Certificated/184 Days

Aug. 18, 2016-June 9, 2017: Certif. CDS/183 Days

Aug. 19, 2016-June 9, 2017: Classified School Year

Teacher Work Days: 184
Student Days: 180

1st Semester: Aug. 22 - Dec. 23 (84 days)

2nd Semester: Jan. 10 - June 9 (96 days)



First Day of Instruction:
 - Monday, August 22, 2016

Last Day of Instruction:
 - Friday, June 9, 2017

Certificated Staff Development Days:
 (No Students)
 - Wednesday, August 17, 2016
 - Thursday, August 18, 2016

HOLIDAYS:
 July 4: 4th of July Holiday
 Sept. 5: Labor Day Holiday
 Oct 3: Local Holiday
 Oct 12: Local Holiday
 Nov. 11: Veteran's Day Holiday
 Nov. 24: Thanksgiving Holiday
 Nov. 25: Legal Holiday (Admission's Day observed)
 Dec. 26, 27: Winter Holidays
 Dec. 30, Jan 2: New Years Holidays
 Jan 16: Martin Luther King Jr. Holiday
 Feb. 20: Presidents' Day Holiday
 Apr. 7: Local Holiday
 Apr. 14: Legal Holiday (Lincoln's B'day observed)
 May 29: Memorial Day Holiday

SCHOOL RECESSES:
 Dec. 26 - Jan 6: Winter Recess
 Apr 3 - Apr 14: Spring Recess

PUPIL-FREE DAYS:
 Aug. 17: All Students
 Aug. 18: All Students
 Aug. 19: All Students
 Nov. 4: **Elementary Students Only**
 Jan. 9: **Secondary Students Only**

MINIMUM DAYS:
 TK/Kindergarten: Aug. 22, Aug. 23, 30, Nov. 7, 8, 9, 10, 23, Dec. 23, May 25, June 9
 Elementary: Aug. 22, 30, Sept. 6, Nov. 7, 8, 9, 10, 23, Dec. 23, May 25, June 9
 Santa Monica Middle Schools: Sept. 8, Nov. 23, Dec. 23, Mar. 31, Apr. 27, June 8, June 9, +1 discretionary
 Malibu MS/HS: Sept. 8, 15, Nov. 23, Dec. 21, 22, 23, March 9, June 6, 7, 8 + 1 discretionary
 Samohi: Sept. 15, Dec. 20, 21, 22, 23, Mar. 9, June 5, 6, 7, 8
 Olympic HS: Sept. 20, Nov. 23, Dec. 23, May 2, June 1, 2, 5, 6, 7, 8, 9

Back to School Nights:
 Tues. Aug. 30 - Elem TK-2
 Tues. Sept. 6 - Elem 3-5
 Thurs. Sept. 8 - Middle School
 Thurs. Sept. 15 - High School
 Tues. Sept. 20 - Olympic HS

Open House Nights:
 Thurs. May 25 - Elementary
 Thurs. April 27 - SM Middle Schools
 Thurs. March 9 - Malibu MS/HS and Samohi
 Tues. May 2 - Olympic HS

Promotions/Graduations:
 Wed. June 7 - Elementary
 Fri. June 9 - Middle School
 Thurs. June 8 - MMS 2:00 pm
 Thurs. June 8 - Samohi 5:30 pm
 Wed. May 31 - Olympic HS 5:30 pm

Parent Conference Days (TK-5):
 Nov. 4 - Nov. 10, 2016

Testing Dates: *expected, not confirmed*
 AP Testing: May 1- May 12, 2017
 STAR: April 20 - May 18, 2017
 SBAC: April 20 - May 29, 2017

TK/Kindergarten Roundup:
 Jan. 30 - Feb. 10, 2017

Final Exams:
 Malibu MS/HS: Dec. 21-23, 2016
 June 6-8, 2017
 Samohi: Dec. 20-23, 2016
 June 5-8, 2017

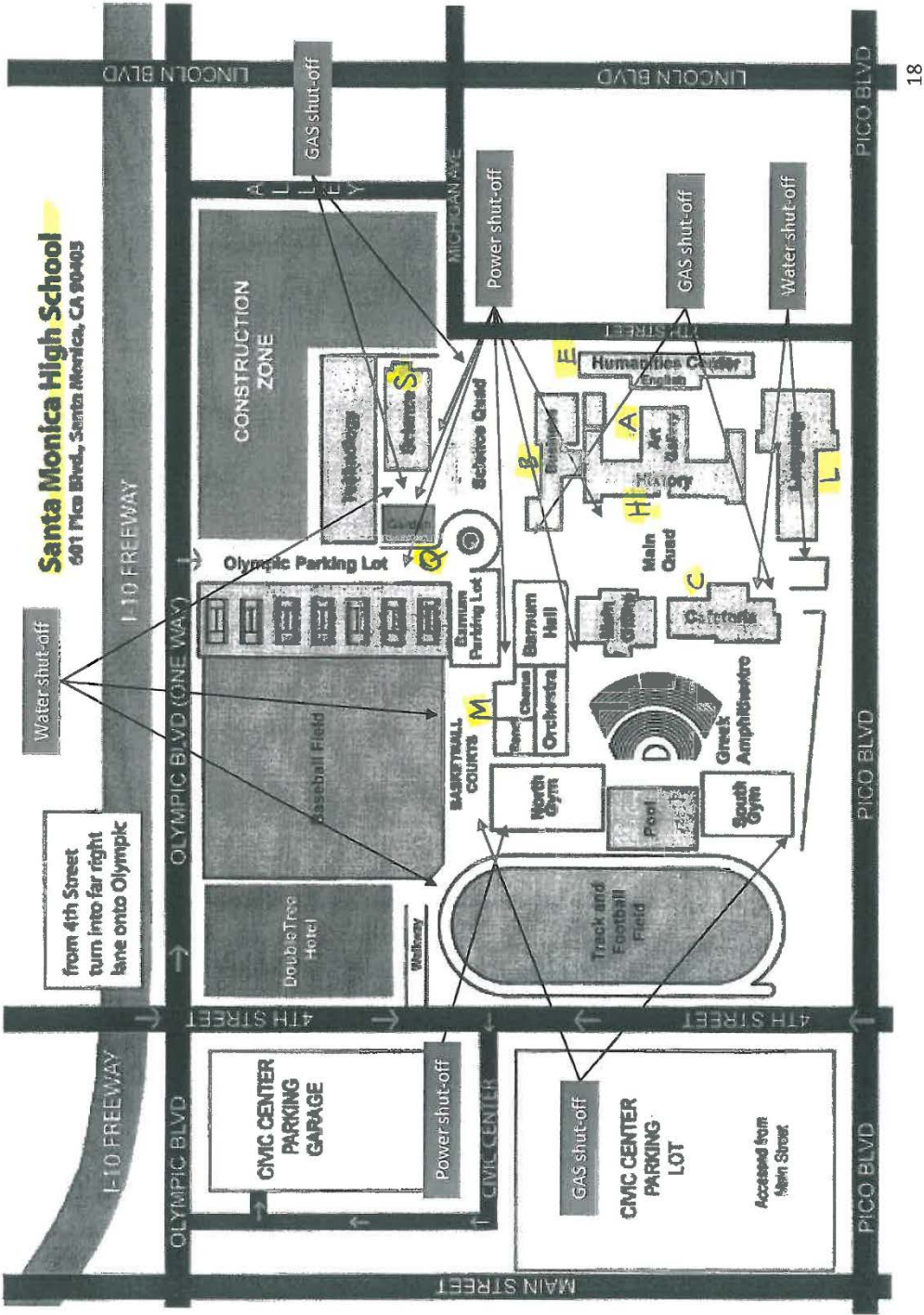
Summer School:
 ISS: June 19-July 14, 2017
 Credit Recovery: June 19-Jul 21, 2017
 ESY: June 19-July 14, 2017

TK-5 Grading Periods:
 Conference: Nov. 4, 2016
 Winter Grading: Feb. 10, 2017
 Spring Grading: June 9, 2017

6-12 Grading Periods:
 Aug. 22 - Sept. 30, 2016
 Oct. 4 - Nov. 10, 2016
 Nov. 14 - Dec. 23, 2016
 Jan. 9 - Feb. 24, 2017
 Feb. 27 - April 28, 2017
 May 1 - June 9, 2017

Revised 3/5/15

Webster Elementary School Map



18

Appendix – B

Energy Utilization Analysis

Customer Name: **Santa Monica-Malibu USD**

Facility Name: Webster Elementary

Elec Utility Name: SCE Natural Gas Utility Name: SCG

Facility Location: 3602 Winter Canyon, Malibu, CA
 Sq. Ft. (conditioned space): 36,384

Billing Period
 FROM: Jul-15
 TO: Jun-16

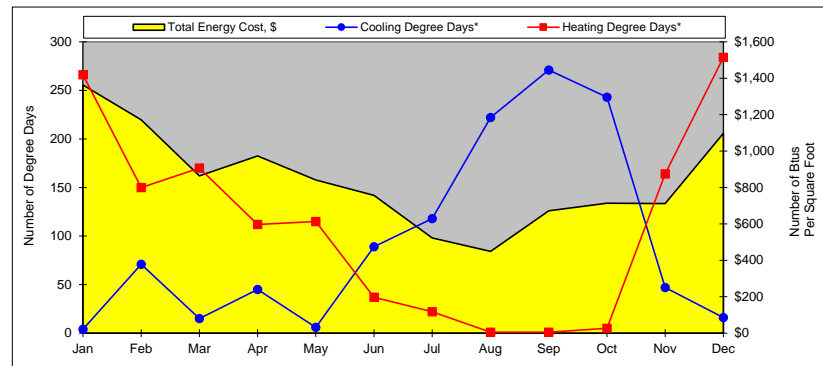
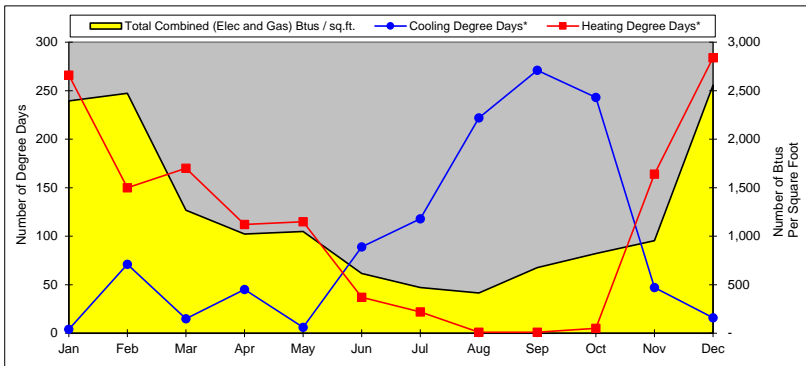
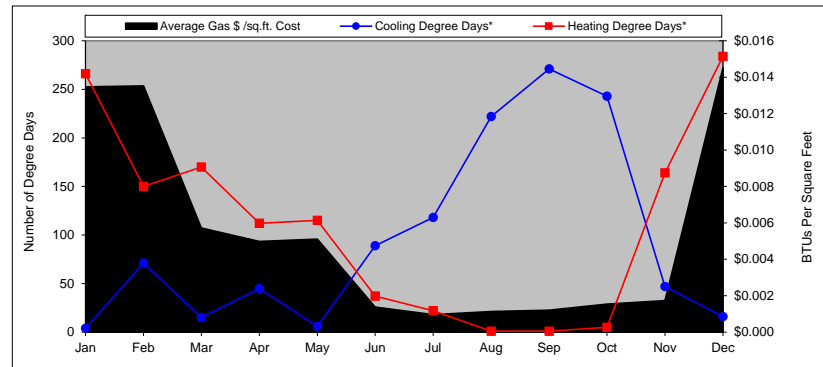
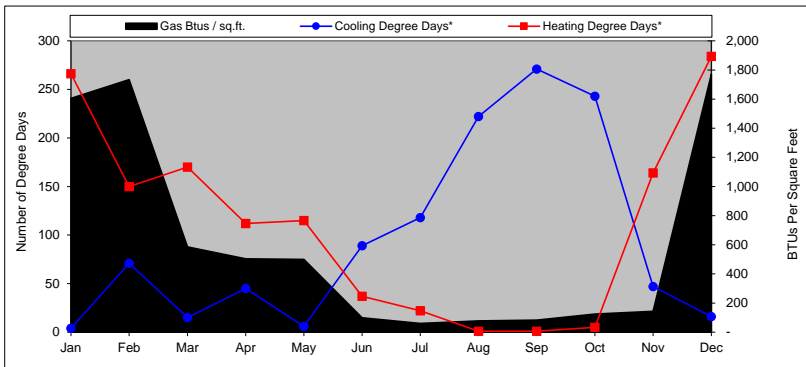
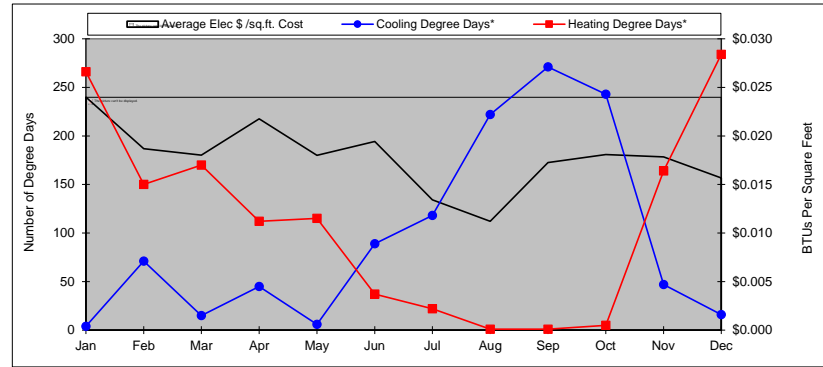
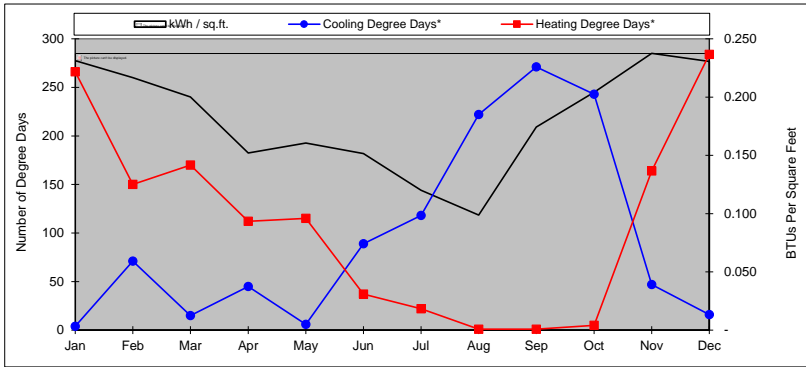
| Account # | Meter # | Rate Schedule | Account # | Meter # | Rate Schedule |
|---------------|---------------|---------------|------------|----------|-----------------------|
| 2-35-574-7387 | 259000-068024 | TOU-GS-2-R | 6307342052 | 10903611 | GN-10-NON-RESIDENTIAL |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | TOTAL ANNUAL (Purchased from SCE) | TOTAL ANNUAL (Purchased from SCE and Solar Production) |
|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------------------|--|
| Cooling Degree Days* | 4 | 71 | 15 | 45 | 6 | 89 | 118 | 222 | 271 | 243 | 47 | 16 | 1,147 | |
| Heating Degree Days* | 266 | 150 | 170 | 112 | 115 | 37 | 22 | 1 | 1 | 5 | 164 | 284 | 1,327 | |
| Days in Billing Period | | | | | | | | | | | | | | |
| electric | 33 | 29 | 29 | 32 | 29 | 30 | 32 | 29 | 30 | 32 | 30 | 30 | 365 | |
| natural gas | 33 | 32 | 29 | 28 | 29 | 32 | 29 | 29 | 32 | 28 | 32 | 33 | 366 | |
| Electric Usage | | | | | | | | | | | | | | |
| kWh per Billing Cycle | 8,412 | 7,881 | 7,282 | 5,528 | 5,844 | 5,512 | 4,368 | 3,594 | 6,340 | 7,429 | 8,642 | 8,391 | 79,223 | 214,919 |
| \$ for kWh Billed | \$873 | \$680 | \$656 | \$792 | \$655 | \$707 | \$488 | \$408 | \$628 | \$658 | \$649 | \$570 | \$7,764 | |
| Max kW Billed | 61 | 40 | 38 | 50 | 38 | 42 | 29 | 21 | 43 | 46 | 45 | 37 | 41 | |
| \$ for kW Billed | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Total Electric Cost, \$ | \$873 | \$680 | \$656 | \$792 | \$655 | \$707 | \$488 | \$408 | \$628 | \$658 | \$649 | \$570 | \$7,764 | |
| Ave. Daily Electric Cost, \$ | \$26 | \$23 | \$23 | \$25 | \$23 | \$24 | \$15 | \$14 | \$21 | \$21 | \$22 | \$19 | \$21 | |
| Average \$/kWh Cost | \$0.104 | \$0.086 | \$0.090 | \$0.143 | \$0.112 | \$0.128 | \$0.112 | \$0.114 | \$0.099 | \$0.089 | \$0.075 | \$0.068 | \$0.098 | |
| Average Elec \$ /sq.ft. Cost | \$0.024 | \$0.019 | \$0.018 | \$0.022 | \$0.018 | \$0.019 | \$0.013 | \$0.011 | \$0.017 | \$0.018 | \$0.018 | \$0.016 | \$0.213 | |
| kWh / sq.ft. | 0.231 | 0.217 | 0.200 | 0.152 | 0.161 | 0.151 | 0.120 | 0.099 | 0.174 | 0.204 | 0.238 | 0.231 | 2.18 | 5.91 |
| Natural Gas Usage | | | | | | | | | | | | | | |
| Therms per Billing Cycle | 584 | 631 | 213 | 183 | 182 | 36 | 22 | 28 | 30 | 45 | 52 | 644 | 2,650 | |
| Total Gas Cost, \$ | \$490 | \$492 | \$208 | \$181 | \$186 | \$50 | \$35 | \$41 | \$44 | \$56 | \$63 | \$528 | \$2,374 | |
| Ave. Daily Gas Cost, \$ | \$15 | \$15 | \$7 | \$6 | \$6 | \$2 | \$1 | \$1 | \$1 | \$2 | \$6 | \$16 | \$6 | |
| Average \$/therm Cost | \$0.839 | \$0.780 | \$0.977 | \$0.989 | \$1.022 | \$1.389 | \$1.591 | \$1.464 | \$1.467 | \$1.244 | \$1.212 | \$0.820 | \$0.896 | |
| Average Gas \$ /sq.ft. Cost | \$0.013 | \$0.014 | \$0.006 | \$0.005 | \$0.005 | \$0.001 | \$0.001 | \$0.001 | \$0.001 | \$0.002 | \$0.002 | \$0.015 | \$0.065 | |
| Gas Btus / sq.ft. | 1,605 | 1,734 | 585 | 503 | 500 | 99 | 60 | 77 | 82 | 124 | 143 | 1,770 | 7,283 | |
| Total Energy Usage | | | | | | | | | | | | | | |
| combined (Elec and Gas) Btus / sq.ft. | 2,394 | 2,474 | 1,269 | 1,022 | 1,048 | 616 | 470 | 414 | 677 | 821 | 954 | 2,557 | 14,715 | |
| Total Energy Cost, \$ | \$1,363 | \$1,172 | \$864 | \$973 | \$841 | \$757 | \$523 | \$449 | \$672 | \$714 | \$712 | \$1,098 | \$10,138 | |
| Ave. Energy \$/sq.ft./period | \$0.04 | \$0.03 | \$0.02 | \$0.03 | \$0.02 | \$0.02 | \$0.01 | \$0.01 | \$0.02 | \$0.02 | \$0.02 | \$0.03 | \$0.28 | |

* Notes:
 1) Heating degree days and cooling degree days are based on 65 F.
 2) Heating degree days and cooling degree days are based on Santa Monica weather data.

Customer: Santa Monica-Malibu USD
Building: Webster Elementary

Energy Used from: Jul-15
to: Jun-16



Appendix – C

Lighting Systems Audit



Address: 0
0

School: WEBSTER ELEMENTARY
School Address: 3602 WINTER CANYON, MALIBU CA
0

LED Option

50.25 22.32 98,642.10 44,504.45 54,137.65 \$ 5,305.49

| ORIGINAL AUDIT ID# | INTERIOR/E | SCHOOL DISTRICT | SCHOOL | ROOM | LIGHTING CODE (EXISTING) | ECM | PROPOSED FIXT | EXIST WATT | PROP WATT | EXIST OPER HRS | PROP OPER HRS | EXISTING KW | PROPOSED KW | EXISTING KWH | PROPOSED KWH | SAVED KWH | ANN SAVINGS |
|--------------------|------------|-------------------|---------------------------|--------------------|---------------------------|---|---------------|------------|-----------|----------------|---------------|-------------|-------------|--------------|--------------|-----------|-------------|
| 2499 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | ADMINISTRATION | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 25 | 87 | 48 | 2185 | 2185 | 2.175 | 1.2 | 4752.375 | 2622 | 2130.375 | \$ 208.78 |
| 2500 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | ADMINISTRATION | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 4 | 59 | 32 | 2185 | 2185 | 0.236 | 0.128 | 515.66 | 279.68 | 235.98 | \$ 23.13 |
| 2501 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | ADMINISTRATION | CF/2P-SING-13W-2L-MB-X-X | (LED)2L GREEN CREATIVE 2PIN LED DIRect or BYPass 5, | 3 | 28 | 11 | 2185 | 2185 | 0.084 | 0.033 | 183.54 | 72.105 | 111.435 | \$ 10.92 |
| 2502 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | ADMINISTRATION | I/S-A19-60W-1L-NONE-X-X | (LED) 1L GREEN CREATIVE A19 9W E26 4000K 850 LM D | 2 | 60 | 9 | 2185 | 2185 | 0.12 | 0.018 | 262.2 | 39.33 | 222.87 | \$ 21.84 |
| 2503 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | RISER | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 1 | 59 | 32 | 400 | 400 | 0.059 | 0.032 | 23.6 | 12.8 | 10.8 | \$ 1.06 |
| 2504 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | FURNACE CLOSET | CF/S-TWST-23W-1L-SELF-X-X | (LED)1L GREEN CREATIVE 12A19G4DIM/840 (16177) (RE | 1 | 23 | 12 | 400 | 400 | 0.023 | 0.012 | 9.2 | 4.8 | 4.4 | \$ 0.43 |
| 2505 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | PTA OFFICE | T12-8'-75W-2L-MB/IS-X-X | (LED)NEW 8' WRAP W/ (4)12T8/4F/850/DIR AND (1)QHE4 | 4 | 123 | 64 | 2185 | 2185 | 0.492 | 0.256 | 1075.02 | 559.36 | 515.66 | \$ 50.53 |
| 2506 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | LIBRARY | T8-4'-32W-3L-EB/ISN-I/O-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHEX32UNV/ISN AN | 24 | 90 | 48 | 1816 | 1816 | 2.16 | 1.152 | 3922.56 | 2092.032 | 1830.528 | \$ 179.39 |
| 2507 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA LOUNGE | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 4 | 87 | 48 | 1696 | 1696 | 0.348 | 0.192 | 590.208 | 325.632 | 264.576 | \$ 25.93 |
| 2508 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA | I/S-R38-150W-1L-NONE-X-X | (LED) TERRALUX 35W TLK-DR10A-B-242-40-DO-0 | 29 | 150 | 35 | 1696 | 1696 | 4.35 | 1.0663 | 7377.6 | 1706.6848 | 5670.9152 | \$ 555.75 |
| 2509 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA | T8-4'-32W-4L-EB/ISN-X-X | (LED)4L 12T8/4F/850/DIR, 97740 (1) QHE4X32UNV/ISN | 6 | 112 | 64 | 1696 | 1696 | 0.672 | 0.384 | 1139.712 | 651.264 | 488.448 | \$ 47.87 |
| 2510 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA STORAGE | I/S-A21-300W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 1 | 300 | 19 | 1696 | 1696 | 0.3 | 0.019 | 508.8 | 32.224 | 476.576 | \$ 46.70 |
| 2511 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | KITCHEN | I/S-A21-300W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 12 | 300 | 19 | 1696 | 1696 | 3.6 | 0.228 | 6105.6 | 386.688 | 5718.912 | \$ 560.45 |
| 2512 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | KITCHEN | I/S-A21-150W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED A21 17W DIM, 17A21G4D | 2 | 150 | 17 | 1696 | 1696 | 0.3 | 0.034 | 508.8 | 57.664 | 451.136 | \$ 44.21 |
| 2513 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | KITCHEN | T12-8'-75W-2L-MB/IS-X-X | (LED)NEW 8' WRAP W/ (4)12T8/4F/850/DIR AND (1)QHE4 | 1 | 123 | 64 | 1696 | 1696 | 0.123 | 0.064 | 208.608 | 108.544 | 100.064 | \$ 9.81 |
| 2514 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA EXTERIOR | I/S-R38-150W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 1 | 150 | 19 | 3650 | 3650 | 0.15 | 0.019 | 547.5 | 69.35 | 478.15 | \$ 46.86 |
| 2515 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA EXTERIOR | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 4 | 59 | 32 | 3650 | 3650 | 0.236 | 0.128 | 861.4 | 467.2 | 394.2 | \$ 38.63 |
| 2516 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA STORAGE | I/S-A21-300W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 2 | 300 | 19 | 400 | 400 | 0.6 | 0.038 | 240 | 15.2 | 224.8 | \$ 22.03 |
| 2517 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | STORAGE NEXT TO 7 | I/S-A21-300W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 1 | 300 | 19 | 400 | 400 | 0.3 | 0.019 | 120 | 7.6 | 112.4 | \$ 11.02 |
| 2518 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | 713 BOOK STORAGE | I/S-A21-300W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 2 | 300 | 19 | 400 | 400 | 0.6 | 0.038 | 240 | 15.2 | 224.8 | \$ 22.03 |
| 2519 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA EXTERIOR | HPS-MED-150W-1L-CWA-X-X | (LED)NEW DECO MEDIUM FLOOD D211-LED-80-50-UNV- | 3 | 188 | 80 | 3650 | 3650 | 0.564 | 0.24 | 2058.6 | 876 | 1182.6 | \$ 115.89 |
| 2520 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CAFETERIA EXTERIOR | I/S-R38-150W-1L-NONE-X-X | (LED)1L GREEN CREATIVE LED 19PAR38HO/840NF25/27 | 1 | 150 | 19 | 3650 | 3650 | 0.15 | 0.019 | 547.5 | 69.35 | 478.15 | \$ 46.86 |
| 2521 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | PLAYGROUND POLES | MH-MED-175W-1L-CWA-X-X | (LED)NEW DECO 60W SHOEBOX D816-LED-60-50-UNV-T | 2 | 215 | 60 | 3650 | 3650 | 0.43 | 0.12 | 1569.5 | 438 | 1131.5 | \$ 110.89 |
| 2522 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | QUAD POST TOP | MH-MED-150W-1L-CWA-X-X | (LED)1L GREEN CREATIVE 98W HID/840/277/EX39 COB-E | 1 | 190 | 98 | 3650 | 3650 | 0.19 | 0.098 | 693.5 | 357.7 | 335.8 | \$ 32.91 |
| 2523 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2524 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2525 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2526 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CLASSROOM WALKW | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 25 | 59 | 32 | 3650 | 3650 | 1.475 | 0.8 | 5383.75 | 2920 | 2463.75 | \$ 241.45 |
| 2527 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2528 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | 103 CUSTODIAN | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 3 | 59 | 32 | 1816 | 1816 | 0.177 | 0.096 | 321.432 | 174.336 | 147.096 | \$ 14.42 |
| 2529 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | RESTROOMS | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 8 | 59 | 32 | 1816 | 1816 | 0.472 | 0.256 | 857.152 | 464.896 | 392.256 | \$ 38.44 |
| 2530 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2531 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | RESTROOMS | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 6 | 59 | 32 | 1816 | 1816 | 0.354 | 0.192 | 642.864 | 348.672 | 294.192 | \$ 28.83 |
| 2532 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CUSTODIAN | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 3 | 59 | 32 | 1816 | 1816 | 0.177 | 0.096 | 321.432 | 174.336 | 147.096 | \$ 14.42 |
| 2533 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2534 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2535 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2536 | EXTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | EXTERIOR | HPS-MED-70W-1L-CWA-X-X | (LED)NEW DECO 30W SMALL WALLPACK D400-LED-30-5 | 1 | 95 | 30 | 3650 | 3650 | 0.095 | 0.03 | 346.75 | 109.5 | 237.25 | \$ 23.25 |
| 2537 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | LOCKED STORAGE NE | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 2 | 59 | 32 | 1816 | 1816 | 0.118 | 0.064 | 214.288 | 116.224 | 98.064 | \$ 9.61 |
| 2538 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2539 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 2 | 59 | 32 | 1816 | 1816 | 0.118 | 0.064 | 214.288 | 116.224 | 98.064 | \$ 9.61 |
| 2540 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | I/S-A19-60W-1L-NONE-X-X | (LED) 1L GREEN CREATIVE A19 9W E26 4000K 850 LM D | 1 | 60 | 9 | 1816 | 1816 | 0.06 | 0.009 | 108.96 | 16.344 | 92.616 | \$ 9.08 |
| 2541 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 12 | 87 | 48 | 1816 | 1816 | 1.044 | 0.576 | 1895.904 | 1046.016 | 849.888 | \$ 83.29 |
| 2542 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | RESTROOMS | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 6 | 59 | 32 | 1816 | 1816 | 0.354 | 0.192 | 642.864 | 348.672 | 294.192 | \$ 28.83 |
| 2543 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | CUSTODIAN | T8-4'-32W-2L-EB/ISN-X-X | (LED)2L 12T8/4F/850/DIR, 97740 (1) QHE2X32UNV/ISN | 2 | 59 | 32 | 1816 | 1816 | 0.118 | 0.064 | 214.288 | 116.224 | 98.064 | \$ 9.61 |
| 2544 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | COMBINED FURNACE | I/S-A19-60W-1L-NONE-X-X | (LED) 1L GREEN CREATIVE A19 9W E26 4000K 850 LM D | 9 | 60 | 9 | 1816 | 1816 | 0.54 | 0.081 | 980.64 | 147.096 | 833.544 | \$ 81.69 |
| 2545 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2546 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2547 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L-EB/ISN-X-X | (LED)3L 12T8/4F/850/DIR, 97740 (1) QHE3X32UNV/ISN | 13 | 87 | 48 | 1816 | 1816 | 1.131 | 0.624 | 2053.896 | 1133.184 | 920.712 | \$ 90.23 |
| 2548 | INTERIOR | NTA MONICA-MALIBU | WEBSTER ELEMENTARY 3602 W | | T8-4'-32W-3L- | | | | | | | | | | | | |