

**PLEASANT VALLEY RECREATION & PARK DISTRICT  
ADMINISTRATION OFFICE – ROOM #6  
1605 E. BURNLEY ST., CAMARILLO, CALIFORNIA**

**FINANCE COMMITTEE  
AGENDA**

**Wednesday, April 21, 2021  
3:00 P.M.**

**Zoom Meeting Information:**

**Meeting Link:** <https://zoom.us/j/96769518130>

**Webinar ID: 967 6951 8130**

**Passcode: 273551**

**Phone Number: 1-669-900-6833**

In order to minimize the spread of COVID-19 and keep with social distancing, the meeting room will not be open to the public. To participate in the Board Committee meeting from the comfort of your home or other Stay Well at Home compliant location, you may choose one of the following options:

- a. Email – If you wish to submit a written comment on a specific agenda item, please send your comment via email by 2:00 pm on Wednesday, April 21, 2021 to Anthony Miller, Administrative Analyst at [amiller@pvrrpd.org](mailto:amiller@pvrrpd.org). Your email will be distributed to the Finance Committee members prior to the meeting and be included in the public record.
- b. Cell Phone/Computer with Microphone: Click on the Zoom webinar link included above. Enter your name so we may call on you when it is your turn to speak. The Chair will ask if anyone wishes to speak on the item. At that time, raise your hand by clicking the “Raise Hand” button. Follow the instructions below regarding speaking.
- c. Phone – If you wish to make a comment by phone during the public comment section of the meeting or on a specific agenda item, please call in to the listed phone number above and when prompted, enter the Webinar ID and Passcode. After entering those items, you will be admitted to the meeting and your line will be muted. The Chair will ask if anyone wishes to speak on the item. At that time, raise your hand by dialing \*9. Then, follow the speaking instructions below.

**Speaking Instructions**

When it is your turn to speak, the Chair will call your name or the last four digits of the phone number you are calling from. You will have three minutes to address the Committee. **Please ensure all background noise is muted (TV, radio, etc.)** You will be prompted to unmute your microphone/phone. Unmute your device and begin by stating your name. After three minutes has elapsed your microphone will be muted and the next speaker will be invited to speak.

- 1. CALL TO ORDER**
- 2. APPROVAL OF AGENDA**
- 3. PUBLIC COMMENTS**

**4. MARCH 2021 FINANCIALS**

**5. ENERGY PARTNERSHIP PROGRAM AUDIT REVIEW**

**6. ORAL DISCUSSION – REVIEW OF POLICIES**

**7. ADJOURNMENT**

**Note:** Written materials related to these agenda items are available for public inspection in the Office of the Clerk of the Board located at 1605 E. Burnley Street, Camarillo during regular business hours beginning the day preceding the Committee meeting.

**Announcement:** Should you need special assistance (i.e. a disability-related modification or accommodations) to participate in the Committee meeting or other District activities (including receipt of an agenda in an appropriate alternative format), as outlined in the Americans With Disabilities Act, or require further information, please contact the General Manager at 482-1996, extension 114. Please notify us 48 hours in advance to provide sufficient time to make a disability-related modification or reasonable accommodation.

## CASH REPORT

	3/31/2021 Balance	3/31/2020 Balance	
<b>Restricted Funds</b>			
Debt Service - Restricted	\$ 356,710.35	\$ 236,199.84	
457 Pension Trust Restricted	\$ 86,359.92	\$ 60,863.39	
Quimby Fee - Restricted	\$ 431,482.30	\$ 120,957.49	
Multi-Bank Securities Restricted	\$ 15,421.14	\$ 415,421.14	
Ventura County Pool - Restricted	\$ 4,538,368.15	\$ 4,928,403.08	
FCDP Checking	\$ 13,465.76	\$ 22,128.61	
<b>Total</b>	<b>\$ 5,441,807.62</b>	<b>\$ 5,783,973.55</b>	
<b>Semi-Restricted Funds</b>			
Assessment	\$ 687,943.20	\$ 629,305.66	
Capital Improvement	\$ 49,702.78	\$ 30,635.71	
Capital - Vehicle Replacement	\$ 79,843.80	\$ 60,843.80	
Capital - Designated Project	\$ 16,397.94	\$ 16,397.94	
LAIF - Capital #1200	\$ 1,792,597.55	\$ 2,555,455.63	
Contingency - Dry Period	\$ 361,000.00	\$ 361,000.00	
Contingency - Computer	\$ 20,000.00	\$ 15,000.00	
Contingency - Repair/Oper/Admin	\$ 200,000.00	\$ 50,000.00	
<b>Total</b>	<b>\$ 3,207,485.27</b>	<b>\$ 3,718,638.74</b>	
<b>Unrestricted Funds</b>			
Contingency	\$ 12,216.32	\$ 76,195.40	
LAIF/Cal Trust - Contingency #1301	\$ 2,318,016.82	\$ 920,008.87	
General Fund Checking	\$ 661,373.21	\$ 7,357.95	
<b>Total</b>	<b>\$ 2,991,606.35</b>	<b>\$ 1,003,562.22</b>	
<b>Total of all Funds</b>	<b>\$ 11,640,899.24</b>	<b>\$ 10,506,174.51</b>	<b>\$ 1,134,724.73</b>

	4/12/2021 Balance	4/30/2020 Balance	
<b>Restricted Funds</b>			
Debt Service - Restricted	\$ 356,710.35	\$ 126,721.19	
457 Pension Trust Restricted	\$ 86,359.92	\$ 60,872.45	
Quimby Fee - Restricted	\$ 415,919.55	\$ 175,638.90	
Multi-Bank Securities Restricted	\$ 15,421.14	\$ 415,421.14	
Ventura County Pool - Restricted	\$ 4,538,368.15	\$ 4,670,334.00	
FCDP Checking	\$ 13,465.76	\$ 22,128.61	
<b>Total</b>	<b>\$ 5,426,244.87</b>	<b>\$ 5,471,116.29</b>	
<b>Semi-Restricted Funds</b>			
Assessment	\$ 639,427.42	\$ 1,021,886.08	
Capital Improvement	\$ 49,702.78	\$ 30,651.75	
Capital - Vehicle Replacement	\$ 79,843.80	\$ 60,843.80	
Capital - Designated Project	\$ 16,397.94	\$ 16,397.94	
LAIF - Capital #1200	\$ 1,792,597.55	\$ 2,542,455.63	
Contingency - Dry Period	\$ 361,000.00	\$ 361,000.00	
Contingency - Computer	\$ 20,000.00	\$ 20,000.00	
Contingency - Repair/Oper/Admin	\$ 200,000.00	\$ 50,000.00	
<b>Total</b>	<b>\$ 3,158,969.49</b>	<b>\$ 4,098,235.20</b>	
<b>Unrestricted Funds</b>			
Contingency	\$ 12,216.32	\$ 76,200.94	
LAIF/Cal Trust - Contingency #1301	\$ 2,318,016.82	\$ 2,621,272.02	
General Fund Checking	\$ 257,820.17	\$ 678,399.05	
<b>Total</b>	<b>\$ 2,588,053.31</b>	<b>\$ 3,375,872.01</b>	
<b>Total of all Funds</b>	<b>\$ 11,173,267.67</b>	<b>\$ 12,945,223.50</b>	<b>\$ (1,771,955.83)</b>

Pleasant Valley Recreation and Park District  
Finance Report  
March 2021

	Date	Amount	
Accounts Payables:	03/2021	\$ 327,870.36	
	<b>Total</b>	<b>\$ 327,870.36</b>	
Payroll (Total Cost):	3/4/2021	\$ 126,129.32	
	3/18/2021	\$ 128,504.14	
	<b>Total</b>	<b>\$ 254,633.46</b>	
Outgoing: Online Payments			
	3/4/2021	\$ 14,584.51	CALPERS- Ret.-PR-03/04/2021
	3/9/2021	\$ 32,782.25	CALPERS- Health Insurance
	3/9/2021	\$ 521.25	VSP- Vision Insurance
	3/9/2021	\$ 1,820.87	The Hartford
	3/9/2021	\$ 2,268.84	The Guardian
	3/9/2021	\$ 378.84	Aflac
	3/10/2021	\$ 6,784.00	EDD- SUI Charges Qtr. Ended 12/31/2020
	3/18/2021	\$ 14,656.35	CALPERS- Ret.-PR-03/18/2021
	<b>Total</b>	<b>\$ 73,796.91</b>	
	<b>Grand Total</b>	<b>\$ 656,300.73</b>	

**General Ledger**  
**Fund 10 General Fund**  
**March 2021 75%**

Description	Account	Period Amount	One Year Prior Actual	Year to Date	Budget	Budget Remaining	% of Budget Used
<b>Revenue</b>							
Tax Apport - Cur Year Secured	5110-5240	\$ (14,009.76)	\$ (3,850,785.70)	\$ (4,084,030.85)	\$ (6,481,869.00)	\$ (2,397,838.15)	63.01%
Interest Earnings	5310	\$ (31.70)	\$ (57,506.00)	\$ (17,846.57)	\$ (20,635.00)	\$ (2,788.43)	86.49%
Hill Fire 2018	5465	\$ -	\$ (156,693.01)	\$ (219,884.01)	\$ (219,884.00)	\$ -	0.01 100.00%
Park Patrol Citations	5506	\$ -	\$ (3,738.95)	\$ (1,100.00)	\$ (1,900.00)	\$ (800.00)	57.89%
Contract Classes-Public Fees	5510	\$ (12,029.80)	\$ (138,663.55)	\$ (51,648.85)	\$ (41,698.00)	\$ 9,950.85	123.86%
Public Fees	5511	\$ (10,265.90)	\$ (221,347.35)	\$ (35,381.25)	\$ (20,000.00)	\$ 15,381.25	176.91%
Public Fees-Entry Fees	5520	\$ -	\$ (27,797.76)	\$ (2,019.00)	\$ (2,000.00)	\$ 19.00	100.95%
Vending Concessions	5525	\$ -	\$ (2,525.50)	\$ -	\$ -	\$ -	0.00%
Rental	5530	\$ (26,635.25)	\$ (304,606.96)	\$ (137,757.87)	\$ (100,900.00)	\$ 36,857.87	136.53%
Cell Tower Revenue	5535	\$ (8,136.70)	\$ (75,760.48)	\$ (73,096.75)	\$ (91,704.00)	\$ (18,607.25)	79.71%
Parking Fees	5540	\$ (747.33)	\$ (9,171.40)	\$ (4,891.11)	\$ (6,261.00)	\$ (1,369.89)	78.12%
Dues	5550	\$ -	\$ 50.00	\$ -	\$ -	\$ -	0.00%
Activity Guide Revenue	5555	\$ -	\$ (23,460.00)	\$ (850.00)	\$ -	\$ 850.00	0.00%
Sponsorships/Donations	5558	\$ (665.00)	\$ (4,700.00)	\$ (2,565.00)	\$ -	\$ 2,565.00	0.00%
Staffing Cost Recovery	5563	\$ (546.00)	\$ (15,466.06)	\$ (19,472.00)	\$ (7,500.00)	\$ 11,972.00	259.63%
Special Event Permits	5564	\$ (100.00)	\$ (303.00)	\$ (600.00)	\$ -	\$ 600.00	0.00%
Security Services Recovery	5566	\$ -	\$ (2,250.00)	\$ -	\$ -	\$ -	0.00%
Contributions	5570	\$ -	\$ (94,777.00)	\$ (35,000.00)	\$ (36,000.00)	\$ (1,000.00)	97.22%
Grants	5573	\$ -	\$ (24.65)	\$ -	\$ -	\$ -	0.00%
Other Misc Revenue	5575	\$ (2,191.60)	\$ (58,173.52)	\$ (53,307.21)	\$ (20,082.00)	\$ 33,225.21	265.45%
Credit Card Processing Fee	5576	\$ (39.53)	\$ (696.03)	\$ (92.89)	\$ -	\$ 92.89	0.00%
Cash Over/Under	5580	\$ (4.00)	\$ (110.00)	\$ (92.00)	\$ -	\$ 92.00	0.00%
Incentive Income	5585	\$ (234.06)	\$ (2,171.98)	\$ (582.08)	\$ (800.00)	\$ (217.92)	72.76%
Reimbursement - ROPS	5600	\$ -	\$ (309,187.20)	\$ (373,105.94)	\$ (313,000.00)	\$ 60,105.94	119.20%
Reimb-Needs Assessment/LPA	5605	\$ -	\$ (75,482.17)	\$ (17,610.38)	\$ -	\$ 17,610.38	0.00%
<b>Revenue</b>		<b>\$ (75,636.63)</b>	<b>\$ (5,435,348.27)</b>	<b>\$ (5,130,933.76)</b>	<b>\$ (7,364,233.00)</b>	<b>\$ (2,233,299.24)</b>	<b>69.67%</b>
<b>YTD Comparison</b>				<b>\$ 304,414.51</b>			
<b>Expense</b>							
Full Time Salaries	6100	\$ 174,058.95	\$ 1,660,076.75	\$ 1,637,791.49	\$ 2,331,694.00	\$ 693,902.51	70.24%
Overtime Salaries	6101	\$ 683.66	\$ 21,916.15	\$ 7,730.50	\$ 15,490.00	\$ 7,759.50	49.91%
Car Allowance	6105	\$ 830.74	\$ 7,892.03	\$ 7,892.03	\$ 10,800.00	\$ 2,907.97	73.07%
Cell Phone Allowance	6108	\$ 1,121.44	\$ 11,710.00	\$ 10,150.07	\$ 14,610.00	\$ 4,459.93	69.47%
Part-Time Salaries	6110	\$ 11,996.24	\$ 380,537.21	\$ 113,332.05	\$ 232,516.00	\$ 119,183.95	48.74%
Retirement	6120	\$ 29,572.93	\$ 275,335.52	\$ 282,795.40	\$ 404,671.00	\$ 121,875.60	69.88%
457 Pension	6121	\$ 174.34	\$ 6,522.00	\$ 6,783.51	\$ 7,445.00	\$ 661.49	91.11%
Deferred Compensation	6125	\$ 354.92	\$ -	\$ 3,371.74	\$ 4,615.00	\$ 1,243.26	73.06%
Employee Insurance	6130	\$ 23,557.36	\$ 160,524.38	\$ 257,681.65	\$ 303,622.00	\$ 45,940.35	84.87%
Workers Compensation	6140	\$ 10,058.03	\$ 79,684.81	\$ 64,950.02	\$ 141,014.00	\$ 76,063.98	46.06%
Unemployment Insurance	6150	\$ 6,784.00	\$ 633.00	\$ 16,340.00	\$ 53,400.00	\$ 37,060.00	30.60%
Loan - Pension Obligation	6160	\$ 21,395.17	\$ 250,736.70	\$ 192,556.53	\$ 256,742.00	\$ 64,185.47	75.00%
PERS Unfunded Liability	6170	\$ -	\$ 349,318.00	\$ 434,065.00	\$ 434,065.00	\$ -	100.00%
<b>Personnel</b>		<b>\$ 280,587.78</b>	<b>\$ 3,204,886.55</b>	<b>\$ 3,035,439.99</b>	<b>\$ 4,210,684.00</b>	<b>\$ 1,175,244.01</b>	<b>72.09%</b>
<b>YTD Comparison</b>				<b>\$ (169,446.56)</b>			
<b>Services and Supplies</b>							
Telephone/Internet	6210	\$ 1,803.29	\$ 12,493.79	\$ 15,339.11	\$ 16,596.00	\$ 1,256.89	92.43%
Internet Services	6220	\$ 2,614.00	\$ 28,599.36	\$ 14,436.00	\$ 27,135.00	\$ 12,699.00	53.20%
IT Infrastructure	6230	\$ 109.34	\$ 1,013.62	\$ 511.32	\$ 2,000.00	\$ 1,488.68	25.57%
Computer Hardware/Software	6240	\$ 611.74	\$ 10,563.96	\$ 7,271.27	\$ 10,040.00	\$ 2,768.73	72.42%
Pool Chemicals	6310	\$ -	\$ 2,597.49	\$ 1,448.73	\$ 7,250.00	\$ 5,801.27	19.98%
Janitorial Supplies	6320	\$ 4,228.79	\$ 34,322.75	\$ 18,482.88	\$ 52,400.00	\$ 33,917.12	35.27%
COVID - Supplies	6321	\$ 3,633.66	\$ 1,936.08	\$ 7,611.35	\$ 5,100.00	\$ (2,511.35)	149.24%
Kitchen Supplies	6330	\$ -	\$ 352.26	\$ -	\$ -	\$ -	0.00%
Food Supplies	6340	\$ -	\$ 2,623.88	\$ -	\$ -	\$ -	0.00%
Water Maint & Service	6350	\$ 195.00	\$ 712.37	\$ 700.75	\$ 1,239.00	\$ 538.25	56.56%
Laundry/Wash Service	6360	\$ -	\$ 181.00	\$ 178.00	\$ 480.00	\$ 302.00	37.08%
Medical Supplies	6380	\$ -	\$ 21.98	\$ -	\$ -	\$ -	0.00%
Insurance Liability	6410	\$ -	\$ 142,201.00	\$ 208,084.00	\$ 209,311.00	\$ 1,227.00	99.41%
Fuel	6510	\$ 5,192.71	\$ 32,586.64	\$ 32,868.13	\$ 50,400.00	\$ 17,531.87	65.21%
Vehicle Maintenance	6520	\$ 969.88	\$ 17,471.15	\$ 17,558.48	\$ 34,400.00	\$ 16,841.52	51.04%
Office Equipment Maintenance	6530	\$ -	\$ -	\$ 116.89	\$ -	\$ (116.89)	0.00%
Building Repair	6610	\$ 8,930.63	\$ 60,948.37	\$ 27,675.91	\$ 83,000.00	\$ 55,324.09	33.34%
HVAC	6620	\$ 1,317.55	\$ 1,109.61	\$ 3,699.69	\$ 8,820.00	\$ 5,120.31	41.95%
Playground Maintenance	6630	\$ 472.82	\$ 21,333.27	\$ 3,443.80	\$ 40,000.00	\$ 36,556.20	8.61%
Hill Fire 2018	6640	\$ -	\$ 368,974.05	\$ -	\$ -	\$ -	0.00%
Grounds Maintenance	6710	\$ 14,056.61	\$ 61,104.89	\$ 61,771.96	\$ 86,220.00	\$ 24,448.04	71.64%
Tree Care	6719	\$ 4,800.00	\$ 27,972.00	\$ 22,819.88	\$ 30,000.00	\$ 7,180.12	76.07%
Park Signage (Branding)	6725	\$ -	\$ 6,895.75	\$ -	\$ -	\$ -	0.00%
Contracted Pest Control	6730	\$ 100.00	\$ 820.00	\$ 760.00	\$ 3,000.00	\$ 2,240.00	25.33%
Rubbish & Refuse	6740	\$ 4,336.74	\$ 52,274.55	\$ 52,017.21	\$ 77,006.00	\$ 24,988.79	67.55%
Vandalism/Theft	6750	\$ -	\$ -	\$ 265.91	\$ 500.00	\$ 234.09	53.18%
Memberships	6810	\$ 465.00	\$ 12,995.26	\$ 12,370.00	\$ 13,696.00	\$ 1,326.00	90.32%
Office Supplies	6910	\$ 1,453.55	\$ 14,642.13	\$ 5,211.29	\$ 15,885.00	\$ 10,673.71	32.81%
Postage Expense	6920	\$ -	\$ 11,981.33	\$ 1,037.65	\$ 2,250.00	\$ 1,212.35	46.12%
Advertising Expense	6930	\$ -	\$ 2,865.90	\$ 900.00	\$ 6,240.00	\$ 5,340.00	14.42%
Printing Charges	6940	\$ -	\$ 10,032.01	\$ 5,287.09	\$ 13,338.00	\$ 8,050.91	39.64%
ActiveNet Charges	6950	\$ 820.12	\$ 39,467.02	\$ 10,711.61	\$ 52,542.00	\$ 41,830.39	20.39%
Approp Redev/Collection Fees	6960	\$ -	\$ 239,173.17	\$ 255,697.19	\$ 481,576.00	\$ 225,878.81	53.10%
Minor Furn Fixture & Equip	6980	\$ 258.44	\$ 1,122.61	\$ 1,121.45	\$ 1,134.00	\$ 12.55	98.89%
Comp Hardware/Software Exp	6990	\$ -	\$ 119.92	\$ -	\$ -	\$ -	0.00%
Fingerprint Fees (HR)	7010	\$ -	\$ 1,241.00	\$ -	\$ 2,060.00	\$ 2,060.00	0.00%
Fire & Safety Insp Fees	7020	\$ -	\$ 3,311.95	\$ 2,239.93	\$ 2,975.00	\$ 735.07	75.29%

**General Ledger**  
**Fund 10 General Fund**  
**March 2021 75%**

Description	Account	Period Amount	One Year Prior Actual	Year to Date	Budget	Budget Remaining	% of Budget Used
Permit & Licensing Fees	7030	\$ 471.23	\$ 2,574.87	\$ 1,740.26	\$ 3,650.00	\$ 1,909.74	47.68%
State License Fee	7040	\$ -	\$ 852.50	\$ 657.50	\$ 800.00	\$ 142.50	82.19%
Professional Services	7100	\$ -	\$ 3,384.13	\$ 7,000.00	\$ 7,000.00	\$ -	100.00%
Legal Services	7110	\$ -	\$ 71,713.94	\$ 29,270.06	\$ 90,000.00	\$ 60,729.94	32.52%
Typeset and Print Services	7115	\$ -	\$ 27,804.57	\$ -	\$ -	\$ -	0.00%
Instructor Services	7120	\$ 5,104.55	\$ 84,353.42	\$ 24,567.25	\$ 57,138.00	\$ 32,570.75	43.00%
PERS Admin Fees	7125	\$ -	\$ 1,775.73	\$ 1,130.80	\$ 2,110.00	\$ 979.20	53.59%
Audit Services	7130	\$ -	\$ 7,260.00	\$ 11,760.00	\$ 20,175.00	\$ 8,415.00	58.29%
Medical & Health Svcs (HR)	7140	\$ -	\$ 4,252.50	\$ 400.00	\$ 4,000.00	\$ 3,600.00	10.00%
Security Services	7150	\$ -	\$ 1,248.55	\$ 2,257.50	\$ 3,200.00	\$ 942.50	70.55%
Entertainment Services	7160	\$ -	\$ 420.00	\$ -	\$ 1,000.00	\$ 1,000.00	0.00%
Business Services	7180	\$ 32,686.90	\$ 48,506.71	\$ 75,214.87	\$ 88,614.00	\$ 13,399.13	84.88%
Umpire/Referee Services	7190	\$ -	\$ 919.00	\$ -	\$ -	\$ -	0.00%
Subscriptions	7210	\$ 9.99	\$ 1,581.07	\$ 1,264.00	\$ 3,524.00	\$ 2,260.00	35.87%
Rents & Leases - Equip	7310	\$ 75.94	\$ 14,040.80	\$ 2,322.18	\$ 11,200.00	\$ 8,877.82	20.73%
Bldg/Field Leases & Rental	7320	\$ (60.00)	\$ 60.00	\$ (60.00)	\$ -	\$ 60.00	0.00%
Event Supplies	7410	\$ -	\$ 986.39	\$ -	\$ 780.00	\$ 780.00	0.00%
Supplies	7420	\$ 1,270.00	\$ 9,982.86	\$ 1,295.71	\$ -	\$ (1,295.71)	0.00%
Bingo Supplies	7430	\$ -	\$ 5,748.58	\$ -	\$ 600.00	\$ 600.00	0.00%
Sporting Goods	7440	\$ -	\$ 4,035.01	\$ 207.91	\$ 1,000.00	\$ 792.09	20.79%
Arts and Craft Supplies	7450	\$ -	\$ 47.24	\$ -	\$ -	\$ -	0.00%
Training Supplies	7460	\$ -	\$ 764.36	\$ 499.71	\$ 1,600.00	\$ 1,100.29	31.23%
Small Tools	7500	\$ 376.03	\$ 2,828.21	\$ 3,178.73	\$ 5,000.00	\$ 1,821.27	63.57%
Safety Supplies	7510	\$ -	\$ 3,417.63	\$ 853.51	\$ 1,260.00	\$ 406.49	67.74%
Uniform Allowance	7610	\$ 2,079.08	\$ 6,952.40	\$ 3,914.60	\$ 3,250.00	\$ (664.60)	120.45%
Safety Clothing	7620	\$ 137.91	\$ 1,287.11	\$ 1,062.63	\$ 4,544.00	\$ 3,481.37	23.39%
Conference&Seminar Staff	7710	\$ 1,314.65	\$ 18,133.57	\$ 3,758.33	\$ 7,564.00	\$ 3,805.67	49.65%
Conference&Seminar Board	7715	\$ -	\$ 545.00	\$ -	\$ 2,575.00	\$ 2,575.00	0.00%
Conference&Seminar Travel Exp	7720	\$ -	\$ 6,045.56	\$ -	\$ 2,071.00	\$ 2,071.00	0.00%
Out of Town Travel Board	7725	\$ -	\$ 846.72	\$ -	\$ 3,231.00	\$ 3,231.00	0.00%
Private Vehicle Mileage	7730	\$ (13.34)	\$ 1,101.70	\$ 123.00	\$ 1,684.00	\$ 1,561.00	7.30%
Buses/Excursions	7750	\$ -	\$ 4,336.94	\$ -	\$ -	\$ -	0.00%
Tuition/Book Reimbursement	7760	\$ -	\$ 1,268.75	\$ -	\$ -	\$ -	0.00%
Utilities - Gas	7810	\$ 3,088.23	\$ 18,121.11	\$ 19,198.68	\$ 29,715.00	\$ 10,516.32	64.61%
Utilities - Water	7820	\$ 17,651.46	\$ 508,292.24	\$ 601,426.23	\$ 865,373.00	\$ 263,946.77	69.50%
Utilities - Electric	7830	\$ 898.60	\$ 129,303.80	\$ 93,651.40	\$ 170,000.00	\$ 76,348.60	55.09%
Airport Assessment Exp	7840	\$ -	\$ 14,235.00	\$ 842.00	\$ 14,000.00	\$ 13,158.00	6.01%
Awards and Certificates	7910	\$ 8.04	\$ 10,986.67	\$ 861.19	\$ 2,610.00	\$ 1,748.81	33.00%
Meals for Staff Training	7920	\$ -	\$ 1,636.89	\$ 910.51	\$ 3,560.00	\$ 2,649.49	25.58%
Employee Morale	7930	\$ 144.24	\$ 1,170.72	\$ 144.24	\$ -	\$ (144.24)	0.00%
COP Debt - PV Fields	7950	\$ -	\$ 235,560.00	\$ 229,759.38	\$ 229,760.00	\$ 0.62	100.00%
Reserve Vehicle Fleet	7970	\$ -	\$ 10,000.00	\$ -	\$ -	\$ -	0.00%
Reserve Computer Fleet	7971	\$ -	\$ 5,000.00	\$ 5,000.00	\$ 5,000.00	\$ -	100.00%
Reserve Dry Period	7973	\$ -	\$ 90,000.00	\$ -	\$ -	\$ -	0.00%
Reserve Repair/Oper/Admin	7975	\$ -	\$ 30,000.00	\$ 150,000.00	\$ 150,000.00	\$ -	100.00%
Admin Fee/CC Refund 2020	8112	\$ -	\$ 57,714.29	\$ 11,644.34	\$ 12,000.00	\$ 355.66	97.04%
<b>Services and Supplies</b>		<b>\$ 121,613.38</b>	<b>\$ 2,677,158.66</b>	<b>\$ 2,077,494.00</b>	<b>\$ 3,146,181.00</b>	<b>\$ 1,068,687.00</b>	<b>66.03%</b>
<b>YTD Comparison</b>				<b>\$ (599,664.66)</b>			
<b>Capital</b>							
Equip/Facility Replacement	8420	\$ -	\$ -	\$ 269.42	\$ 30,000.00	\$ 29,730.58	0.90%
Sr/Community Rec Facility	8422	\$ -	\$ 7,270.00	\$ -	\$ -	\$ -	0.00%
Mtr Enclosur-Encnt,Phill,Adolf	8456	\$ -	\$ 7,872.15	\$ -	\$ -	\$ -	0.00%
Pitts Ranch Park Pavilion	8458	\$ -	\$ 29,256.49	\$ -	\$ -	\$ -	0.00%
LPA Architects-CC/Gym/Sr Ctr	8463	\$ -	\$ 19,690.15	\$ -	\$ -	\$ -	0.00%
Arnell Ranch Park Renovation	8464	\$ -	\$ 30,779.13	\$ -	\$ -	\$ -	0.00%
Lamps/Pole Replacement at M.O.	8465	\$ -	\$ 12,482.69	\$ -	\$ -	\$ -	0.00%
L.E.D. Light SpringvilleTennis	8466	\$ -	\$ 16,845.63	\$ -	\$ -	\$ -	0.00%
Charter Oaks Irrigation-Trees	8467	\$ -	\$ 3,334.58	\$ -	\$ -	\$ -	0.00%
Community Center Marquee	8468	\$ -	\$ -	\$ 3,997.52	\$ 8,552.39	\$ 4,554.87	46.74%
PVAC Pool Heater	8470	\$ -	\$ 23,930.00	\$ -	\$ -	\$ -	0.00%
Cam Grove Play Equipment	8471	\$ -	\$ 33,270.80	\$ -	\$ -	\$ -	0.00%
Freedom Park ParkingLot&Skyway	8472	\$ -	\$ 239,671.66	\$ -	\$ -	\$ -	0.00%
P.V. Fields Painting II	8473	\$ -	\$ 13,690.00	\$ -	\$ -	\$ -	0.00%
Switches and Servers	8474	\$ -	\$ -	\$ 29,642.96	\$ 30,772.00	\$ 1,129.04	96.33%
Turf Grinder	8475	\$ -	\$ -	\$ 14,366.14	\$ 15,000.00	\$ 633.86	95.77%
Pitts Ranch BB Crt Repaint	8476	\$ -	\$ -	\$ 7,950.00	\$ 8,000.00	\$ 50.00	99.38%
PV Fields Painting West End	8477	\$ -	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00	0.00%
Inflatable System	8479	\$ -	\$ -	\$ -	\$ 5,500.00	\$ 5,500.00	0.00%
HVAC Administration Bldg	8481	\$ -	\$ -	\$ 13,200.00	\$ 14,520.00	\$ 1,320.00	90.91%
HVAC for Room #6	8482	\$ -	\$ -	\$ -	\$ 11,965.00	\$ 11,965.00	0.00%
<b>Capital</b>		<b>\$ -</b>	<b>\$ 438,093.28</b>	<b>\$ 69,426.04</b>	<b>\$ 139,309.39</b>	<b>\$ 69,883.35</b>	<b>49.84%</b>
<b>TOTAL EXPENSE</b>		<b>\$ 402,201.16</b>	<b>\$ 5,882,045.21</b>	<b>\$ 5,112,933.99</b>	<b>\$ 7,356,865.00</b>	<b>\$ 2,243,931.01</b>	<b>69.50%</b>
<b>YTD COMPARISON</b>				<b>\$ (769,111.22)</b>			

**General Ledger**  
**Fund 20 Assessment District Fund**  
**March 2021 75%**

Description	Account	Period Amount	One Year Prior Actual	Year to Date	Budget	Budget Remaining	% of Budget Used
<b>Revenue</b>							
Interest Earnings	5310	\$ (24.05)	\$ (1,024.76)	\$ (198.38)	\$ (500.00)	\$ (301.62)	39.68%
Assessment Revenue	5500	\$ -	\$ (664,743.10)	\$ (693,981.11)	\$ (1,184,957.00)	\$ (490,975.89)	58.57%
<b>Revenue</b>		<b>\$ 24.05</b>	<b>\$ 665,767.86</b>	<b>\$ 694,179.49</b>	<b>\$ 1,185,457.00</b>	<b>\$ 491,277.51</b>	<b>58.56%</b>
<b>YTD Comparison</b>				<b>\$ 28,411.63</b>			
<b>Expense</b>							
Full Time Salaries	6100	\$ 1,493.92	\$ 15,071.51	\$ 12,725.20	\$ 18,262.00	\$ 5,536.80	69.68%
Retirement	6120	\$ 248.15	\$ 2,756.53	\$ 2,227.25	\$ 3,130.00	\$ 902.75	71.16%
Employee Insurance	6130	\$ 289.58	\$ 2,199.29	\$ 3,822.99	\$ 3,606.00	\$ (216.99)	106.02%
Workers Compensation	6140	\$ 145.50	\$ 1,509.16	\$ 1,309.87	\$ 1,753.00	\$ 443.13	74.72%
<b>Personnel</b>		<b>\$ 2,177.15</b>	<b>\$ 21,536.49</b>	<b>\$ 20,085.31</b>	<b>\$ 26,751.00</b>	<b>\$ 6,665.69</b>	<b>75.08%</b>
<b>YTD Comparison</b>				<b>\$ (1,451.18)</b>			
<b>Services and Supplies</b>							
Incidental Costs - Assess	6709	\$ -	\$ 18,414.72	\$ 18,620.01	\$ 34,256.00	\$ 15,635.99	54.36%
Tree Care	6719	\$ 6,537.00	\$ 39,128.00	\$ 39,975.00	\$ 67,500.00	\$ 27,525.00	59.22%
Contracted LS Services	6720	\$ 37,993.21	\$ 325,940.64	\$ 374,651.45	\$ 505,036.00	\$ 130,384.55	74.18%
Park Amenities - Assess	6722	\$ 2,890.06	\$ 13,841.82	\$ 3,819.18	\$ 17,500.00	\$ 13,680.82	21.82%
ActiveNet Charges	6950	\$ -	\$ -	\$ -	\$ 60.00	\$ 60.00	0.00%
Approp Redev/Collection Fees	6960	\$ -	\$ 1,614.95	\$ 1,678.82	\$ 3,000.00	\$ 1,321.18	55.96%
COP Debt - PV Fields	7950	\$ -	\$ 394,170.00	\$ 525,559.21	\$ 525,560.00	\$ 0.79	100.00%
<b>Expense</b>		<b>\$ 47,420.27</b>	<b>\$ 793,110.13</b>	<b>\$ 964,303.67</b>	<b>\$ 1,152,912.00</b>	<b>\$ 188,608.33</b>	<b>83.45%</b>
<b>YTD Comparison</b>				<b>\$ 171,193.54</b>			
<b>TOTAL EXPENSE</b>		<b>\$ 49,597.42</b>	<b>\$ 814,646.62</b>	<b>\$ 984,388.98</b>	<b>\$ 1,179,663.00</b>	<b>\$ 195,274.02</b>	<b>83.45%</b>
<b>YTD COMPARISON</b>				<b>\$ 169,742.36</b>			

**General Ledger**  
**Fund 30 Quimby Fee Fund**  
**March 2021 75%**

Description	Account	Period Amount	One Year Prior Actual	Year to Date	Budget	Budget Remaining	% of Budget Used
<b>Revenue</b>							
Interest Earnings	5310	\$ (22.76)	\$ (68,961.34)	\$ (23,808.18)	\$ (38,800.00)	\$ (14,991.82)	61.36%
MBS Interest Earnings	5320	\$ -	\$ (9,670.14)	\$ (7,320.00)	\$ -	\$ 7,320.00	0.00%
Park Dedication Fees	5400	\$ -	\$ (1,356,700.46)	\$ -	\$ -	\$ -	0.00%
<b>Revenue</b>		<b>\$ 22.76</b>	<b>\$ 1,435,331.94</b>	<b>\$ 31,128.18</b>	<b>\$ 38,800.00</b>	<b>\$ 7,671.82</b>	<b>80.23%</b>

<b>Expense</b>							
Advertising Expense	6930	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
ActiveNet Charges	6950	\$ -	\$ 107.00	\$ 12.00	\$ -	\$ (12.00)	0.00%
<b>Services and Supplies</b>		<b>\$ -</b>	<b>\$ 107.00</b>	<b>\$ 12.00</b>	<b>\$ -</b>	<b>\$ (12.00)</b>	<b>0.00%</b>

<b>Capital</b>							
Valle Lindo Restroom/Pavilion	8444	\$ -	\$ 342,636.96	\$ -	\$ -	\$ -	0.00%
Freedom Baseball Fields	8459	\$ -	\$ 41,232.23	\$ -	\$ -	\$ -	0.00%
Mel Vincent Park Restrooms	8460	\$ -	\$ 58,363.15	\$ -	\$ -	\$ -	0.00%
Ameil Ranch Park Renovation	8464	\$ 15,562.75	\$ -	\$ 78,591.50	\$ 1,100,000.00	\$ 1,021,408.50	7.14%
PVAC Restroom & Shower	8469	\$ -	\$ 211,531.35	\$ 35,249.13	\$ 84,401.39	\$ 49,152.26	41.76%
Fertilizer Injector System	8478	\$ 340.97	\$ -	\$ 50,788.90	\$ 60,000.00	\$ 9,211.10	84.65%
Community Center Kitchen	8480	\$ -	\$ -	\$ 16,031.57	\$ 250,000.00	\$ 233,968.43	6.41%
<b>Capital</b>		<b>\$ 15,903.72</b>	<b>\$ 653,763.69</b>	<b>\$ 180,661.10</b>	<b>\$ 1,494,401.39</b>	<b>\$ 1,313,740.29</b>	<b>12.09%</b>

Date Received	Amount	Amount Earmarked	Developer	Development Case #	Amount Expended	Balance	Allocation Date
7/31/2014	\$ 615,709.00	\$ 720,600.00	AMLI Residential	Springville (RPD-173)	\$ 615,709.00	\$ -	7/31/2019
1/31/2015	\$ 2,250,489.70	\$ 2,250,489.70	Fairfield LLC		\$ 1,629,089.75	\$ 621,399.95	1/31/2020
8/8/2016	\$ 2,649,209.00	\$ 1,100,000.00	Comstock/Elacora Mission Oaks		\$ 268,479.24	\$ 2,380,729.76	8/8/2021
8/10/2016	\$ 474,353.00	\$ 629,500.00	KB Homes		\$ 230,159.82	\$ 244,193.18	8/10/2021
6/7/2018	\$ 21,612.25	\$ -	Crestview		\$ -	\$ 21,612.25	6/7/2023
6/27/2018	\$ -	\$ -	Aldersgate Construction		\$ 146,682.55	\$ -	REFUNDED
3/6/2019	\$ 35,242.00	\$ -	Habitat for Humanity		\$ -	\$ 35,242.00	3/6/2024
9/12/2019	\$ -	\$ -	Aldersgate Construction		\$ 92,200.46	\$ -	REFUNDED
11/21/2019	\$ 1,264,500.00	\$ -	Shea Homes		\$ -	\$ 1,264,500.00	11/21/2024
<b>Total</b>	<b>\$ 7,311,114.95</b>	<b>\$ 4,700,589.70</b>			<b>\$ 2,982,320.82</b>	<b>\$ 4,567,677.14</b>	





QUIMBY FUNDS- DETAIL REPORT

Developer	Project				Quimby Funds			GL Code	
	No.	Location	Description	Budgeted	Expended	Awarded	Balance		Committed Date
ALDRSGATE CONSTRUCTION				\$ -	\$ -	\$ -	21,612.25		
	1					\$ -			6/27/2023
						\$ -			1/9/2024
						\$ -			9/12/2024
						\$ -			
HABITAT FOR HUMANITY				\$ -	\$ -	\$ -			
	1					\$ 35,242.00	35,242.00		3/6/2024
	2					\$ 35,242.00	35,242.00		
	3					\$ 35,242.00	35,242.00		
	4					\$ 35,242.00	35,242.00		
5					\$ 35,242.00	35,242.00			
SHEA HOMES				\$ -	\$ -	\$ -			
	1					\$ 1,264,500.00	1,264,500.00		11/21/2024
	2					\$ 1,264,500.00	1,264,500.00		
	3					\$ 1,264,500.00	1,264,500.00		
	4					\$ 1,264,500.00	1,264,500.00		
5					\$ 1,264,500.00	1,264,500.00			
<b>Grand Total</b>				\$ 4,110,100.00	\$ 2,743,437.81	\$ 7,311,114.95	\$ 4,567,677.14		

## Ventura County Pool

Investment Name	October 2019	November 2019	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020
<b>Ventura County Pool</b>	2.363%	2.259%	2.089%	2.02%	1.995%	1.887%	1.796%	1.604%	1.451%
	<b>July 2020</b>	<b>August 2020</b>	<b>September 2020</b>	<b>October 2020</b>	<b>November 2020</b>	<b>December 2020</b>	<b>January 2021</b>	<b>February 2021</b>	<b>March 2021</b>
<b>Ventura County Pool</b>	1.293%	1.103%	.958%	.796%	.690%	.518%	.464%	.495%	.410%

• Rates are determined at the end of the month

## Local Agency Investment Fund (LAIF)

Investment Name	October 2019	November 2019	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020
<b>Local Agency Investment Fund (LAIF)</b>	2.190%	2.150%	2.043%	1.967%	1.912%	1.787%	1.648%	1.363%	1.217%
	<b>July 2020</b>	<b>August 2020</b>	<b>September 2020</b>	<b>October 2020</b>	<b>November 2020</b>	<b>December 2020</b>	<b>January 2021</b>	<b>February 2021</b>	<b>March 2021</b>
<b>Local Agency Investment Fund (LAIF)</b>	.920%	.784%	.685%	.620%	.576%	.540%	.458%	.407%	.357%

## Cal Trust

Investment Name	October 2019	November 2020	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020
<b>Cal Trust</b>	1.77%	1.56%	1.52%	1.50%	1.50%	.79%	.27%	.15%	.10%
	July 2020	August 2020	September 2020	October 2020	November 2020	December 2020	January 2021	February 2021	March 2021
<b>Cal Trust</b>	.07%	.004%	.09%	.07%	.04%	.03%	.03%	.03%	.05%

**PLEASANT VALLEY RECREATION AND PARK DISTRICT  
STAFF REPORT / AGENDA REPORT**

**TO:** FINANCE COMMITTEE

**FROM:** MARY OTTEN, GENERAL MANAGER  
**By:** Anthony Miller, Administrative Analyst

**DATE:** April 21, 2021

**SUBJECT:** ENERGY PARTNERSHIP PROGRAM AUDIT REVIEW

**SUMMARY**

In April 2020, the Board authorized a District application to participate in the Energy Partnership Program through the California Energy Commission. The goal of this program was to evaluate the Community Center buildings and all exterior lighting throughout the District. The Audit is now complete and is recommending the District undertake seven (7) projects. The anticipated total cost of the recommended projects is \$187,894 which could potentially be financed through several different options. The expected annual electricity savings expected is approximately 256,964 kWh with a total dollar savings of approximately \$489,919 over 15 years. Staff is recommending the Committee review the recommended measures and financing options and provide direction for the full Board to consider.

**BACKGROUND**

On February 7, 2020, District staff completed the installation of LED lights at the Springville tennis courts. Preliminary estimates show that the total kWh usage at the park has been halved since that time. Due to the success of this install, the Board approved an application for an energy audit through the Energy Partnership Program. This Audit took place through August and September 2020 with the Final Report being received in April 2021.

**ANALYSIS**

Audit Analysis

The Audit examined the three main buildings at the Community Center as well as all exterior lighting throughout the rest of the park system. In total, 1,960 lights, 292 control mechanisms, 18 HVAC units, 1764 sq.ft. of glass, and 3 water heaters were examined for replacement or upgrade. Through this evaluation, the following seven mitigation measures were recommended. (Please see Attachment 2 or pg. 3 of the report (Attachment 1). Further information for each measure can be found on pgs. 20-31, and pgs. 47-54 of the report.)

- (L-1) Retrofit linear fluorescent fixtures with new LED tubes (District-wide)
- (L-3) Replace interior screw-in/pin-based lamps with new LED lamps (District-wide)
- (L-4A) Replace exterior screw-in/pin-based lamps with new LED lamps (District-wide, excl. athletic facilities)
- (L-5A) Replace exterior HID fixtures with LED fixtures (District-wide, excl. athletic facilities)
- (L-5B) Add exterior smart controls for new LED fixtures (District-wide, excl. athletic facilities)

- (M-1) Replace existing programmable thermostats with network wireless-based thermostats (Community Center buildings only)
- (E-1) Install plug load occupancy sensor controls for copy machine (Community Center)

Specifically, measures were only recommended based on the ability to save the District an amount equal to or more than their initial cost over the course of the equipment's useful life (EUL). The measures listed above are estimated to cost the District \$187,894(including incentives) to install. The expected cost savings to the District over the course of 15 years (the longest EUL in the group), would be \$489,919. This calculates to an estimated annual savings of \$40,827. There were six further measures (see below) identified as potential long-term projects that would increase the District's overall energy efficiency. However, they were not recommended by the Audit as the payback period well exceeded each measure's initial cost.

- (L-2) Install occupancy sensors for interior spaces (Community Center)
- (L-4B) Add photocell control for existing exterior LED fixtures (District-wide)
- (L-6) Replace athletic field HID fixtures with LED fixtures (District-wide)
- (M-2) Replace old HVAC units with new energy efficient units (Community Center)
- (M-3) Replace tank-type water heaters with tank-less water heaters (Community Center)
- (B-1) Replace old single pane windows with new high efficiency double pane windows (Community Center)

These measures were estimated to cost \$1,852,792 in total and could potentially save the District a further \$475,436 over 20 years. However, due to the expense of each of these items and their relatively modest energy saving potential, the average payback period is 58 years, far exceeding the equipment's expected useful life. If the District is to apply for a financing program using this report, measures L-2, L-4B, L-6, M-2, M-3, and B-1 will not be eligible for funding. However, measures L-1, L-3, L-4A, L-5A, L-5B, M-1, and E-1 will be eligible for funding through the programs specified in the report.

### Funding Program Analysis

Section 5 of the Audit report details the programs available to the District to fund these projects. There are four programs that may apply to the recommended efficiency measures. They are:

- Energy Conservation Assistance Act (ECAA)
- SCE Business Rebates – Energy Efficiency Express Solutions
- SCE Business Rebates – Energy Efficiency Customized Solutions
- SOCAL – Energy Efficiency Rebates for Business (EERB)

Each program (excluding the EERB) provides the same form of assistance but through different methods.

### ECAA

The ECAA is the Act which authorized funding for this energy audit. Its further purpose is to fund the measures identified by these audits and incentivize the completion of energy efficiency projects across local government agencies. The District is eligible for the program's 0% interest financing for measures which meet the listed ECAA eligibility requirements.

- A. The maximum loan amount per application is the lesser of:
  1. \$3 million;
  2. The estimated total project cost; or

3. The estimated total energy cost savings over the effective useful life (EUL) of the loan-funded equipment, not to exceed 17 years. If the estimated total project cost is more than the estimated total energy cost savings over the EUL of the loan-funded equipment, the applicant may reduce the estimated total project cost to the estimated total energy cost savings level by using rebates, incentives, and/or its own funding. However, other loan sources may not be used to co-fund the project.
- B. The estimated total energy cost savings over the life of the project will be calculated by multiplying each measure's annual energy cost savings by that measure's EUL and then adding up the savings for all projects.
  - C. Energy cost savings shall be determined using the applicant's current energy rates. Escalation of energy rates and soft costs, such as operation and maintenance savings will not be considered when determining energy cost savings.

The cost of financing from this program must be repaid out of energy cost savings over a maximum of 20 years. If the District were to apply through this program for the recommended measures, it would be expected that the financing would be fully paid back in approximately 4.6 years.

$$\$187,894 \text{ (Measure Costs)} / \$40,827 \text{ (Cost Savings/Year)} = 4.6 \text{ years}$$

#### SCE Business Rebates – Energy Efficiency Express Solutions

The SCE Business Rebates program offers two pathways for financing energy efficiency projects. The Energy Efficiency Express Solution is meant to provide financial assistance with a minimum of hassle. In the District's case, the February 2021 Solution Directory as interpreted by staff (further consultation with SCE on this option is highly recommended), specifies the application to the Express program would include a project description and plan (the Energy Audit), which would be used to calculate a specific rebate amount depending on each type of equipment being installed. Initial analysis of the program shows that lighting (outside of horticultural lighting) is not eligible for financing through this program, which makes up the bulk of the recommended measures included in the Audit. HVAC controls may be eligible under this program, but further consultation is needed. While the recommended measures in the attached Audit may not be included in this program, initial analysis shows that future HVAC replacement, pump replacements, computer-room HVAC systems, commercial ice machines, and other projects may be eligible for this program and as such, should be explored at the appropriate time. Financing for all projects is provided either in the form of rebates or through direct payments for equipment to be repaid through SCEs interest free On-Bill Financing (OBF) program.

#### SCE Business Rebates – Energy Efficiency Customized Solutions

The Energy Efficiency Customized Solution is very similar to the Express Solution; however, it drills further down into specific equipment types and require a thorough evaluation by Southern California Edison staff to be confirmed. While the potential financial benefit is greater, the process is more involved and requires more time for evaluation. However, the list of eligible equipment for the Customized Solution program is the same as the Express Solution program. Thus, most of the included recommended measures in the Audit are not eligible for funding through this program. Funding

mechanisms are the same between the two programs and staff recommends future projects be evaluated with both the Express and Customized Solutions if the programs are available.

#### SOCAL – Energy Efficiency Rebates for Business (EERB)

The EERB program is offered through SoCalGas and applies specifically to projects dealing with natural gas usage. As none of the recommended measures are eligible natural gas systems, this funding measure was not analyzed.

#### **FISCAL IMPACT**

There is no fiscal impact associated with evaluating this Report. However, depending on the funding sources recommended or whether the District pursues the recommended measures at all will determine the level of future fiscal impact.

#### **RECOMMENDATION**

It is recommended the Finance Committee review and discuss the attached Report and provide direction to staff regarding pursuing/not-pursuing financing options for the included recommended energy efficiency measures.

#### **ATTACHMENTS**

- 1) EPP Final Report (88 pages)
- 2) Recommended Energy Efficiency Measures Table



# CONSULTANT REPORT

---

## PLEASANT VALLEY RECREATION & PARK DISTRICT

Community Center  
Community Parks

---

Prepared for: California Energy Commission  
Prepared by: Digital Energy, Inc.



California Energy Commission  
Gavin Newsom, Governor

April 08, 2021  
Contract Number: CEC-400-19-001  
Work Authorization Number: 003

***Prepared by:***

Vishal Diddi, CEM, BCxP  
Ethan Flyer, LEED GA

***Primary Authors***

Digital Energy, Inc.  
555 Marin St Ste 230  
Thousand Oaks, CA 91360  
805-374-1777

Contract Number: 400-19-001  
Work Authorization# 003

***Prepared for:***

**California Energy Commission**

Marites Antonio  
***Contract Agreement Manager***

Marites Antonio  
***Project Manager***

Deana Carillo  
***Office Manager***  
***Local Assistance and Financing Office***

Natalie Lee  
***Deputy Director***  
***Renewable Energy Division***

Drew Bohan  
***Executive Director***

**DISCLAIMER**

This report was prepared as the result of work sponsored by the California Energy Commission. It does not necessarily represent the views of the Energy Commission, its employees or the State of California. The Energy Commission, the State of California, its employees, contractors and subcontractors make no warrant, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the uses of this information will not infringe upon privately owned rights. This report has not been approved or disapproved by the California Energy Commission nor has the California Energy Commission passed upon the accuracy or adequacy of the information in this report.



## PREFACE

This study was prepared as a result of the Pleasant Valley Recreation & Park District's request for assistance under the Energy Partnership Program. This California Energy Commission program assists cities, counties, special districts, public hospitals, public care facilities in identifying measures that can cut energy use and cost in existing facilities while concurrently enhancing building performance. Once the measures are identified, the program can provide additional assistance to help implement or finance the recommendations. The Commission's zero/low interest loans provide competitive financing and are structured so that the estimated measure savings are the basis for the loan repayments.

This study was conducted for the Commission by Digital Energy, Inc., under the direction of Jairam Agaram, P.E. The contract assignment was directed and managed with the assistance of Marites Antonio, Project Manager for the Commission. Digital Energy, Inc. and the Commission appreciate the assistance offered by all District personnel during the study.



## ABSTRACT

This report presents the results of an energy audit that was conducted in August 2020 for the Pleasant Valley Recreation & Park District under the Energy Partnership Program. This report discusses the results of the energy audit and provides information on the steps for measure implementations. The following measures are recommended in this study:

1. Retrofit interior linear fluorescent fixtures with new LED tubes.
2. Replace interior screw-in/pin-based lamps with new LED lamps.
3. Replace exterior screw-in/pin-based lamps with new LED lamps.
4. Install photocell controls for lamp-based exterior lighting
5. Replace building exterior and parking lot high-intensity discharge fixtures with new LED fixtures.
6. Add exterior smart controls for new exterior LED fixtures.
7. Replace programmable thermostats with network wireless thermostats
8. Install plug load occupancy sensor controls for copy machine

These bundled recommended measures have a simple payback period of 5.1 years, after accounting for the potential utility incentives. The following long-term payback measures are recommended as a part of potential future modernization projects:

1. Install occupancy sensors for interior spaces.
2. Install photocell controls for lamp-based exterior lighting
3. Replace athletic fields HID lighting system with LEDs
4. Replace old HVAC units with new energy efficient units
5. Replace tank-type water heater with tank-less water heater
6. Replace old single pane windows with new high efficiency double pane windows



## TABLE OF CONTENTS

### Sections

Executive Summary .....	1
A.1 Site Description .....	8
A.2 Existing Energy Use .....	12
A.3 Energy Using Systems.....	18
A.4 Energy Measure Summaries .....	20
B.1 Site Description .....	32
B.2 Existing Energy Use .....	42
B.3 Energy Using Systems.....	46
B.4 Energy Measure Summaries .....	47
5 Grants, Rebates, Incentives, and Special Funding Opportunities .....	55
6 Codes and Standards .....	60
7 Technology and Implementation.....	69

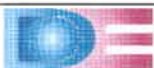
### Appendices

- A. Baseline Energy Use
- B. Energy Balance
- C. Energy Efficiency Measure Calculations
- D. Weather Data
- E. Manufacturer's Product Literature
- F. Consultant Data Sheets



## LIST OF TABLES

Table E.1 Recommended Energy Efficiency Measures (EEMs) .....	3
Table E.2 Building Structures Energy Efficiency Measures (EEMs).....	4
Table E.3 Parks & Athletic Fields Energy Efficiency Measures (EEMs).....	5
Table E.4 Future Modernization EEMs .....	6
Table A.1.1 Typical Operating Schedule for Pleasant Valley Recreation & Park District.....	10
Table A.2.1 Electricity Use Summary.....	12
Table A.2.2 Natural Gas Use Summary .....	12
Table A.2.3 Total Energy Use Summary .....	12
Table A.2.4 Summary of Electricity Rate Simulation .....	13
Table A.2.5 Electricity Energy Balance Summary.....	16
Table A.2.6 Natural Gas Energy Balance Summary.....	17
Table A.4.1 Analysis Summary of Proposed Lighting Measure CC-L-1 .....	20
Table A.4.2 Analysis Summary of Proposed Lighting Measure CC-L-2 .....	21
Table A.4.3 Analysis Summary of Proposed Lighting Measure CC-L-3 .....	22
Table A.4.4A Analysis Summary of Proposed Lighting Measure CC-L-4 (A) .....	24
Table A.4.4B Analysis Summary of Proposed Lighting Measure CC-L-4 (B) .....	24
Table A.4.5A Analysis Summary of Proposed Lighting Measure CC-L-5 (A) .....	26
Table A.4.5B Analysis Summary of Proposed Lighting Measure CC-L-5 (B) .....	26
Table A.4.6 Savings Estimate for Network Thermostats.....	27
Table A.4.7 Analysis Summary of Proposed Lighting Measure CC-M-1.....	27
.....	27
Table A.4.8 Analysis Summary of Proposed Mechanical Measure CC-M-2 .....	28
Table A.4.9 Analysis Summary of Domestic Hot Water Measure CC-M-3 .....	29
Table A.4.10 Analysis Summary of Proposed Building Envelope Measure CC-B-1 .....	30
.....	30
Table A.4.11 Analysis Summary of Proposed Energy Measure CC-E-1 .....	31
Table B.1.1 Typical Operating Schedule for Pleasant Valley Recreation & Park District.....	40
Table B.2.1 Electricity Use Summary.....	42
Table B.2.2 Total Energy Use Summary .....	43
Table B.2.3 Summary of Electricity Rate Simulation .....	44
Table B.4.1 Analysis Summary of Proposed Lighting Measure CP-L-1.....	47
Table B.4.2 Analysis Summary of Proposed Lighting Measure CP-L-2.....	48
Table B.4.3 Analysis Summary of Proposed Lighting Measure CP-L-3.....	49
Table B.4.4A Analysis Summary of Proposed Lighting Measure CP-L-4 (A) .....	51
Table B.4.4B Analysis Summary of Proposed Lighting Measure CP-L-4 (B) .....	51
Table B.4.5A Analysis Summary of Proposed Lighting Measure CP-L-5 (A) .....	53
Table B.4.5B Analysis Summary of Proposed Lighting Measure CP-L-5 (B) .....	53
Table B.4.6 Analysis Summary of Proposed Lighting Measure CP-L-6.....	54
Table 6.1 Control Requirements for Entire Luminaire Alteration .....	63
Table 6.2 IES Lighting Illumination Guidelines .....	64
Table 7.1.1 Control Requirements Met by Smart Controls .....	74



## LIST OF FIGURES

Figure A.1.1 General Overview of Pleasant Valley Recreation & Park District Community Center .....	8
Figure A.2.1 Electricity Use .....	14
Figure A.2.2 Natural Gas Use .....	15
Figure A.2.3 Electricity Use Breakdown .....	16
.....	16
Figure A.2.4 Natural Gas Use Breakdown .....	17
.....	17
Figure B.1.1 General Overview of Bob Kildee Community Park.....	32
32	
Figure B.1.2 General Overview of Freedom Park.....	32
.....	32
Figure B.1.3 General Overview of Lokker Park.....	33
.....	33
Figure B.1.4 General Overview of Mission Oaks Park.....	33
.....	33
Figure B.1.5 General Overview of Nancy Bush Park.....	34
.....	34
Figure B.1.6 General Overview of Pitts Ranch Park .....	34
.....	34
Figure B.1.7 General Overview of Pleasant Valley Fields .....	35
.....	35
Figure B.1.8 General Overview of Quito Park.....	35
35	
Figure B.1.9 General Overview of Springville Park.....	36
.....	36
Figure B.1.10 General Overview of Valle Lindo Park .....	36
.....	36
Figure B.2.1 Electricity Use .....	45
.....	45



## Executive Summary

### A. Focus and Scope of Audit

During August 2020, an energy audit was conducted for the Pleasant Valley Recreation & Park District (District) under the Energy Partnership Program. The focus of the study is the building energy systems at the community center located at 1605 E Burnley Street, Camarillo and the exterior lighting systems at ten recreational facilities (9 parks and an athletic field). This report discusses the results of the energy audit and provides information on the steps for measure implementation. Note: In this study the general word "Park" refers to the 10 subject recreational facilities.

### B. Annual Energy Use and Cost

Energy usage data from recent bills was considered as the first step in identifying energy efficiency opportunities. During a recent 12-month period (December 2018 through November 2019), the audited three building structures used 181,491 kWh (9.56 kWh/square feet) of electricity and 3,303 therms (0.17 therms/square feet) of natural gas. During this period, for the three building structures, the District spent \$42,975 for electricity and \$3,374 for natural gas. Cost of electricity and natural gas for the three building structures during this period averaged \$0.237/kWh and \$1.022/therm, respectively. Based on a total building structures area of 18,985 square feet, the average energy cost is \$2.44 /square feet per year. The District building structure's site energy use intensity of 50.0 kBtu/square feet is lower than the nationwide median energy use intensity of 56 kBtu/square feet.<sup>1</sup> Source energy use intensity is 119.8 kBtu/square foot.<sup>2</sup>

For the same period, the audited parks' exterior lighting system consumed approximately 666,443 kWh, which translated into 0.10 kWh/square feet for the total subject facilities area of 6,512,784 square feet. During the same period, District spent \$136,386 for electricity or \$0.205 per kWh. On square feet basis, the average energy cost is \$0.021 /square feet per year.

---

1. Nationwide average for Social/Meeting Hall according to ENERGY STAR® Portfolio Manager's technical reference on energy use intensity by facility type. See:

<https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf>

2. Source BTU accounts for the fuels consumed in the generation, transmission, and distribution of energy. The calculated source BTU is based on the following reference:

<http://www.energy.ca.gov/2014publications/CEC-400-2014-022/CEC-400-2014-022-CMF.pdf>





## C. Measure Recommendations

The report identifies lighting measures that can reduce the District's overall energy use and cost. If implemented, these measures can cut overall energy cost by 22.1 percent or an estimated \$36,855 per year. The aforementioned energy cost percentage savings for the analysis is calculated based on the simulated electricity rate and the historical natural gas rate. These measures would require an investment of about \$193,197 and could qualify for utility incentives of \$5,303 resulting in net simple payback of 5.1 years, after accounting for the potential utility incentives. **Table E.1** details the recommended measures. Measures are broken down by facility (building structure and park/athletic facilities) in **Tables E.2** and **E.3**. **Table E.4** details measures that were evaluated but are only recommended as part of future modernization efforts due to their long payback periods and high initial capital investment requirement. Detailed information on these and all other measures is contained in Section 4. Section 5 provides information on how some or all of these measures can be funded with a grant under a no/low interest loan from the Energy Commission and incentive offers from utility provider. Section 6 provides information on the relevant codes and standards. The technology associated with the measures presented is discussed in Section 7.

## D. Greenhouse Gas Reduction

Greenhouse gases allow sunlight to enter the atmosphere freely and contribute to global warming. A major contributor to global warming is carbon dioxide emissions (CO<sub>2</sub>). On average in California, 0.69 lbs. of CO<sub>2</sub> are released in the production of 1 kWh of electricity<sup>1</sup>. About 11.65 pounds of CO<sub>2</sub> are released for each therm of natural gas consumed. Based on these indices, a total of 180,762 pounds of CO<sub>2</sub> greenhouse gas emissions can be saved each year if all recommended measures proposed in this study are implemented. This is equivalent to taking about 17 passenger cars off the road for a year.

---

1. Source: <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>



## Measure Summary Tables

Table E.1 Recommended Energy Efficiency Measures (EEMs)

Measure #	Measure Description	Peak Demand Savings (kW)	Annual Electricity Savings (kWh)	Natural Gas Savings (Therms)	Annual CO2 Savings / Mitigation (Pounds)	Measure Cost Estimate (\$)	Electricity Cost Savings (\$)	Natural Gas Cost Savings (\$)	Payback Period without Incentive (years)	Estimated Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (years)	Equipment Useful Life (Years)	Total Energy Cost Savings over the effective EUL (\$)
L-1	Retrofit linear fluorescent fixtures with new LED tubes	13.7	27,069	0	18,677	\$21,384	\$5,781	\$0	3.7	\$5,303	\$16,080	2.8	15.0	\$86,717
L-3	Replace interior screw-in/pin-based lamps with new LED lamps	10.3	12,626	0	8,712	\$7,050	\$2,732	\$0	2.6	\$0	\$7,050	2.6	15.0	\$40,974
L-4A	Replace exterior screw-in/pin-based lamps with new LED lamps	n/a	8,402	0	5,797	\$1,131	\$1,184	\$0	1.0	\$0	\$1,131	1.0	15.0	\$17,766
L-5A	Replace exterior HID fixtures with LED fixtures	n/a	138,609	0	95,640	\$123,566	\$17,662	\$0	7.0	\$0	\$123,566	7.0	15.0	\$264,931
L-5B	Add exterior smart controls for new LED fixtures	n/a	63,984	0	44,149	\$25,902	\$8,118	\$0	3.2	\$0	\$25,902	3.2	8.0	\$64,945
M-1	Replace existing programmable thermostats with network wireless based thermostats	0.0	5,802	297	7,460	\$14,021	\$993	\$303	10.8	\$0	\$14,021	10.8	11.0	\$14,261
E-1	Install plug load occupancy sensor controls for copy machine	0.0	473	0	327	\$144	\$81	\$0	1.8	\$0	\$144	1.8	4.0	\$324
<b>Total Project (All Recommended Measures):</b>		<b>24.0</b>	<b>256,964</b>	<b>297</b>	<b>180,762</b>	<b>\$193,197</b>	<b>\$36,552</b>	<b>\$303</b>	<b>5.2</b>	<b>\$5,303</b>	<b>\$187,894</b>	<b>5.1</b>		<b>\$489,919</b>



Table E.2 Building Structures Energy Efficiency Measures (EEMs)

Measure #	Measure Description	Peak Demand Savings (kW)	Annual Electricity Savings (kWh)	Natural Gas Savings (Therms)	Annual CO <sub>2</sub> Savings / Mitigation (Pounds)	Measure Cost Estimate (\$)	Electricity Cost Savings (\$)	Natural Gas Cost Savings (\$)	Payback Period without Incentive (years)	Estimated Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (years)
L-1	Retrofit linear fluorescent fixtures with new LED tubes	10.8	22,100	0	15,249	\$18,413	\$4,862	\$0	3.8	\$4,272	\$14,141	2.9
L-3	Replace interior screw-in/pin-based lamps with new LED lamps	9.9	11,312	0	7,805	\$6,948	\$2,489	\$0	2.8	\$0	\$6,948	2.8
L-4A	Replace exterior screw-in/pin-based lamps with new LED lamps	n/a	2,795	0	1,929	\$433	\$478	\$0	0.9	\$0	\$433	0.9
L-5A	Replace exterior HID fixtures with LED fixtures	n/a	4,386	0	3,026	\$5,410	\$750	\$0	7.2	\$0	\$5,410	7.2
L-5B	Add exterior smart controls for new LED fixtures	n/a	1,253	0	865	\$2,011	\$214	\$0	9.4	\$0	\$2,011	9.4
M-1	Replace existing programmable thermostats with network wireless based thermostats	0.0	5,802	297	7,460	\$14,021	\$993	\$303	10.8	\$0	\$14,021	10.8
E-1	Install plug load occupancy sensor controls for copy machine	0.0	473	0	327	\$144	\$81	\$0	1.8	\$0	\$144	1.8
<b>Total Project (All Recommended Measures):</b>		<b>20.7</b>	<b>48,121</b>	<b>297</b>	<b>36,660</b>	<b>\$47,380</b>	<b>\$9,867</b>	<b>\$303</b>	<b>4.7</b>	<b>\$4,272</b>	<b>\$43,108</b>	<b>4.2</b>



Table E.3 Parks &amp; Athletic Fields Energy Efficiency Measures (EEMs)

Measure #	Measure Description	Peak Demand Savings (kW)	Annual Electricity Savings (kWh)	Natural Gas Savings (Therms)	Annual CO <sub>2</sub> Savings / Mitigation (Pounds)	Measure Cost Estimate (\$)	Electricity Cost Savings (\$)	Natural Gas Cost Savings (\$)	Payback Period without Incentive (years)	Estimated Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (years)
L-1	Retrofit linear fluorescent fixtures with new LED tubes	2.9	4,969	0	3,429	\$2,970	\$919	\$0	3.2	\$1,031	\$1,939	2.1
L-3	Replace interior screw-in/pin-based lamps with new LED lamps	0.4	1,314	0	907	\$102	\$243	\$0	0.4	\$0	\$102	0.4
L-4A	Replace exterior screw-in/pin-based lamps with new LED lamps	n/a	5,606	0	3,868	\$698	\$706	\$0	1.0	\$0	\$698	1.0
L-5A	Replace exterior HID fixtures with LED fixtures	n/a	134,223	0	92,614	\$118,156	\$16,912	\$0	7.0	\$0	\$118,156	7.0
L-5B	Add exterior smart controls for new LED fixtures	n/a	62,731	0	43,284	\$23,891	\$7,904	\$0	3.0	\$0	\$23,891	3.0
<b>Total Project (All Recommended Measures):</b>		<b>3.3</b>	<b>208,843</b>	<b>0</b>	<b>144,102</b>	<b>\$145,817</b>	<b>\$26,685</b>	<b>\$0</b>	<b>5.5</b>	<b>\$1,031</b>	<b>\$144,785</b>	<b>5.4</b>



**Table E.4 Future Modernization EEMs**

Measure #	Measure Description	Peak Demand Savings (kW)	Annual Electricity Savings (kWh)	Natural Gas Savings (Therms)	Annual CO2 Savings / Mitigation (Pounds)	Measure Cost Estimate (\$)	Electricity Cost Savings (\$)	Natural Gas Cost Savings (\$)	Payback Period without Incentive (years)	Estimated Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)	Equipment Useful Life-EUL (Years)	Total Energy Cost Savings over the effective EUL (\$)
L-2	Install occupancy sensors for interior spaces	n/a	5,897	0	4,069	\$14,923	\$990	\$0	15.1	\$708	\$14,216	14.4	8.0	\$7,920
L-4B	Add photocell control for existing exterior LED fixture	n/a	234	0	161	\$2,005	\$35	\$0	57.1	\$0	\$2,005	57.1	8.0	\$281
L-6	Replace athletic field HID fixtures with LED fixtures	n/a	236,488	0	163,176	\$1,735,382	\$29,797	\$0	58.2	\$0	\$1,735,382	58.2	15.00	\$446,962
M-2	Replace old HVAC units with new energy efficient units	6.8	2,132	33	1,886	\$40,330	\$468	\$34	80.2	\$0	\$40,330	80.2	15.00	\$7,538
M-3	Replace tank-type water heater with tank-less water heater	0.0	0	135	1,669	\$13,106	\$0	\$138	95.3	\$0	\$13,106	95.3	20.00	\$2,752
B-1	Replace old single pane windows with new high efficiency double pane windows	0.0	2,612	51	2,433	\$47,753	\$447	\$52	95.7	\$0	\$47,753	95.7	20.00	\$9,983
<b>Total Project (All Long Term Measures):</b>		<b>6.8</b>	<b>247,362</b>	<b>219</b>	<b>173,394</b>	<b>\$1,853,500</b>	<b>\$31,738</b>	<b>\$224</b>	<b>58.0</b>	<b>\$708</b>	<b>\$1,852,792</b>	<b>58.0</b>		<b>\$475,436</b>



## General Background

The Pleasant Valley Recreation & Park District (District) is located in Camarillo, California, in Ventura County, and operates the two targeted groups, which includes 18,895 square feet building structures consisting of three buildings (Community Center Building, Administration Building, and Senior Center) and Community Parks and Athletic Fields consisting of ten locations spread over 6,512,784 square feet.

The following sections (Section A – Building Structures & Section B – Parks & Athletic Facilities) presents a description of the District facilities, the energy using systems, and associated energy efficiency measures. This is followed by the associated rebates and incentives provided by the utility providers – Southern California Edison (SCE) and SoCalGas. Subsequently, to help understand the implications of some of the measures presented, details of the associated codes, standards, and technology are provided.





## A.1 Site Description

### A.1.1 Background

The Pleasant Valley Recreation & Park District Community Center (Community Center), built in 1969 and partially modernized in 1982, provides community programs, event spaces, and senior programs areas for the city. An overview of the Community Center is shown in **Figure A.1.1**.

**Figure A.1.1 General Overview of Pleasant Valley Recreation & Park District Community Center**



## A.1.2 Site Details

The Pleasant Valley Recreation & Park District Community Center consists of three permanent buildings, with a total area of 18,985 sq. ft.

The spaces include the following:

Administration – Built 1969 and last renovated in 1982

- General offices
- Conference room
- Private offices
- Classrooms
- Kitchen
- Storage
- Restrooms

Auditorium – Built 1969

- Gymnasium/Auditorium
- Theatre/Production stage
- Front office
- Mezzanine
- Storage
- Restrooms

Senior Center – Built 1969 and last renovated in 1982

- Multipurpose rooms
- Recreations rooms
- Storage
- Restrooms

## A.1.3 Operating Schedules

Most spaces in the Community Center operate five days/week, year-round, approximately 10 hours/day.

**Table A.1.1** summarizes the operating schedule for the Community Center. Note that building operating hours are not necessarily representative of actual room usage. Usage hours by space type are presented in **Appendix F**, and include additional operating time allowed for administrative and janitorial staff.





**Table A.1.1 Typical Operating Schedule for Pleasant Valley Recreation & Park District**

<b>Facility</b>	<b>Operating Hours per Day <sup>1</sup></b>	<b>Days per Year</b>
Administration Building – 4,709 Sq.ft.		
Office Areas and Conference Room	12	260
Classrooms	9	260
Community Center Building – 10,302 Sq.ft.		
Auditorium	5	365
Classrooms	9	260
Dressing Rooms	5	365
Senior Center Building – 3,974 Sq.ft.		
Senior Center	10	312

1. Representative of operating schedules. Additional hours before and after are probable for administrative and janitorial staff.



### A.1.4 Local Weather Statistics

Weather data statistics for Oxnard, California, indicate that the region has 363 annual cooling degree days and 1,795 annual heating degree days with respect to a base temperature of 65 °F. Extremes recorded at the weather station show that temperatures have reached as high as 100 °F in the fall and as low as 31 °F in the winter. The average maximum temperature in August is 75.9 °F, and the average minimum temperature in December is 44.6 °F. More weather statistics for the region are shown in **Appendix D**.<sup>1</sup>

---

1. Cooling Degree Day units are computed as the difference between the daily average temperature and a selected base temperature (i.e., Daily Avg. Temp. – Base Temp.). One unit is accumulated for each degree Fahrenheit the average temperature is above the selected base temperature. Negative numbers are discarded. Example: If the day's high temperature was 95 °F and the low temperature was 51 °F, the cooling degree days for the selected base temperature of 65 °F is 8 degree days [i.e.,  $((95 + 51) / 2) - 65 = 8$ ]. This is done for each day of the month (or year) and summed.

Heating Degree Day units are computed as the difference between a selected base temperature and the daily average temperature (i.e., Base Temp. – Daily Avg. Temp.) One unit is accumulated for each degree Fahrenheit the average temperature is below the selected base temperature. Negative numbers are discarded. Example: If the day's high temperature was 62 °F and the low temperature was 34 °F, the heating degree days for the selected base temperature of 65 °F units is 17 degree days [i.e.,  $65 - ((62 + 34) / 2) = 17$ ]. This is done for each day of the month (or year) and summed.



## A.2 Existing Energy Use

### A.2.1 Facility Energy Usage

Energy meter records show that during a recent 12-month period (December 2018 through November 2019), the Pleasant Valley Recreation & Park District Community Center used 181,491 kWh of electricity and 3,303 therms of natural gas. Cost of electricity and natural gas during this period averaged \$0.237/kWh and \$1.022/therm, respectively. Electricity and natural gas are purchased from Southern California Edison (SCE) and SoCalGas. The overall energy costs and usage indices are summarized in **Tables A.2.1** through **A.2.3**. Refer to **Appendix A** for detailed historical energy use data.

**Table A.2.1 Electricity Use Summary**

GSF	Rate Schedule	Electricity (kWh)	Cost (\$)	kWh/ GSF	\$/GSF	Site kBtu/GSF [1]	Source kBtu/GSF [2]	Rate (\$/kWh)
18,985	TOU-GS2E	181,491	\$42,975	9.56	\$2.264	32.6	102.4	\$0.237

[1] Electricity conversion factor to site energy is 3,412 Btu/kWh

[2] Electricity conversion factor to source energy is 10,716 Btu/kWh

**Table A.2.2 Natural Gas Use Summary**

GSF	Rate Schedule	Natural Gas (Therms)	Cost (\$)	Therms/ GSF	\$/GSF	Site kBtu/GSF [3]	Source kBtu/GSF	Rate (\$/therm)
18,985	-	3,303	\$3,374	0.17	\$0.18	17.4	17.4	\$1.022

[3] Fuel conversion factor: 100,000 Btu/therm

**Table A.2.3 Total Energy Use Summary**

GSF	Total Site Energy (MMBtu)	Total Source Energy (MMBtu)	Total Energy Cost	Total Energy Cost per GSF	Site kBtu/GSF	Source kBtu/GSF
18,985	950	2,275	\$46,349	\$2.44	50.0	119.8

[3] Source Btu based on the following reference: <http://www.energy.ca.gov/2014publications/CEC-400-2014-022/CEC-400-2014-022-CMF.pdf>



## A.2.2 Rate Simulation and Analysis of Rate Schedules

Rate simulation assists in establishing the equivalent rates (\$/kWh) to be used for evaluating savings associated with various energy efficiency measures. The “energy rate” excludes demand charges and is utilized in the analysis for measures such as exterior lighting retrofits, which do not have demand savings. The “effective rate” includes demand charges and is used in the analysis for measures such as interior lighting retrofits, which do have demand savings. Total rates also include customer charges. Refer to **Table A.2.4** for results of the electricity rate simulation. Refer to **Appendix F** for calculation details.

**Table A.2.4 Summary of Electricity Rate Simulation**

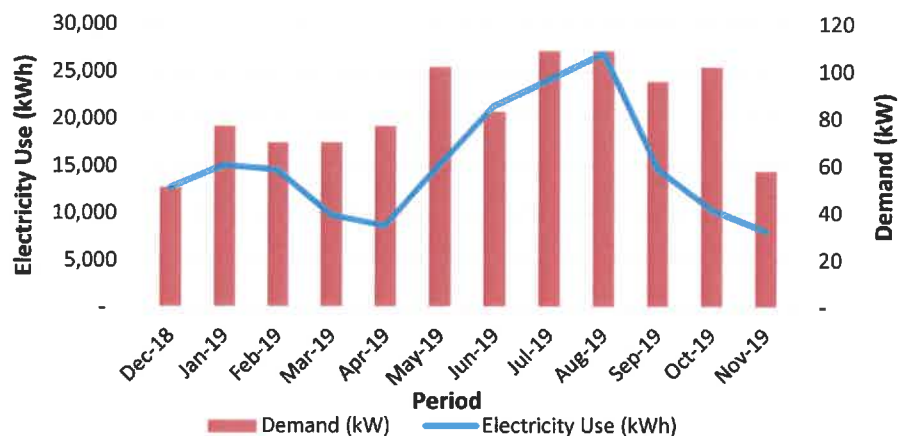
Rate	Energy Use (kWh)	% of Total Energy Use	Energy Cost (\$)	Total Cost (\$)	Energy Rate (\$/kWh)	Effective Rate (\$/kWh)
TOU-GS2E	181,491	100.0%	\$31,072	\$39,878	\$0.171	\$0.220



### A.2.3 Energy Use Patterns

**Figures A.2.1** and **A.2.2** illustrate the seasonal variation in the use of electricity and natural gas for the Building Structures. Notes are provided with respect to trends observed.

**Figure A.2.1 Electricity Use**

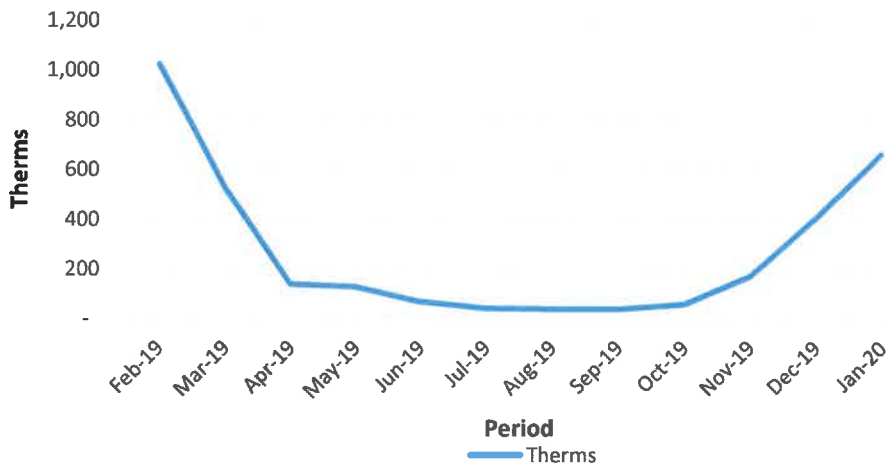


#### Trends and Observations

- Electricity usage increases in the summer months and is attributed to a relatively higher cooling demand as the weather warms.
- The drop in electricity consumption and demand in the winter months is indicative of mostly natural gas fuel source heating equipment (gas furnaces) used for conditioning the buildings during the colder weather.
- Overall usage during the fall, winter, & spring seasons is lower and relatively consistent.

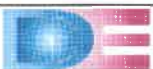


**Figure A.2.2 Natural Gas Use**



**Trends and Observations**

- Natural gas use peaks in the winter months when there is an increased heating demand and is lower during the remainder of the year when weather is warm.



### A.2.4 Energy Balance

An energy balance shows the amount of energy used by each of the systems in the Pleasant Valley Recreation & Park District. The energy balance for the District is presented in **Tables A.2.5** and **A.2.6** and **Figures A.2.3.** and **A.2.4.** Refer to **Appendix B** for detailed energy balance data.

#### Electricity

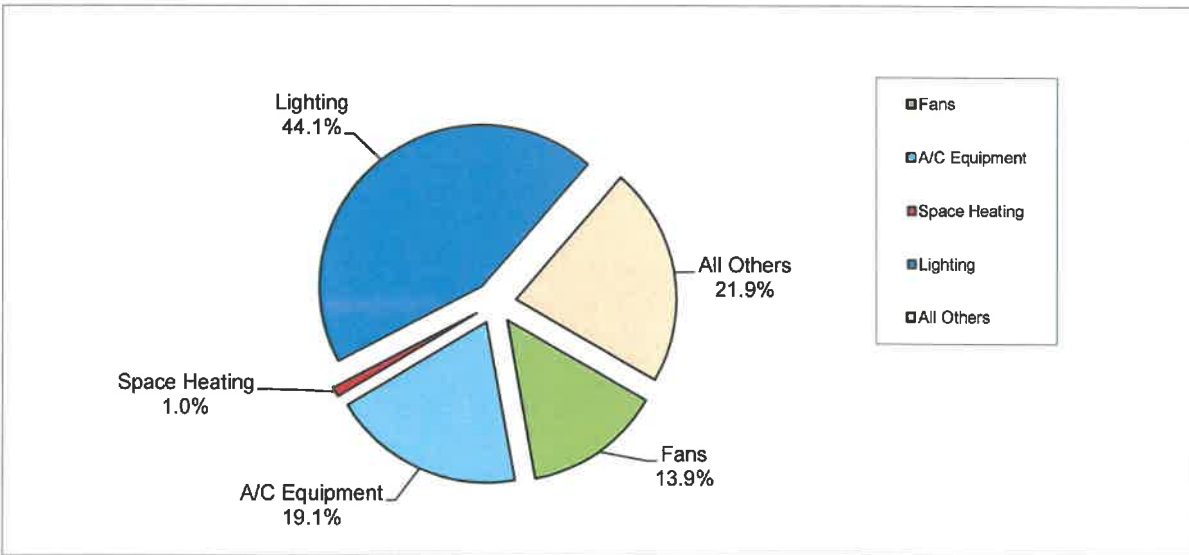
**Table A.2.5 Electricity Energy Balance Summary**

End Use	Fans	A/C Equipment	Space Heating	Lighting	All Others 1	TOTAL kWh
Pleasant Valley Recreation & Park District - Community Center	25,179	34,727	1,738	80,023	39,825	181,491
% of Total	13.9%	19.1%	1.0%	44.1%	21.9%	100.0%

"A/C Equipment" includes heat pump use during the cooling season.

"All Others" includes office equipment (e.g., computers, printers, and copiers), domestic water heaters, kitchen appliances, plug loads, and other miscellaneous equipment not accounted for.

**Figure A.2.3 Electricity Use Breakdown**



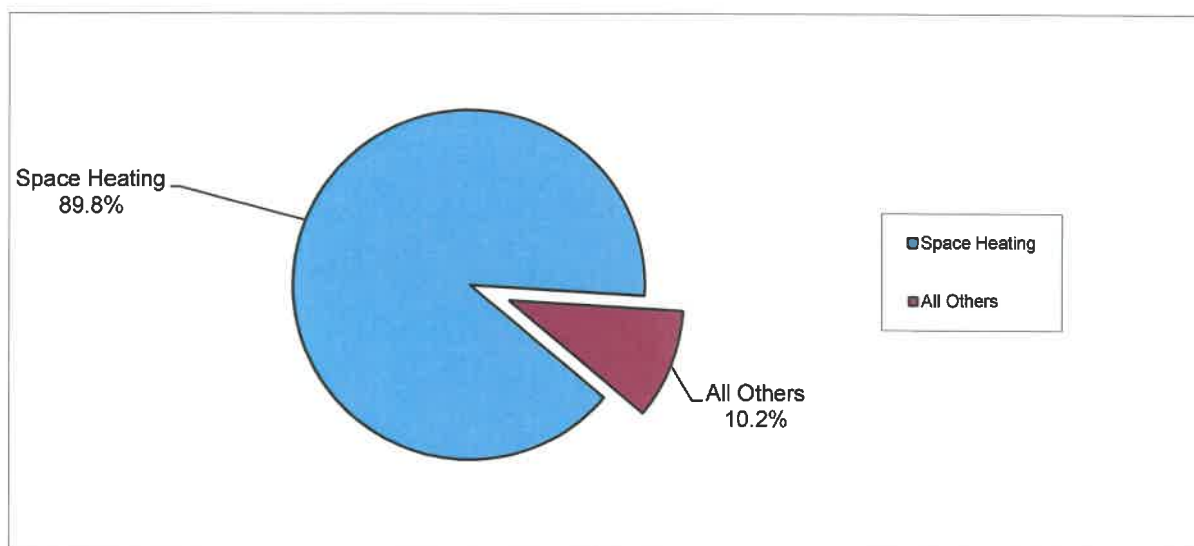
### Natural Gas

**Table A.2.6 Natural Gas Energy Balance Summary**

End Use	Space Heating	All Others	TOTAL Therms
<b>Pleasant Valley Recreation &amp; Park District - Community Center</b>	2,967	336	<b>3,303</b>
<i>% of Total</i>	<i>89.8%</i>	<i>10.2%</i>	<i>100.0%</i>

"All Others" includes domestic hot water & kitchen equipment (where applicable)

**Figure A.2.4 Natural Gas Use Breakdown**





## A.3 Energy Using Systems

### A.3.1 Lighting Systems<sup>1</sup>

#### Overview

- Lighting systems at the Community Center are primarily T8 linear fluorescent-based fixtures. Based on a sampling of fixtures, typical T8 systems use standard 32-watt lamps and instant start electronic ballasts. The few T12 fixtures, observed in the storage rooms and kitchen, use standard 34-watt lamps and magnetic ballasts.
- Fluorescent lighting fixtures are a mixture of troffer, surface-mount, and suspended fixtures (i.e. 1'x4', 2'x4', 6"x4', and 2'x2').
- Additional interior lighting systems include compact fluorescent and incandescent lamps in recessed cans and surface-mount fixtures (9, 13, 14, and 23 watts).
- Interior lighting is mainly controlled by switches, and the only exceptions are three zones, in the administration building, controlled by wall mounted occupancy sensors.
- Building exterior lighting consists of a combination of screw-in LED, CFL, and incandescent recessed can fixtures. Also, there are a few high-pressure sodium wall pack fixtures around the building perimeters.
- The parking lot is illuminated by a combination of pole mounted LED and High Pressure Sodium fixtures.
- Building exterior and parking pole lighting system is controlled by a timer, on a common lighting circuit, and operates from dusk until dawn.

---

1. A detailed lighting audit of all rooms is presented in **Appendix F**.



## A.3.2 Heating Ventilation and Air Conditioning (HVAC)

### Overview

- The community center facility is primarily conditioned by 16 roof top gas electric units and a couple of heat pump units; the cooling for these units ranges between 2.5 and 10 tons; the heating furnace size capacity is between 36 and 260 MBH. Most of the units were replaced after 2005/2006. The 10-ton unit serving the office area was replaced in 2020; however, two units serving the classroom #6, and the conference room are more than 30 years old (1989 install) and are in poor condition. These units are recommended for replacement in this study.
- The units are controlled by a programmable thermostats Thermostat is typically set to 70 °F for heating and 72 °F for cooling.
- Windows are single pane and can be replaced with energy efficient double pane windows.

## A.3.3 Other Energy Using Systems

### Domestic Hot Water Heaters

Domestic hot water in the kitchen, restrooms, and custodial area is provided by a total of six small and medium size tank-type natural gas water heater. The tank capacity ranges between 15 and 80 gallons.

### Kitchen

The facility has a working kitchen with typical gas fired cooking equipment (e.g., ovens, stoves, food warmers, etc.).

### Computers and Office Equipment

The administration office has several computers and auxiliary office equipment, which consist of large printers, a laminator (not plugged in regularly), and a shredder.



## A.4 Energy Measure Summaries

### A.4.1 Lighting

#### Lighting Measure CC-L-1:

Retrofit Interior Linear  
Fluorescent Fixtures with New  
LED Tubes

#### Measure Description

Existing interior linear fluorescent fixtures at the Pleasant Valley Recreation & Park District use 32-watt T8 lamps and a few 34-watt and 60-watt T12 lamps. This measure proposes (1) replacing all linear fluorescent lamps with new ballast-bypass LED lamps, (2) bypassing and removing existing ballasts, and (3) general cleaning of each fixture for improved lighting performance.

Refer to Section 6, **Table 6.2**, for illumination guidelines for standard room types as recommended by the Illuminating Engineering Society of North America – (IES). According to IES lighting illumination guidelines, any reduction in light levels resulting from the conversion to low watt lamps is tolerable to a certain degree. To adhere to the illumination guidelines, it is suggested that pilot measures be implemented to observe the effects on the lumen levels of re-lamping and retrofitting.

Refer to **Appendix F** for a detailed room-by-room audit including all areas proposed for conversion.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

#### Measure Implementation

Refer to Section 7 for information on technology and implementation of this measure.

#### Analysis Summary

Refer to **Table A.4.1** for analysis summary.

**Table A.4.1 Analysis Summary of Proposed Lighting Measure CC-L-1**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
665	10.8	22,100	\$0.220	\$18,413	\$4,862	3.8	\$4,272	\$14,141	2.9

Incentives are estimated at \$0.12/kWh saved and \$150/kW saved, under Express Solutions of the Southern California Edison business lighting rebates.



**Lighting Measure CC-L-2:**

Install Occupancy Sensors for Interior Spaces

**Measure Description**

This measure presents analysis on adding interior occupancy controls for interior fixtures. It is to be noted that savings are estimated under the assumption that the Lighting Measure CC-L-1 will be implemented prior to the installation of controls.

Based on observations, spaces throughout the District can go long periods unoccupied with lights fully on. There is presently moderate use of occupancy sensors.

This measure proposes the installation of occupancy sensors in select rooms in the District, where Lighting Measure CC-L-1 is in place. Measure analysis assumes 20 percent savings in lighting operational hours with use of occupancy sensors. Refer to **Appendix F** for exact zones that are proposed for sensor controls.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table A.4.2** for analysis summary.

**Table A.4.2 Analysis Summary of Proposed Lighting Measure CC-L-2**

# of Sensors	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
51	n/a	5,495	\$0.171	\$11,779	\$940	12.5	\$659	\$11,120	11.8

Incentives are estimated at \$0.12/kWh saved and \$150/kW saved, under Express Solutions of the Southern California Edison business lighting rebates.



**Lighting Measure CC-L-3:**

Re-Lamp Interior Screw-in or Pin-based Fixtures with New LED A-Shape Lamps or Equivalent

**Measure Description**

Interior spaces at the District are also illuminated by fixtures with a screw-in/pin-based lamps—compact fluorescent lamps (CFLs) and incandescent lamps. These are installed in various spaces in recessed and chandelier fixtures.

This measure proposes replacement of these existing lamps with new, lower wattage LED A-shape lamps, or equivalent. Lamps shall be either pin-based or screw-in lamps that plug-and-play in the existing fixtures, with the option of adapter plugs, where necessary.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table A.4.3** for analysis summary. Presently, there are no incentives offered for this measure.

**Table A.4.3 Analysis Summary of Proposed Lighting Measure CC-L-3**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
215	9.9	11,312	\$0.220	\$6,948	\$2,489	2.8	\$0	\$6,948	2.8



**Lighting Measure CC-L-4:**

- (A) Re-Lamp Exterior Screw-in or Pin-based Fixtures with New LED A-Shape Lamps or Equivalent
- (B) Install photocell controls for lamp-based exterior lighting

**Measure Description**

Exterior spaces at the District are also illuminated by a combination screw-in compact fluorescent lamps (CFL). These are installed in various spaces in recessed can, ground light, and bollard fixtures.

This measure proposes replacement of these existing lamps with new, lower wattage LED A-shape lamps, or equivalent. Lamps shall be either pin-based or screw-in lamps that plug-and-play in the existing fixtures, with the option of adapter plugs, where necessary.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

This measure also proposes adding standalone photocells for these re-lamped fixtures. Presently, the exterior lighting fixtures are controlled by timer on the common circuits. The addition of photocell controls, in series with the timer, for these fixtures can lead to additional energy savings.

With a timer alone, the lights are scheduled to turn on and off at a specific time every day and may be powered on during daylight hours. With the addition of photocell controls for exterior fixtures, the added controls will provide savings for lighting operations. Between dusk and dawn only, the photocell will keep the exterior lights on until adequate natural light become available.

Analysis estimates approximately 20 percent usage hour savings with implementation of photocell controls. See **Appendix C** for details.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Tables A.4.4A & A.4.4B** for analysis summary. Incentives/Rebates are not offered for this measure.



**Table A.4.4A Analysis Summary of Proposed Lighting Measure CC-L-4 (A)**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
14	n/a	2,795	\$0.171	\$433	\$478	0.9	\$0	\$433	0.9

**Table A.4.4A Analysis Summary of Proposed Lighting Measure CC-L-4 (B)**

# of Sensors	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
9	n/a	129	\$0.171	\$1,805	\$22	82.6	\$0	\$1,805	82.6



**Lighting Measure CC-L-5:**

- (A) Replace Exterior High Intensity Discharge Fixtures with New LED Fixtures
- (B) Add Exterior Smart Controls for New Exterior LED Fixtures

**Measure Description**

A few of the building exterior and parking lot pole mounted fixtures are illuminated by high-intensity discharge (HID) fixtures. This measure proposes replacement of the existing exterior high-pressure sodium (HPS) lighting fixtures with new lower-wattage LED-based fixtures.

These fixtures will require Title 24-compliant intelligent controls for exterior lights, presented in Lighting Measure CC-L-5 (B).

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Tables A.4.5A** and **A.4.5B** for analysis summary. Incentives/Rebates are not offered for this measure.





**Table A.4.5A Analysis Summary of Proposed Lighting Measure CC-L-5 (A)**

# of Fixtures	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
17	n/a	4,386	\$0.171	\$5,410	\$750	7.2	\$0	\$5,410	7.2

**Table A.4.5B Analysis Summary of Proposed Lighting Measure CC-L-5 (B)**

# of Controls	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
17	n/a	1,253	\$0.171	\$2,011	\$214	9.4	\$0	\$2,011	9.4



## A.4.2 Mechanical

### Mechanical Measure CC-M-1:

Replace Existing Programmable Thermostats with Network Wireless Based Thermostats

#### Measure Description

The HVAC systems at the community center are presently controlled by programmable thermostats. This measure looks at replacing all existing thermostats with internet/network thermostats. There are 18 network thermostats recommended in this measure.

#### Measure Implementation

Refer to Section 7.2.1 for information on technology and implementation of this measure.

#### Measure Analysis

Savings were estimated based on 10 percent of estimated HVAC end-use energy. Refer to **Table A.4.6** for the savings estimate.

**Table A.4.6 Savings Estimate for Network Thermostats**

	Heating	Cooling	Fans
Savings from Improved Scheduling	4%	4%	4%
Savings from Improved Temperature Control	3%	3%	3%
Savings from Optimized Start/Stop	3%	3%	3%
<b>Total Savings</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>

#### Analysis Summary

Refer to **Table A.4.7** for analysis summary. Presently there are no incentives offered for this measure.

**Table A.4.7 Analysis Summary of Proposed Lighting Measure CC-M-1**

kW Saved	kWh Saved	Rate (\$/kWh)	Natural Gas Saved (Therms)	Rate (\$/Therm)	Measure Cost (\$)	Cost Savings (\$)	Simple Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Simple Payback Period with Incentive (Years)
0	5,802	\$0.171	297	\$1.022	\$14,021	\$1,296	10.8	\$0	\$14,021	10.8



**Mechanical Measure CC-M-2: Replace Old HVAC Units with New Energy Efficient Units**

**Measure Description**

The two-roof top mounted gas electric package units, originally installed in 1989, are in poor condition. The subject units serve a classroom, and a conference room; the system capacity for the same is 7.5 ton and 2.5 ton, respectively. Industry standards suggest that the average service life of independent HVAC equipment (e.g., heat pumps, packaged units) is in the order of 15 to 20 years. This measure proposes replacing the roof mounted gas electric package units with new high efficiency units that meet and exceed Title 24 mandated efficiency standards. Because equipment is near its expected service life and is in bad condition, the payback period associated with this recommendation may be irrelevant.

**Measure Implementation**

Refer to Sections 7.2.2 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table A.4.8** for analysis summary. Presently, there are no incentives offered for this measure.

**Table A.4.8 Analysis Summary of Proposed Mechanical Measure CC-M-2**

kW Saved	kWh Saved	Rate (\$/kWh)	Natural Gas Saved (Therms)	Natural Gas Rate (\$/Therms)	Measure Cost (\$)	Energy Cost Savings (\$)	Payback Period (years)	Estimated Incentive (\$)	Net Measure Cost with Incentive (\$)	Simple Payback Period with Incentive (Years)
6.8	2,132	\$0.220	33	n/a	\$40,330	\$503	80.2	\$0	\$40,330	80.2



**Mechanical Measure CC-M-3:** Replace Tank-type Water Heater with Tank-less Water Heater

**Measure Description**

Domestic hot water in the kitchen, restrooms, and custodial area is provided by a total of six small and medium size tank-type natural gas water heater. The tank capacity ranges between 15 and 80 gallons. This measure proposes replacing the tank-type electric water heater with new tank-less natural gas water heater.

**Measure Implementation**

Refer to Section 7.2.3 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table A.4.9** for analysis summary. No incentives are available for this measure.

**Table A.4.9 Analysis Summary of Domestic Hot Water Measure CC-M-3**

kW Saved	kWh Saved	Rate (\$/kWh)	Natural Gas Saved (Therms)	Rate (\$/therm)	Measure Cost (\$)	Cost Savings (\$)	Simple Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Simple Payback Period with Incentive (Years)
0	0	\$0.220	135	\$1.022	\$13,106	\$138	95.3	\$0	\$13,106	95.3



**Bldg. Envelope Measure CC-B-1:** Replace old single pane windows with new high efficiency double pane windows

**Measure Description**

This measure discussed replacing the existing single pane windows with new high efficiency double pane windows. The existing window frames are aged. Replacing the windows will assist in minimizing the amount of heat transferred through the window space. At the same time, replacing the window will similarly replace the current window weather stripping which may provide additional savings not accounted for in this analysis. It is recommended to replace entire window unit (panes and frames) with a structurally equivalent replacement.

**Measure Implementation**

Refer to Section 7.3.1 for information on technology and implementation of this measure. No incentives are available for this measure.

**Analysis Summary**

Refer to **Table A.4.10** for an analysis summary.

**Table A.4.10 Analysis Summary of Proposed Building Envelope Measure CC-B-1**

kW Saved	kWh Saved	Rate (\$/kWh)	Natural Gas Saved (Therms)	Rate (\$/therm)	Measure Cost (\$)	Cost Savings (\$)	Simple Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Simple Payback Period with Incentive (Years)
0	2,612	\$0.171	51	\$1.022	\$47,753	\$499	95.7	\$0	\$47,753	95.7



**Energy Measure CC-E-1: Install Plug Load Occupancy Sensor Controls for Copy Machine**

**Measure Description**

One copy machine is present in the administration buildings. Plug loads such as this can contribute significantly to the overall electricity use in a facility. While not used a significant amount of time, leaving the unit in stand-by/sleep mode still adds to the energy use. It is typical for copy machines to never completely turn off to start quickly when the user activated the device. Actual electric draw in stand-by/sleep mode varies machine to machine.

This measure proposes the use of a plug load occupancy sensor and a controlling power strip for controlling the copy machine. This device activates the controlled receptacles when the space is occupied and de-energizes them when the space is vacant. An adjustable time delay ensures that the controlled devices remain on without false triggers while the space is occupied. Given the large amount of non-occupancy hours, this measure has a high energy savings potential.

**Measure Implementation**

Refer to Section 7.4.1 for information on technology and implementation of this measure. No incentives are available for this measure.

**Analysis Summary**

Refer to **Table A.4.11** for analysis summary.

**Table A.4.11 Analysis Summary of Proposed Energy Measure CC-E-1**

kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Energy Cost Savings (\$)	Payback Period (Years)	Estimated Incentive (\$)	Measure Cost with Incentive (\$)	Simple Payback Period with Incentive (Years)
0	473	\$0.171	\$144	\$81	1.8	\$0	\$144	1.8



## B.1 Site Description

### B.1.1 Background

The Pleasant Valley Recreation & Park District Community Parks (Community Parks), provide community recreation areas, event spaces, and dog parks for the city. Overviews of the Community Parks are shown in **Figures B.1.1** through **B.1.10**.

**Figure B.1.1 General Overview of Bob Kildee Community Park**



**Figure B.1.2 General Overview of Freedom Park**





**Figure B.1.3 General Overview of Lokker Park**



**Figure B.1.4 General Overview of Mission Oaks Park**





**Figure B.1.5 General Overview of Nancy Bush Park**



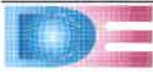
**Figure B.1.6 General Overview of Pitts Ranch Park**



**Figure B.1.7 General Overview of Pleasant Valley Fields**



**Figure B.1.8 General Overview of Quito Park**





**Figure B.1.9 General Overview of Springville Park**



**Figure B.1.10 General Overview of Valle Lindo Park**



## B.1.2 Site Details

The Pleasant Valley Recreation & Park District Community Parks consists of ten park and field locations, with a total area of approximately 6,512,784 sq. ft.

The sites include the following:

### 1) Bob Kildee Community Park

- Aquatic center
- Skate park
- Restrooms
- Playground
- Lighted baseball fields and three tennis courts
- Handball and six pickleball courts
- Snack bar
- Soccer fields
- Picnic shelters
- Horseshoe pits

### 2) Freedom Park –

- BMX raceway
- R/C track
- Roller hockey rink
- Preschool building
- Group picnic shelter
- Horseshoe pits
- Restrooms
- Meeting rooms
- Concession Stand

### 3) Lokker Park –

- Playgrounds
- Picnic shelter
- Sand volleyball court
- Basketball court
- Horseshoe pits

### 4) Mission Oaks Park –

- Three lighted softball fields
- Three picnic shelters
- Six lighted tennis courts
- Playground
- Lighted walkways
- Restrooms
- Concession stand



- Grass volleyball poles
- Off-leash dog area
- Multipurpose fields

5) Nancy Bush Park –

- Picnic tables
- Play equipment
- Restrooms
- Walking path

6) Pitts Ranch Park –

- Picnic tables
- Play equipment
- Restrooms
- Two Tennis courts
- Softball field
- Full-size basketball court
- Lighted walking path

7) Pleasant Valley Fields –

- 34 acres of lighted sports fields
- Playground
- Picnic area
- Restrooms
- Storage rooms
- Meeting room
- Snack bar
- Walking path

8) Quito Park –

- Picnic tables
- Play equipment
- Walking path
- Grass volleyball poles

9) Springville Park –

- Three Tennis courts, LEDs installed in Feb 2020
- Viewing area
- Dog park
- Portable restrooms

10) Valle Lindo Park –

- Picnic shelters
- Soccer fields



- Five Lighted tennis courts
- Playground
- Restrooms
- Amphitheater



### B.1.3 Operating Schedules

Most spaces in the District operate seven days/week, year-round, approximately 12 hours/day.

**Table B.1.1** summarizes the operating schedule for the Community Parks. Park operating hours are representative of nighttime lighting usage. Usage hours by space type are presented in **Appendix F**.

**Table B.1.1 Typical Operating Schedule for Pleasant Valley Recreation & Park District**

#	Facility	Approx. Area (Sq. ft.)	Operating Hours per Day <sup>1</sup>	Days per Year
1	Bob Kildee Community Park	561,813	12	365
2	Freedom Park	1,259,133	12	365
3	Lokker Park	344,338	12	365
4	Mission Oaks Park	837,387	12	365
5	Nancy Bush Park	135,257	12	365
6	Pitts Ranch Park	479,965	12	365
7	Pleasant Valley Fields	1,876,694	12	365
8	Quito Park	220,762	12	365
9	Springville Park	133,016	12	365
10	Valle Lindo Park	664,419	12	365

1. Representative of operating schedules. Additional hours before and after are probable for administrative and janitorial staff.



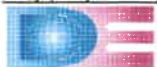
### B.1.4 Local Weather Statistics

Weather data statistics for Oxnard, California, indicate that the region has 363 annual cooling degree days and 1,795 annual heating degree days with respect to a base temperature of 65 °F. Extremes recorded at the weather station show that temperatures have reached as high as 100 °F in the fall and as low as 31 °F in the winter. The average maximum temperature in August is 75.9 °F, and the average minimum temperature in December is 44.6 °F. More weather statistics for the region are shown in **Appendix D**.<sup>1</sup>

---

1. Cooling Degree Day units are computed as the difference between the daily average temperature and a selected base temperature (i.e., Daily Avg. Temp. – Base Temp.). One unit is accumulated for each degree Fahrenheit the average temperature is above the selected base temperature. Negative numbers are discarded. Example: If the day's high temperature was 95 °F and the low temperature was 51 °F, the cooling degree days for the selected base temperature of 65 °F is 8 degree days [i.e.,  $((95 + 51) / 2) - 65 = 8$ ]. This is done for each day of the month (or year) and summed.

Heating Degree Day units are computed as the difference between a selected base temperature and the daily average temperature (i.e., Base Temp. – Daily Avg. Temp.) One unit is accumulated for each degree Fahrenheit the average temperature is below the selected base temperature. Negative numbers are discarded. Example: If the day's high temperature was 62 °F and the low temperature was 34 °F, the heating degree days for the selected base temperature of 65 °F units is 17 degree days [i.e.,  $65 - ((62 + 34) / 2) = 17$ ]. This is done for each day of the month (or year) and summed.





## B.2 Existing Energy Use

### B.2.1 Facility Energy Usage

Energy meter records show that during a recent 12-month period (December 2018 through November 2019), the Pleasant Valley Recreation & Park District Community Parks used 666,443 kWh of electricity. Cost of electricity during this period averaged \$0.205/kWh. Electricity is purchased from Southern California Edison (SCE). The overall energy costs and usage indices are summarized in **Tables B.2.1** and **B.2.2**. Refer to **Appendix A** for detailed historical energy use data.

**Table B.2.1 Electricity Use Summary**

Facility	GSF	Rate Schedule	Electricity (kWh)	Cost (\$)	kWh/GSF	\$/GSF	Site kBtu/GSF [1]	Source kBtu/GSF [2]	Rate (\$/kWh)
Bob Kildee Community Park	561,813	TOU-GS3-E	225,515	\$70,948	0.40	\$0.126	1.4	4.3	\$0.315
Freedom Park	1,259,133	AL-2-F TOU-GS1D TOU-GS1E OL-1	94,525	\$13,896	0.08	\$0.011	0.3	0.8	\$0.147
Lokker Park	344,338	DOMESTIC TOU-GS1E	64	\$696	0.00	\$0.002	0.0	0.0	\$10.882
Mission Oaks Park	837,387	AL-2-F	81,869	\$6,273	0.10	\$0.007	0.3	1.0	\$0.077
Nancy Bush Park	135,257	TOU-GS1E	827	\$338	0.01	\$0.003	0.0	0.1	\$0.409
Pitts Ranch Park	479,965	TOU-GS1E	4,660	\$1,060	0.01	\$0.002	0.0	0.1	\$0.228
Pleasant Valley Fields	1,876,694	AL-2-F TOU-GS2E TPA2E-5T8	204,241	\$34,875	0.11	\$0.019	0.4	1.2	\$0.171
Quito Park	220,762	TOU-GS1E	2,269	\$561	0.01	\$0.003	0.0	0.1	\$0.247
Springville Park	133,016	TOU-GS1E	25,549	\$5,585	0.19	\$0.042	0.7	2.1	\$0.219
Valle Lindo Park	664,419	AL-2-F	26,924	\$2,153	0.04	\$0.003	0.1	0.4	\$0.080
<b>Total</b>	<b>6,512,784</b>	<b>-</b>	<b>666,443</b>	<b>\$136,386</b>	<b>0.10</b>	<b>\$0.021</b>	<b>0.3</b>	<b>1.1</b>	<b>\$0.205</b>

[1] Electricity conversion factor to site energy is 3,412 Btu/kWh

[2] Electricity conversion factor to source energy is 10,716 Btu/kWh



**Table B.2.2 Total Energy Use Summary**

Facility	GSF	Total Site Energy (MMBtu)	Total Source Energy (MMBtu)	Total Energy Cost	Total Energy Cost per GSF	Site kBtu/GSF	Source kBtu/GSF
Bob Kildee Community Park	561,813	769	2,417	\$70,948	\$0.13	1.4	4.3
Freedom Park	1,259,133	323	1,013	\$13,896	\$0.01	0.3	0.8
Lokker Park	344,338	0	1	\$696	\$0.00	0.0	0.0
Mission Oaks Park	837,387	279	877	\$6,273	\$0.01	0.3	1.0
Nancy Bush Park	135,257	3	9	\$338	\$0.00	0.0	0.1
Pitts Ranch Park	479,965	16	50	\$1,060	\$0.00	0.0	0.1
Pleasant Valley Fields	1,876,694	697	2,189	\$34,875	\$0.02	0.4	1.2
Quito Park	220,762	8	24	\$561	\$0.00	0.0	0.1
Springville Park	133,016	87	274	\$5,585	\$0.04	0.7	2.1
Valle Lindo Park	664,419	92	289	\$2,153	\$0.00	0.1	0.4
<b>Total</b>	<b>6,512,784</b>	<b>2,274</b>	<b>7,142</b>	<b>\$136,386</b>	<b>\$0.02</b>	<b>0.3</b>	<b>1.1</b>

[3] Source Btu based on the following reference: <http://www.energy.ca.gov/2014publications/CEC-400-2014-022/CEC-400-2014-022-CMF.pdf>

## B.2.2 Rate Simulation and Analysis of Rate Schedules

Rate simulation assists in establishing the equivalent rates (\$/kWh) to be used for evaluating savings associated with various energy efficiency measures. The “energy rate” excludes demand charges and is utilized in the analysis for measures such as exterior lighting retrofits, which do not have demand savings. The “effective rate” includes demand charges and is used in the analysis for measures such as interior lighting retrofits, which do have demand savings. Total rates also include customer charges, but exclude taxes. Refer to **Table B.2.3** for results of the electricity rate simulation. Refer to **Appendix F** for calculation details.

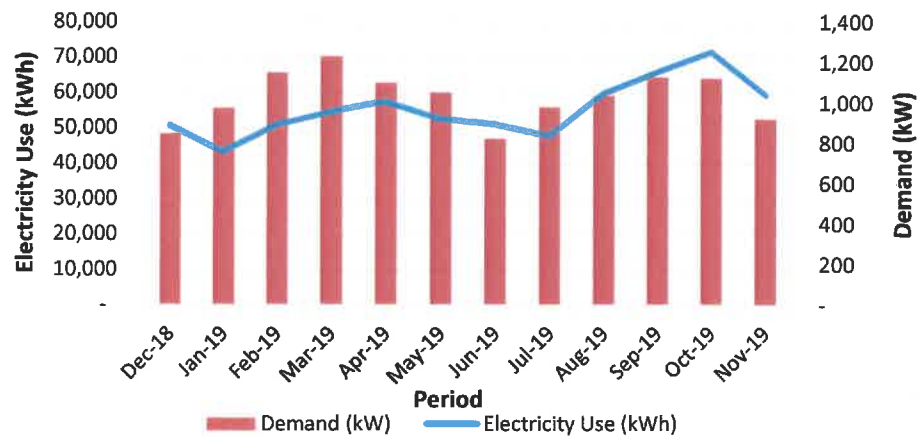
**Table B.2.3 Summary of Electricity Rate Simulation**

Site	Rate	Energy Use (kWh)	% of Total Energy Use	Energy Cost (\$)	Total Cost (\$)	Energy Rate (\$/kWh)	Effective Rate (\$/kWh)
Community Parks	Varies	666,443	100.0%	\$83,985	\$123,459	\$0.126	\$0.185

### B.2.3 Energy Use Patterns

**Figure B.2.1** illustrates the seasonal variation in the use of electricity for the parks.. Notes are provided with respect to trends observed.

**Figure B.2.1 Electricity Use**



#### Trends and Observations

- Electricity usage decrease in the summer months, and is attributed to a relatively shorter nights / shorter period for lighting system is energized.
- The lower demand during winter months could be indicative of limited usage of athletic fields during the cold evenings.

## B.3 Energy Using Systems

### B.3.1 Lighting Systems<sup>1</sup>

#### Overview

- The athletic fields are primarily illuminated by a combination of high intensity discharge Metal Halide (MH) fixtures, with wattages ranging between 100-watts and 1,500 watts. The only two exceptions, which are lit by LEDs, are the tennis court at Springville Park and pool at the Bob Kildee Park.
- The parking lots are illuminated by a combination of LED and high-pressure sodium (HPS) fixtures.
- Athletic field and parking lots' lighting is primarily controlled by manual timers; the exception to this only total 20 photocell-controlled fixtures at the Lokker Park, the Nancy Bush Park, and the Pitts Ranch Park.
- Interior lighting systems at the Parks are primarily linear fluorescent-based fixtures. Based on a sampling of fixtures, typical T8 systems use standard 32-watt lamps and instant-start electronic ballasts, and typical T12 systems use standard 34-watt lamps and magnetic ballasts. Interior lighting fixtures are controlled by switches.
- Building exterior lighting, around the perimeters, consists of a combination of high-pressure sodium and LED wall pack fixtures.

---

1. A detailed lighting audit of all rooms is presented in **Appendix F**.



## B.4 Energy Measure Summaries

### B.4.1 Lighting

#### Lighting Measure CP-L-1:

Retrofit Interior Linear Fluorescent Fixtures with New LED Tubes

#### Measure Description

Existing interior linear fluorescent fixtures at the Pleasant Valley Recreation & Park District use 32-watt T8 lamps and 34-watt T12 lamps. This measure proposes (1) replacing all linear fluorescent lamps with new ballast-bypass LED lamps, (2) bypassing and removing existing ballasts, and (3) general cleaning of each fixture for improved lighting performance.

Refer to Section 6, **Table 6.2**, for illumination guidelines for standard room types as recommended by the Illuminating Engineering Society of North America – (IES). According to IES lighting illumination guidelines, any reduction in light levels resulting from the conversion to low watt lamps is tolerable to a certain degree. To adhere to the illumination guidelines, it is suggested that pilot measures be implemented to observe the effects on the lumen levels of re-lamping and retrofitting.

Refer to **Appendix F** for a detailed room-by-room audit including all areas proposed for conversion.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

#### Measure Implementation

Refer to Section 7 for information on technology and implementation of this measure.

#### Analysis Summary

Refer to **Table B.4.1** for analysis summary.

**Table B.4.1 Analysis Summary of Proposed Lighting Measure CP-L-1**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
74	2.9	4,969	\$0.185	\$2,970	\$919	3.2	\$1,031	\$1,939	2.1

Incentives are estimated at \$0.12/kWh saved and \$150/kW saved, under Express Solutions of the Southern California Edison business lighting rebates.



**Lighting Measure CP-L-2:**

**Install Occupancy Sensors for Interior Spaces**

**Measure Description**

This measure presents analysis on adding interior occupancy controls for interior fixtures. It is to be noted that savings are estimated under the assumption that the Lighting Measure CP-L-1 will be implemented prior to the installation of controls.

Based on observations, spaces throughout the District can go long periods unoccupied with lights fully on. There is presently no use of occupancy sensors. Measure analysis assumes 20 percent savings in lighting operational hours with use of occupancy sensors. Refer to **Appendix F** for exact zones that are proposed for sensor controls.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table B.4.2** for analysis summary.

**Table B.4.2 Analysis Summary of Proposed Lighting Measure CP-L-2**

# of Sensors	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
12	n/a	402	\$0.126	\$3,144	\$51	62.2	\$48	\$3,096	61.3

Incentives are estimated at \$0.12/kWh saved and \$150/kW saved, under Express Solutions of the Southern California Edison business lighting rebates.



**Lighting Measure CP-L-3:**

Re-Lamp Interior Screw-in or Pin-based Fixtures with New LED A-Shape Lamps or Equivalent

**Measure Description**

Interior spaces at the District are also illuminated by fixtures with a screw-in/pin-based lamps—compact fluorescent lamps (CFLs) and incandescent lamps. These are installed in various spaces in recessed fixtures.

This measure proposes replacement of these existing lamps with new, lower wattage LED A-shape lamps, or equivalent. Lamps shall be either pin-based or screw-in lamps that plug-and-play in the existing fixtures, with the option of adapter plugs, where necessary.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table B.4.3** for analysis summary. No incentives are available for this measure.

**Table B.4.3 Analysis Summary of Proposed Lighting Measure CP-L-3**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
4	0.4	1,314	\$0.185	\$102	\$243	0.4	\$0	\$102	0.4





**Lighting Measure CP-L-4:**

- (A) Re-Lamp Exterior Screw-in or Pin-based Fixtures with New LED A-Shape Lamps or Equivalent
- (B) Install photocell controls for lamp-based exterior lighting

**Measure Description**

Exterior spaces at the District are also illuminated by fixtures with a screw-in/pin-based lamps—compact fluorescent lamps (CFLs). These are installed in various spaces in recessed can, ground light, and bollard fixtures.

This measure proposes replacement of these existing lamps with new, lower wattage LED A-shape lamps, or equivalent. Lamps shall be either pin-based or screw-in lamps that plug-and-play in the existing fixtures, with the option of adapter plugs, where necessary.

It is recommended that prior to a full-scale retrofit, pilot measures be done in various representative areas to determine if light levels are adequate.

This measure also proposes adding photocell control for these re-lamped fixtures. Exterior lighting fixtures are controlled by timer on common circuits. The addition of photocell controls for these fixtures can lead to additional energy savings.

With a timer alone, the lights are scheduled to turn on and off at a specific time every day and may be powered on during daylight hours. With the addition of photocell controls for exterior fixtures, the added controls will provide savings for lighting operations. Between dusk and dawn only, the photocell will keep the exterior lights on until adequate natural light become available.

Analysis estimates approximately 20 percent usage hour savings with implementation of photocell controls. See **Appendix C** for details.

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Tables A.4.4A & A.4.4B** for analysis summary. Incentives/Rebates are not offered for this measure



**Table B.4.4A Analysis Summary of Proposed Lighting Measure CP-L-4 (A)**

# of Lamps	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
20	n/a	5,606	\$0.126	\$698	\$706	1.0	\$0	\$698	1.0

**Table B.4.4A Analysis Summary of Proposed Lighting Measure CP-L-4 (B)**

# of Sensors	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
1	n/a	105	\$0.126	\$201	\$13	15.1	\$0	\$201	15.1



**Lighting Measure CP-L-5:**

- (A) Replace Exterior High Intensity Discharge Fixtures with New LED Fixtures
- (B) Add Exterior Smart Controls for New Exterior LED Fixtures

**Measure Description**

The building exterior and parking lots are illuminated by a combination of various high-intensity discharge (HID) fixtures, i.e., metal halides (MH) and high-pressure sodium (HPS) fixtures, with wattages ranging between 100 and 400 watts. These are installed in various locations and provide area lighting around the building perimeter. This measure proposes replacement of these existing exterior HID lighting fixtures with new lower-wattage LED-based fixtures.

These fixtures will require Title 24-compliant intelligent controls for exterior lights, presented in Lighting Measure CP-L-5 (B).

**Measure Implementation**

Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Tables B.4.5A** and **B.4.5B** for analysis summary. Incentives/Rebates are not offered for this measure.



**Table B.4.5A Analysis Summary of Proposed Lighting Measure CP-L-5 (A)**

# of Fixtures	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
46	n/a	134,223	\$0.126	\$118,156	\$16,912	7.0	\$0	\$118,156	7.0

**Table B.4.5B Analysis Summary of Proposed Lighting Measure CP-L-5 (B)**

# of Controls	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
202	n/a	62,731	\$0.126	\$23,891	\$7,904	3.0	\$0	\$23,891	3.0



**Lighting Measure CP-L-6:**

Replace Exterior High Intensity Discharge Fixtures with New LED Fixtures

**Measure Description**

The athletic fields (Tennis Courts, Ballfields, and Pickleball Courts) are illuminated by high-intensity discharge (HID) Metal Halide fixtures, with wattages ranging between 1,000 and 1,500 Watt. These are installed in various locations and provide athletic activity lighting around the parks. This measure proposes replacement of the existing exterior metal halide (MH) fixtures with new lower-wattage LED-based fixtures.

**Measure Implementation**

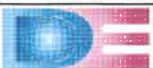
Refer to Section 7 for information on technology and implementation of this measure.

**Analysis Summary**

Refer to **Table B.4.6** for analysis summary. Incentives/Rebates are not offered for this measure.

**Table B.4.6 Analysis Summary of Proposed Lighting Measure CP-L-6**

Facility	# of Fixtures	kW Saved	kWh Saved	Rate (\$/kWh)	Measure Cost (\$)	Cost Savings (\$)	Payback Period without Incentive (Years)	Approx. Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (Years)
Bob Kildee Park (Ext.)	230	n/a	59,616	\$0.126	\$446,085	\$7,512	59.4	\$0	\$446,085	59.4
Freedom Park (Ext.)	141	n/a	36,547	\$0.126	\$273,469	\$4,605	59.4	\$0	\$273,469	59.4
Mission Oaks Park (Ext.)	50	n/a	12,960	\$0.126	\$96,975	\$1,633	59.4	\$0	\$96,975	59.4
Pleasant Valley Fields (Ext.)	361	n/a	93,571	\$0.126	\$700,159	\$11,790	59.4	\$0	\$700,159	59.4
Valle Lindo Park (Ext.)	30	n/a	7,776	\$0.126	\$58,185	\$980	59.4	\$0	\$58,185	59.4
Mission Oaks Park (Ext.)	66	n/a	26,017	\$0.126	\$160,509	\$3,278	49.0	\$0	\$160,509	49.0
<b>Total:</b>	878		236,488	\$0.126	\$1,735,382	\$29,797	58.2	\$0	\$1,735,382	58.2



## 5 Grants, Rebates, Incentives, and Special Funding Opportunities

### 5.1 Energy Conservation Assistance Act (ECAA)

The District can also apply for a zero-interest energy efficiency financing loan under the Energy Conservation Assistance Act (ECAA) Program from the Energy Commission. The loan must be repaid out of energy cost savings over a maximum of 20 years.

Projects with proven energy and/or demand cost savings are eligible, provided they meet ECAA eligibility requirements. A feasibility study is required to verify the estimated energy savings.

A. The maximum loan amount per application is the lesser of: 1. \$3 million; 2. The estimated total project cost; or 3. The estimated total energy cost savings over the effective useful life (EUL) of the loan-funded equipment, not to exceed 17 years. If the estimated total project cost is more than the estimated total energy cost savings over the EUL of the loan-funded equipment, the applicant may reduce the estimated total project cost to the estimated total energy cost savings level by using rebates, incentives, and/or its own funding. However, other loan sources may not be used to co-fund the project.

B. The estimated total energy cost savings over the life of the project will be calculated by multiplying each measure's annual energy cost savings by that measure's EUL and then adding up the savings for all projects.

C. Energy cost savings shall be determined using the applicant's current energy rates. Escalation of energy rates and soft costs, such as operation and maintenance savings, will not be considered when determining energy cost savings.

D. Leased Facilities: If the project is located in a leased facility the term of the lease must exceed the repayment period.

For details on this loan program, please refer to the following website:

<https://www.energy.ca.gov/solicitations/2020-02/pon-19-101-energy-conservation-assistance-act-education-subaccount-ecaa-ed>



## **5.2 SCE Business Rebates – Energy Efficiency Express Solutions**

Southern California Edison’s Energy Efficiency Express Solutions program is for businesses or facilities ready to make energy-efficient upgrades to offset costs. Express solutions are upgrades of existing equipment to more efficient options and are available to all business customers, regardless of size or energy use. Customers will be paid on a per-unit basis, up to 100% of the project’s cost for qualified improvements to food-service equipment, refrigeration, HVAC, and lighting.

Plan your project, then submit your application online indicating the solution(s) you plan to install. If you are unable to apply online, you may request an application be emailed to you. SCE will send you any required forms to complete and return when your project is installed. Installation must be completed and application must be submitted within 60 days of project completion. For more information please see the Express Policy Manual.

SCE’s On-Bill Financing program helps businesses fund efficiency projects over time. Through this program, businesses may qualify for loans to implement eligible measures and upgrades, then repay in monthly installments through utility bills, with no interest or fees. In some cases, customers may combine this program with additional financial incentives that offer businesses even greater access to an efficient future.

If already installed, find the equipment in SCE’s Solutions Directory. The Solution Directory is available on the Online Application Tool. You must also submit your application online using the Online Application Tool. The tool offers several benefits that save time, provide program updates, and decrease the risk of your application being rejected (or held) for missing or incorrect information.

If you are unable to apply online, you may request assistance by calling (800) 736-4777.

For details on this program, refer to the following:

<https://www.sce.com/business/savings-incentives/express-solutions>

Note: Express yearend deadline to submit applications to SCE is December 23, 2020. Measures must be installed, and the application must be submitted to SCE by the December 23rd deadline.

## **5.3 SCE Business Rebates – Energy Efficiency Customized Solutions**

Southern California Edison’s Energy Efficiency Customized Solutions program is for businesses or facilities ready to capitalize on capital improvements. Customized





Solutions upgrades can deliver more significant cost-effective savings, and higher incentive payments than 1-to-1 upgrades.

Customized Solutions are more tailored equipment upgrades that can help businesses attain deeper savings and higher incentive payments. Incentives are based on how much energy customers save over a 12-month period, not to exceed 50% of the total project cost. The energy savings may translate into lower energy bills. While Customized Solutions is available to all business customers, regardless of size or energy use, tailored equipment is most often found in mid- to large-sized businesses. Express and Customized Solutions can also be combined under the scope of a single upgrade project.

The Customized Solutions application process requires businesses to complete an application, including estimated savings calculations, in advance of the project (before installation). To simplify this process, SCE's Online Application tool will calculate energy savings for common Customized Solutions.

Upon receipt of application, an SCE contractor will arrange a pre-inspection of existing equipment. The SCE contractor will review the application and if approved, a Project Approval Letter and Installation Report will be sent for signing. The customer can then proceed to install the project exactly as proposed in the approved application. Once installed, complete the Installation Report and return it to SCE along with all other required supporting documentation.

SCE's On-Bill Financing program helps businesses fund efficiency projects over time. Through this program, businesses may qualify for loans to implement eligible measures and upgrades, then repay in monthly installments through utility bills, with no interest or fees. In some cases, customers may combine this program with additional financial incentives that offer businesses even greater access to an efficient future.

As indicated in **Table 5.1**, incentive rates vary with the type of measure implemented:

**Table 5.1 Lighting and Lighting Controls**

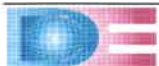




MEASURE	INCENTIVE
TO CODE/standard practice	\$.06 / kWh (SDG&E, PG&E, SCE) \$75/kW (SDG&E, PG&E) \$150/kW (SCE) \$0.50/ therm (SDG&E/PG&E) \$0.75/therm (SCG)
ABOVE CODE/standard practice	\$.12 / kWh (SDG&E, PG&E, SCE) \$150/kW (SDG&E, PG&E, SCE) \$1.25/therm (SDG&E/PG&E) \$1.50/therm (SCG)
BRO/Retrocommissioning	\$.06 / kWh (SDG&E, PG&E, SCE) \$75/kW (SDG&E/PG&E) \$150/kW (SCE) \$0.50/therm (SDG&E/PG&E) \$0.75/therm (SCG)

For details on this program, refer to the following:

<https://www.sce.com/business/savings-incentives/energy-efficiency-customized-solutions>



## **5.4 SOCAL – Energy Efficiency Rebates for Business (EERB)**

The EERB program offers rebates on qualifying energy-efficient natural gas equipment and improvements for your business.

For details on this program, refer to the following:

[https://www.socalgas.com/sites/default/files/documents/for-your-business/energy-savings/rebates-and-incentives/N19B0115A\\_EERB\\_Rebate\\_App\\_Dec\\_20\\_fillable.pdf](https://www.socalgas.com/sites/default/files/documents/for-your-business/energy-savings/rebates-and-incentives/N19B0115A_EERB_Rebate_App_Dec_20_fillable.pdf)



## 6 Codes and Standards

### 6.1 California Title 24 Code - Lighting

The 2019 Building Energy Efficiency Standards (Standards) have had a significant impact on the way lighting and controls are used in California buildings. While the measures recommended in this report do not necessarily involve upgrades that trigger review under the Standards, discussion of the code may help the District understand the implications of a major lighting upgrade.

The 2019 Standards (effective January 1, 2020) now align with ASHRAE 90.1 standards and include more stringent Lighting Power Density (LPD) limits for many indoor and outdoor spaces. They enhance and clarify several aspects of the 2016 Standards, including indoor lighting controls for new construction and alterations.

The following discussion elaborates on which measures can be treated as alterations.

**Entire Luminaire Alterations** that consist of either (1) removing and reinstalling a total of 10 percent or more of the existing luminaires; or (2) replacing or adding entire luminaires; or (3) adding, removing, or replacing walls or ceilings along with any redesign of the lighting system, shall meet the lighting power allowance and must comply with **Table 6.1**.

**Luminaire Component Modifications** in place that include replacing the ballasts or drivers and the associated lamps in the luminaire, permanently changing the light source of the luminaire, or changing the optical system of the luminaire, where 70 or more existing luminaires are modified for (1) single tenant space occupied by multiple tenants on a floor; or (2) a single floor of a building; in a single year, must meet the LPD requirements and comply with **Table 6.1**.

Lamp replacements alone and ballast replacement alone shall not be considered a modification of the luminaire provided that the replacement lamps or ballasts are installed and powered without modifying the existing luminaire.

**Lighting Wiring Alterations** that add a circuit feeding luminaires; that replace, modify, or relocate wiring between a switch or panelboard and luminaires; or that replace the lighting control panels, panelboards, or branch circuit wiring; shall meet the lighting power allowance, and comply with the control requirements.

**Note:** Measures that only add lighting controls to an existing system are exempt.<sup>1</sup>

Exceptions for all lighting alterations:

1. Alteration of portable luminaires.

---

1. [http://cltc.ucdavis.edu/sites/default/files/files/publication/2016-title24-part6-nonresidential-changes-feb2016\\_0.pdf](http://cltc.ucdavis.edu/sites/default/files/files/publication/2016-title24-part6-nonresidential-changes-feb2016_0.pdf)



2. Alterations affecting two or fewer luminaires in an enclosed space.
3. Alterations that would directly cause the disturbance of asbestos, unless the alterations are made in conjunction with asbestos abatement.

For all commercial buildings, if recommended lighting retrofits or replacements lower the overall lighting power by 50 percent or more when compared to existing installations, multilevel lighting controls and demand response controls are not required.

The salient features of the 2016 Standards applicable to this study (specifically, general zones with areas greater than 100 sq. ft. and any size classrooms) are discussed below:

1. **Area Lighting Controls:** Each area enclosed by ceiling height partitions must have an independent, manual switching, or control device that is readily accessible to occupants and is located in the space. The switching or control device must provide ON and OFF functionality. **Applicable to all interior lighting retrofits.**
2. **Multi-Level Switching Controls:** This is applicable to all enclosed spaces with areas 100 sq. ft. or larger with a connected load LPD exceeding 0.5 watts per sq. ft. The multi-level lighting control requirements allow a room to be occupied with all of the lights turned on, part of the lights turned on, and none of the lights turned on, whether the room is occupied or not. Lighting shall have required number of steps and shall meet uniformity requirements in accordance with Table 130.1-A of Title 24, Part 6. For example, the linear fluorescent fixtures must have at least four steps of control (one in each range) in the range of 100 percent, 75 to 85 percent, 50 to 70 percent, and 20 to 40 percent. Multi-level controls shall not override the functionality of other lighting controls. Dimmable luminaires shall be controlled by a dimmer control that is capable of controlling lighting through all required lighting control steps and that allows manual ON and OFF functionality.

**Exceptions: Classrooms with a connected lighting load of 0.7 watts per sq. ft. or less and public restrooms shall have at least one control step between 30 to 70 percent of full rated power.**

3. **Automatic Shut-off Controls:** All interior lighting zones shall be able to turn OFF lighting either completely or partially depending upon the space type when the space is typically unoccupied. Complete shut off is applicable for all offices 250 sq. ft. or less, multipurpose rooms of less than 1,000 sq. ft., classrooms, and conference rooms of any size. Lighting shall be controlled with occupancy sensing controls to automatically shut off all of the lighting when the room is unoccupied. In areas required to have multi-level lighting, the occupant sensing device shall function either as:
  - a) Partial-ON Occupant Sensor capable of automatically activating 50 to 70 percent of the controlled lighting power, or
  - b) Vacancy Sensor, where all lighting responds to a manual ON input only.



Full or partial off (reduce lighting power by at least 50 percent when unoccupied) is applicable to library book stack aisles 10 feet or longer, warehouse aisles and open areas, corridors, and stairwells.

**Exception: In aisle ways and open areas in warehouses where the calculated lighting power density is 80 percent or less of the value allowed under the area category method, occupant sensing controls shall reduce the lighting power by at least 40 percent. When metal halide or high pressure sodium lighting is installed in warehouses, occupant sensing controls shall reduce the lighting power by at least 40 percent.**

4. **Automatic Daylight Controls:** This is applicable for spaces exceeding allowed LPD (per Area Category Method) by 85 percent. Luminaires providing general lighting that are in or are partially in the skylit/daylit zones or primary sidelit/daylit zones shall be controlled by fully functional automatic day lighting controls. Automatic daylighting controls shall provide functional multi-level lighting having at least the number of controls steps specified in Table 130.1-A of the Title 24, Part 6. The combined luminance from controlled lighting and daylight shall not be less than controlled lighting with no daylight. In the daylight controlled areas, when the illuminance received from the daylight is greater than 150 percent of the designed illuminance received from the general lighting system at full power, the general lighting power in that daylight zone shall be reduced by a minimum of 65 percent.

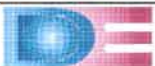
**Exceptions: Not applicable for spaces using less than 0.3 watts per sq. ft.; rooms where the total lighting power in the daylight zones is less than 120 watts; and rooms with a total glazing area less than 24 sq. ft.**

5. **Demand Response Controls:** Lighting power in buildings larger than 10,000 sq. ft. shall be capable of being automatically reduced in response to a demand response signal, so that the building's lighting power can be lowered by a minimum of 15 percent below the total installed lighting power.

**Exception: Spaces that are non-habitable and spaces with an LPD of less than 0.5 watts per sq. ft. shall not be counted toward the building's total power density.**

**Alteration to the aforementioned 2016 standards:** In case of lighting luminaire alteration; when the site is able to reduce the lighting power by 50 percent in schools, hotel, office, and retail buildings; and 35 percent in all other occupancies including classrooms buildings compared to existing lighting power, the alterations are required to comply with only two control requirements; i.e. area controls and shut off controls. It eliminates the other controls requirements; such as multi-level/bi-level lighting controls, automatic daylight controls, and demand response controls.

**Note:** Classroom Building is a building for an educational institution in which a minimum of 90 percent of the building floor area are classrooms or educational laboratories. (...in other words if 90 percent or more of the building is classroom even though offices exist and is less than 10 percent



then it is treated as classroom and the 35 percent reduction is applicable or vice versa; if the school is a building in which a minimum of 90 percent of the building floor area is used for an educational institution, but in which less than 90 percent of the building floor area is classrooms or educational laboratories, and may include an auditorium, gymnasium, kitchen, library, multipurpose room, cafeteria, student union, or workroom, then 50 percent rule is applicable.)

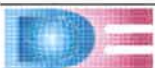
By meeting the lighting power reduction requirements, the facility would be allowed to install new interior lighting fixtures, without interior smart controls. The new LED fixtures could potentially be controlled by occupancy controls, which in turn would improve the payback economics.

**Table 6.1 Control Requirements for Entire Luminaire Alteration**

Control requirements that shall be met when 10% or more of existing luminaires in an enclosed space are altered	Resulting lighting power		
	Existing Option 1 Lighting power is ≤ 85% of allowance	Existing Option 2 Lighting power is > 85% of allowance	New Option Existing lighting power is reduced by 50%/35%
Areal Controls: Manual ON/OFF	Yes	Yes	Yes
Multi-Level Lighting Controls [1]	For each enclosed space, minimum one step between 30-70 percent of lighting power regardless of luminaire type	Yes	Not Required
Shut Off Controls	Yes	Yes	Yes
Automatic Daylight Controls	Not Required	Yes	Not Required
Demand Responsive Controls [2]	Not Required	Yes	Not Required

[1] Only for alterations to general lighting of enclosed spaces 100 square feet or larger with a connected lighting load that exceeds 0.5 watts per sq. ft.

[2] Only for alterations >10,000 sq. ft. in a single building, where the alteration also changes the area of the space, or changes the occupancy type of the space, or increases the lighting power.





## 6.2 Illumination Engineering Society Lighting Guidelines

For the T8 system, it is recommended to change out of first generation 32-watt T8 fluorescent lamps to new LED tubes (linear lamps). This is often a basic first recommendation, as it is the most cost effective with good energy savings. While the LED lamps are less luminous than standard 32-watt lamps, this does not pose an issue, as many of the rooms at the facilities were found to be over lit. For reference, see **Table 6.2** for a list of Illumination Engineering Society (IES) Guidelines for various spaces around the site. For a typical two lamp fixtures, use of LED lamps with internal driver will reduce the illumination level by approximately 3 percent, while improving energy efficiency by approximately 52 percent.

**Table 6.2 IES Lighting Illumination Guidelines**

Space Category	Footcandles	Illuminance on Vertical (V) or Horizontal (H) Plane
<b>General</b>		
Restrooms	5	H
Stairways, Corridors	5	H
Conference Rooms	30	H
<b>Offices</b>		
Filing	50	H
Private Office	50	H
General Office with Handwritten Tasks	30	H
Lobby, Lounge, Reception, Copy Areas	10	H
<b>Libraries</b>		
Reading Stacks	30	H
Book-stacks (Active)	30	V
Book-stacks (Inactive)	5	V
Circulation Desk	30	H
Audiovisual Areas	30	H
<b>Educational Facilities</b>		
General Classroom (Reading)	30-50	H
White Board	5	V
Chalk Board	50	V
CAD Stations Only	10	H
Mixed CAD and Paper Tasks	30-50	H
Science Laboratories	50	H
Gymnasiums (Basketball)	100	H
Gymnasiums (Social Events)	5	H
Cafeterias (Dining)	10	H
Kitchen	50	H



## 6.3 California Title 24 Code - Mechanical

The 2019 Building Energy Efficiency Standards (effective January 1, 2020) now align with ASHRAE 90.1 standards and have more stringent mandatory equipment efficiencies for air conditioning units, chillers, and Direct Expansion (DX) equipment.

**New or Replacement Space Conditioning Systems or Components** other than new or replacement space conditioning system ducts shall meet the requirements discussed below:

1. **Sizing and Equipment Selection:** Mechanical heating and mechanical cooling equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building.
2. **Power Consumption of Fans:** For Constant Volume fan systems, the total fan power index at design conditions of each fan system with total horsepower over 25 hp shall not exceed 0.8 watts per Cubic Feet per Minute (CFM) of supply air. For Variable Air Volume (VAV) systems, the total fan power index at design conditions of each fan system with total horsepower over 25 hp shall not exceed 1.25 watts per CFM of supply air.
3. **Space conditioning Zone Controls:** Each space conditioning zone shall have controls that prevent reheating; and re-cooling; and simultaneous provisions of heating and cooling to the same zone, such as mixing or simultaneous supply of air that has been previously mechanically heated and air that has been previously cooled either by cooling equipment or by economizer systems.

**Exception: Zone with peak supply air quantity of 300 CFM or less and zones served by VAV systems that are designed and controlled to reduce, to a minimum, the volume of reheated, re-cooled, or mixed air are allowed:**

- **For zones with Direct Digital Controls (DDC), the volume of primary air that is reheated, re-cooled, or mixed air supply shall not exceed the larger of 50 percent of the peak primary airflow or the design zone outdoor airflow rate and the volume of primary air in the deadband shall not exceed the larger of 20 percent of the peak primary airflow or the design zone outdoor airflow rate.**
  - **For zones without DDC, the volume of primary air that is reheated, re-cooled, or mixed air supply shall not exceed the larger of 30 percent of the peak primary airflow or the design zone outdoor airflow rate.**
4. **Economizer:** Each cooling air handler that has a design total mechanical cooling capacity over 54,000 Btu/hr shall include either:
    - a) An air economizer capable of modulating outside air and return air dampers to supply 100 percent of the design supply air quantity as outside air; or
    - b) A water economizer capable of providing 100 percent of the expected system cooling load as calculated in accordance with a method approved by the Commission, at outside air temperatures of 50 °F dry-bulb and 45 °F wet-bulb and below.



5. **Supply Air Temperature Reset Controls:** Space conditioning systems supplying heated or cooled air to multiple zones shall include controls that automatically reset supply air temperatures. Air distribution systems serving zones that are likely to have constant loads, such as interior zones, shall be designed for the air flows resulting from the fully reset supply air temperature. Supply air temperature reset controls shall be:
  - a) In response to representative building loads or to outdoor air temperature; and
  - b) At least 25 percent of the difference between the design supply air temperature and the design room air temperature.
6. **Mechanical System Shut-off:** Any directly conditioned space with operable wall or roof openings to the outdoors shall be provided with interlock controls that disable or reset the temperature setpoint to 55 °F for mechanical heating and disable or reset the temperature setpoint to 90 °F for mechanical cooling to that space when any such opening is open for more than 5 minutes.

**Exceptions: Interlocks are not required on doors with automatic closing devices or for any space without thermostatic control.**

Any addition or alteration to the space conditioning systems, and newly installed equipment serving the alteration shall meet the following controls requirements:

1. **Thermostatic Control for Each Zone.** The supply of heating and cooling energy to each space conditioning zone or dwelling unit shall be controlled by an individual thermostatic control that responds to temperature within the zone.
2. **Shut-off and Reset Controls.**
  - a) The control shall be capable of automatically shutting off the system during periods of nonuse.
  - b) The control shall automatically restart and temporarily operate the system as required to maintain a setback heating or cooling thermostat setpoint.
  - c) Multipurpose room less than 1000 sq. ft., classrooms greater than 750 sq. ft. and conference, convention, auditorium and meeting center rooms greater than 750 sq. ft. that do not have processes or operations that generate dusts, fumes, vapors or gasses shall be equipped with occupant sensor(s) to accomplish the following during unoccupied periods:
    - i. Automatically setup the operating cooling temperature setpoint by 2 °F or more and setback the operating heating temperature setpoint by 2 °F or more; and
    - ii. Automatically reset the minimum required ventilation rate with an occupant sensor ventilation control device.

**Exceptions: Where it can be demonstrated to the satisfaction of the enforcing agency that the system serves an area that must operate continuously or if Demand Control Ventilation is implemented.**



3. **Required Demand Control Ventilation.** HVAC systems with the following characteristics shall have demand ventilation controls:
- a) They have an air economizer; and
  - b) They serve a space with a design occupant density, or a maximum occupant load factor for egress purposes in the CBC, greater than or equal to 25 people per 1000 sq. ft. (40 sq. ft. or less per person); and
  - c) They are either single zone systems with any controls or multiple zone systems with DDC to the zone level.

**Exceptions:**

- Classrooms, call centers, office spaces served by multiple zone systems that are continuously occupied during normal business hours with occupant density greater than 25 people per 1000 sq. ft., healthcare facilities and medical buildings, and public areas of social services buildings are not required to have demand control ventilation.
  - Spaces that have processes or operations that generate dusts, fumes, mists, vapors, or gases and are not provided with local exhaust ventilation.
  - Spaces with an area of less than 150 sq. ft., or a design occupancy of less than 10 people.
  - Spaces with an area of less than 1,500 sq. ft. with occupant sensors to reduce rate of outdoor airflow when occupants are not present.
4. **Dampers for Air Supply and Exhaust Equipment.** Outdoor air supply and exhaust equipment shall be installed with dampers that automatically close upon fan shutdown.
5. **Isolation Area Devices.** Each space conditioning system serving multiple zones with a combined conditioned floor area of more than 25,000 sq. ft. shall be designed, installed, and controlled to serve isolation areas.
6. **Automatic Demand Shed Controls.**
7. **Economizer Fault Detection and Diagnostics (FDD).** All newly installed air-cooled packaged direct expansion units with an air handler mechanical cooling capacity greater than 54,000 Btu/hr with an installed air economizer shall include a standalone or integrated FDD system.

**Exceptions: Economizer FDD shall not apply to alterations of space condition systems or components.**

8. **Direct Digital Controls (DDC).** Direct Digital Controls to the zone shall be to any newly constructed building or addition or alterations including:
- a) New zone terminal units served by same air handling, chilled water, or hot water systems with DDC.
  - b) Air handling system or fan coils, where existing air handling system(s) and fan coil(s) are served by same chilled or hot water plant with DDC.
  - c) New air handling system and all new zones served by the system, with individual systems with design heating or cooling capacity of 300 kBtu/h and



larger and supplying more than three zones and more than 75 percent of zones are new.

- d) New or updated chilled water plant, where all chillers are new and plant design cooling capacity is 300 kBtu/h (87.7 kW) and larger.
- e) New or updated hot water plant, where all boilers are new and plant design heating capacity is 300 kBtu/h (87.7 kW) and larger.



## 7 Technology and Implementation

### 7.1 Lighting Technology

#### 7.1.1 Linear Fluorescent to LED Lamps

Linear direct drive LED replacement lamps are relatively easy to install and fit most existing fluorescent lamp sockets/fixtures, making them the ideal upgrade solution where energy savings and easy installation are key considerations. These products work with the bypass of existing electronic and magnetic ballasts; the line voltage is then connected directly to the lamp sockets.

Replacing tubular or linear fluorescent lamps with new linear LED tube lamps has been raising questions about a realistic comparison method. While Industry has had mixed experience with the technology, experts suggest that a 15 watt LED lamp (2,151 initial lumens) is a suitable replacement option for a traditional four foot 32-watt T8 lamp (2,800 initial lumens). While the rated lamp lumens are clearly different, an actual installed LED system will have similar footcandles (if not more) as its T8 and T12 counterpart. This effect is a result of the following factors:

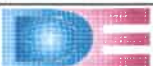
- Directionality of LED light compared to radial emission of a fluorescent lamp
- True efficiency of the light fixture
- High Color Temperature

#### **Directionality**

A lumen value specified for a lamp is a measurement of all light produced by that lamp, emitted in a spherical manner and in all directions. Such measurement is usually performed in a highly efficient and calibrated optical integrating sphere. Fluorescent lamps emit light in all directions, whereas an LED lamp emits in one general direction with an angular spread that varies between 90 to 140 degrees. This allows LED tubes and fixtures to achieve the same footcandles required for a space with lamps with lower rated lumen values.

#### **Fixture Efficiency**

A linear fluorescent fixture is usually made of painted (white) sheet metal bent to a shape that collects light. The fixture reflectivity can vary between 50 and 80 percent depending on the type of paint or finish. In addition to light lost due to reflectivity, some of the light that hits the back side of the lamp is blocked by the lamp itself, as the lamp body will not allow transmission of the visible light. For fluorescent systems, total lumen output of the lamp must be multiplied by true fixture efficiency. However, LEDs naturally emit light in one general direction, eliminating the need for a reflector, resulting in 100 percent fixture efficiency.



Refer to **Appendix C** for a comparative summary of sample baseline and proposed lamps.

It is recommended that prior to a full-scale retrofit, pilot measures be done in representative areas to determine if light levels are adequate.

### **Implementation Scope of Work**

1. Remove existing linear fluorescent lamps and ballasts. Follow Local, State, Federal, and industry recommended guidelines associated with storage, transport, and waste disposal of lamps and ballasts.
2. Clean the existing fixtures, including all reflective surfaces inside the fixture and lens. Use an approved cleansing agent that is non-toxic. Wherever specified, replace old lenses with new clear prismatic acrylic lenses.
3. Install new LED direct drive tubes in place of existing T8, T12, or T5 fluorescent lamps, rewire line voltage directly to lamp holders. If the current lamp holders are shunted, remove them and replace them with non-shunted lamp holders.
4. Prior to a full-scale retrofit measure, a pilot measure should be performed to verify the performance of the new LED system. The desired results are low glare, high efficiency, and uniform distribution with footcandle levels as recommended by IES. Refer to **Table 6.2**.
5. Conduct retrofits so as to preserve existing switching arrangements. For instance, newer buildings are typically designed for multi-level lighting using A/B circuits. Where fixtures are tandem wired, apply "Tandem" stickers for the benefit of future maintenance staff, to indicate the location of the ballast. Refer to **Appendix E** for manufacturer sheets for applicable lamps.

### **7.1.2 Occupancy Sensor Installation**

Occupancy sensors allow lights to automatically turn off when no motion is detected in a given space. These controls are ideal for areas which have variable occupancy throughout the day and where lights may be inadvertently left on. This technology is ideally proposed for installation in any interior spaces currently without occupancy control. Measure analysis assumes 20 percent savings in lighting operational hours with use of occupancy sensors. Also, it is assumed that the proposed new lighting systems are in place.

### **Implementation Scope of Work**

1. Install occupancy sensors where applicable. Two types of occupancy sensors are available: wall mount and ceiling mount. Wall mounts are recommended where the sensor has a clear line-of-sight to the occupants in that area. For larger zones, ceiling mount sensors are more appropriate.
2. Select a Dual Technology (DT) sensor based on both Ultrasonic (US) and Passive Infrared (PIR) technology. PIR sensors respond to movement of infrared sources such as human bodies in motion. As the name suggests, they are passive, meaning that they do not send out a signal (i.e., they must have a direct line-of-





sight to the motion). In contrast, ultrasonic sensors emit high frequency sound waves and trigger lights depending on shifts in the frequency of the reflected sound. Unlike PIR sensors, US occupancy sensors are sensitive to motion of inanimate objects such as moving curtains. These sensors do not need a clear line-of-sight and are preferred for spaces with partitions, tall cabinets, or other obstacles. **Appendix E** includes catalog cut sheets of appropriate sensors.

### 7.1.3 Compact Fluorescent, Incandescent, or Halogen to LED

Compact screw-in and/or pin-based LED lamps can be easily installed to replace existing compact fluorescent lamps (CFL), incandescent lamps, or halogen lamps. These retrofits are not classified as an entire luminaire modification or alteration of wiring and thus do not trigger Title 24 Code. Lower-wattage LED lamps can replace higher-wattage lamps, resulting in energy savings. These replacement lamps are plug-and-play lamps that fit into the existing fixture sockets, with the option of pin-based adapter plugs where necessary.

Energy savings result from a reduction in both electric consumption and demand. This retrofit will also reduce costs associated with maintaining the existing fixtures because the LED lamps have a much longer life than the CFLs and incandescent lighting they replace. LED lamps are typically rated for 50,000 hours, compared to 1,200 hours for CFLs and incandescent lights.

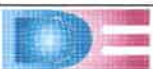
#### Implementation Scope of Work

1. For each lamp to be replaced, confirm the fixture socket type.
2. Remove any existing screws-in lighting fixtures.
3. Install new low wattage screw-in or pin-based LED lamps in their place.
4. Sockets may be changed or adapter bases used as necessary.
5. Take lighting measurements before and after to confirm that the new lighting system meets or exceeds original lighting levels. **Appendix E** includes catalog cut sheets of lamps that can be considered.

### 7.1.4 Exterior Photocell Controls

With a switch alone, lights have no schedule to turn on or off at a specific time every day, and may remain on. With the addition of photocells and standalone photocell/adapter bases for exterior fixtures, the added control will provide savings for lighting operations. Between dusk and dawn only, the photocell will keep the exterior lights on until adequate natural light becomes available.

Analysis estimates approximately 20 percent usage hour savings with implementation of photocell controls in combination with existing timer controls. See **Appendix C** for details.





### Implementation Scope of Work

1. Identify all exterior lighting fixtures where photocell control is desired.
2. Ensure operability of all switch and timer controlled circuits.
3. Select the most suitable photocell controls available (relay type, thermal type, locking type, etc.) for the needed application.
4. Provide new standalone photocells to single fixtures and photocells for timer controlled circuits with multiple fixtures.
5. Installation and/or wiring based on the manufacturer's recommendations shall be done by a certified electrician.
6. The photocell sensor should be positioned correctly and not exposed to bright light sources.
7. Installation shall be in compliance with the latest National Electrical Code (NEC) and all applicable regulations.
8. **Appendix E** provides samples of photocell controls.

### 7.1.5 Exterior Lighting Fixture Replacement

Entire luminaire modification has different criteria for Title 24 code compliance, depending on whether interior or exterior fixtures are being replaced. Refer to Section 6 for more information on code compliance.

### Implementation Scope of Work

1. Prior to initiating service, follow all safety precautions associated with working on high-intensity discharge fixtures.
2. Remove existing fixtures.
3. Replace with the new LED fixtures.
4. Installation and wiring shall be conducted by a certified electrician. Installation shall be based on the manufacturer's recommendations.
5. Installation shall be in compliance with Title 24, the latest NEC, and all applicable regulations.
6. Take lighting measurements before and after to confirm that the new lighting system meets or exceeds original lighting levels.

### 7.1.6 Smart Control Sensor Installation

Retrofitting existing lighting fixtures is considered an alteration by the Title 24 guidelines. In the case that the number of subject luminaires exceeds the compliance threshold, the proposed retrofits will trigger Title 24 mandated compliance requirement of enhanced lighting controls and Lighting Power Density (LPD). Control requirements include; (1) automatic shutoff, (2) multi-level lighting, (3) automatic daylight, and (4) demand response.

In order to meet all of the mandated lighting control requirements, this measure



proposes the implementation of an intelligent lighting control system for all of the new LED lighting fixtures. Intelligent lighting control systems are an innovative approach to lighting controls that utilize the feedback from actual measurable conditions at a zone to control the lighting fixtures serving that zone. It is a simple yet innovative control approach that is greatly suited for this measure.

For this measure, a control system made by Enlighted is proposed. The Enlighted intelligent lighting control system generally consists of smart sensors at each lighting fixture. All sensors are linked through a wireless network through gateways that are connected through Ethernet to a main server, or Energy Manager. Smart sensors can sense occupancy, ambient light, and temperature. Feedback is collected by the server for intelligent control of zones.

Key features of the intelligent control system are highlighted below:

- Easy installation
- Wireless
- Independent fixture control
- Built-in daylight harvesting
- Multiple zone profile programming
- User friendly software makes reprogramming settings convenient
- Built-in energy monitoring to react to demand response signal
- Data from the smart sensor can be interlocked with demand response or HVAC controls
- Dimming capability allows lighting levels to be adjusted based on activity
- Meets Title 24 mandated control requirements.

**Table 7.1.1** summarizes and highlights the potential energy saving opportunities listed above.



**Table 7.1.1 Control Requirements Met by Smart Controls**

Control Requirement Function	Control Requirement Satisfied by Smart Controls?	Notes
Automatic Shut Off	Yes	Wireless configuration eliminates wiring costs and complexity, when compared to standard occupancy/vacancy sensors.
Multi-level Lighting Controls	Yes	<p>With dimming capability, the output of any fixture can be set to match the light level required by the zone. For example, classroom lighting can be dimmed when computers are in use or when visuals are shown. This can reduce glare and eye fatigue as well as generate energy savings. Also, during non-teaching hours (e.g., custodian cleaning hours) lighting levels can be effectively dimmed to 50 percent or lower level.</p> <p>Lamp Lumen Maintenance: All lamps exhibit some reduction in light output over time. Manufacturers report light output at 40 percent of rated life as an indicator of maintained light output. This value is close to the average light output over the life of the lamp and is called mean light output, mean lumens, or design lumens. For the specific application, lighting systems are designed with respect to mean light output, not initial lumens. Therefore, the lighting fixtures tend to provide higher lumens (footcandles) during the initial hours of operations; consequently, leading to inefficient operations first few hundred hours' operations.</p>
Automatic Daylight Controls	Yes	Smart controls can dim lighting fixtures during primary daylight areas. It is estimated that during 30 percent of the usage hours (after accounting for automatic shut off and dimming), lighting levels can be dimmed to at least 35.
Demand Response Controls	Yes	

Title 24 guidelines mandate that all exterior lighting must be controlled with either a photocell or astronomical time clock that automatically turns off the lights as daylight becomes available. Additionally, the luminaires, with some exceptions, mounted at 24 feet or less from the ground must comply with the following requirements:

1. Must have motion sensors or other controls that automatically reduce lighting power by 40 to 80 percent when the area is vacant.
2. The controls must provide auto-on when area is occupied.



3. No more than 1,500 watt of lighting power shall be controlled together.
4. Includes wall packs as well as pole mounted fixtures.

For enhanced energy savings and to meet Title 24's mandated controls compliance, this measure proposes LED fixtures along with multi-level lighting controls. The multi-level lighting control system generally consists of smart sensors at each fixture. Each luminaire with embedded control technology is designed with an intelligent, pre-tested microprocessor directly integrated into the LED fixture's driver. This design eliminates the need for additional interfaces, enabling the fixture and controls to communicate directly with each other for instantaneous and seamless interoperability. The control system offers occupancy and vacancy sensing, daylight harvesting, light level scheduling, and demand response controls.

Analysis of this measure estimates savings as a result of lower wattage LED lamps. Further, there are added energy savings as a result of multi-level lighting controls. For analysis purposes, 30 percent usage hour savings (full load) are assumed.

**Exceptions: Pole mounted fixtures with lighting power less than or equal to 75 watts, non-pole mounted fixtures with lighting power less than or equal to 30 watts, and linear lighting fixtures with power less than or equal to 4 watts.**

Early activation or delayed activation of exterior lights through use of time clocks can be corrected by using photocell controls. In outdoor lighting applications, this methodology can reduce electricity usage by 5 to 20 percent (i.e. 20 percent for the exterior fixtures controlled by switches and 5 percent for the fixtures controlled by a time clock). Also, the dimming the lighting motion sensors can further reduce electricity usage by another 30 percent.

For enhanced energy savings and to meet Title 24's mandated controls compliance, the multi-level lighting control system is proposed. The multi-level lighting control system generally consists of smart sensors at each fixture. Each luminaire with embedded control technology is designed with an intelligent, pre-tested microprocessor directly integrated into the LED fixture's driver. This design eliminates the need for additional interfaces, enabling the fixture and controls to communicate directly with each other for instantaneous and seamless interoperability. The control system offers occupancy and vacancy sensing, daylight harvesting, light level scheduling, and demand response controls.

### **Implementation Scope of Work**

1. Prior to initiating service, follow all safety precautions associated with working on interior and exterior lighting fixtures.
2. Installation and wiring shall be conducted by a certified electrician. Installation shall be based on the manufacturer's recommendations.
3. Install a sensor at each existing lighting fixture being controlled.



4. Install a power pack per manufacturer's instructions.
5. The photocell control probe should be positioned correctly and not exposed to bright light sources.
6. Install the gateway and energy manager in a suitable location per the manufacturer's recommendation.
7. Program the system to provide the desired modes of operation.
8. Installation shall be in compliance with the latest NEC and all applicable regulations.
9. Take lighting measurements before and after to confirm that the new lighting system meets or exceeds original lighting levels.

### **Proposed Equipment**

1. Intelligent Lighting Control System

The recommended intelligent lighting control system is made by Enlighted and has the following hardware:

- a) Enlighted Sensor - Sensor installed at each lighting fixture; integrated with occupancy, daylight, and temperature sensors.
- b) Gateways – Gateways are intermediary devices that wirelessly connect sensors with to the server. One gateway should be adequate for the mock-up.
- c) Energy Manager – The energy manager acts as the server. Control sequences including occupancy, scheduling, and energy use are programmed and viewed through the energy manager.

## 7.2 Mechanical Technology

### 7.2.1 Networked Thermostats

Network thermostats are an alternative lower cost option to Energy Management Systems (EMS)/Direct Digital Control (DDC) systems. These types of controls have gained ground in the controls industry given their ability to do many of the same EMS/DDC functions but at a lower cost. As a result, network thermostats are often referred to as technology that helps bridge the gap between conventional thermostats and expensive building control systems.

Network thermostats can be connected via a secure wired Ethernet or wireless (Wi-Fi) connectivity to a facility's data network. Through an IP address, each thermostat is able to serve up its own web pages to allow the user to configure and monitor the thermostat using a standard web-browser. Remote HVAC zone monitoring and control are also available over secure and authorized broadband internet connections. This feature allows for maintenance staff or other service providers to monitor, diagnose, and control HVAC systems from a remote location. The thermostats can also be linked to the installed occupancy sensors to reset the zone temperature when no occupancy is detected.

Network thermostats typically feature:

- Automatic Heat/Cool Changeover
- Dual Occupied and Unoccupied Setpoints for Heat and Cool
- Remote Sensor Capability (indoor, duct, and outdoor)
- Outdoor Temperature Display (if applicable)
- Keyboard Lockout (prevents users from tampering with setpoints)
- Push Button Override with temperature adjustment

Optional features may include:

- Integrated humidity sensor and relay for humidification and dehumidification control
- CO<sub>2</sub> sensor integration for the demand control ventilation strategy

Software is available to provide a clean and simple graphical interface. With such software, maintenance staff will be able to administer common changes to multiple thermostats, save predefined common or specific device settings, and restrict user access privileges. Software also has the ability to do visual alarm notification and e-mail or text message fault reporting.

**Appendix E** provides sample information for various network thermostat manufacturers.





### Implementation Scope of Work

1. Assess the capabilities of the existing communication (Ethernet) network. Verify that the proposed network thermostats are suitable for the application. Contact network thermostat dealer.
2. Provide new network thermostats in each controlled zone. This may also be a good time to identify thermostats presently in unsuitable locations, such as near windows and doors, where they may be exposed to sunlight and draft winds.
3. To minimize installation cost, use existing conduits for drawing communication wiring. Use new conduits where required.
4. Programming will require specification of logic and sequence of operation for all equipment. This component of the measure will require a careful design process. The logic must address key areas germane to the operation of the units under the conditions encountered at the facility.
5. Provide training for the operators. Training shall include all operational, programming, control, and maintenance aspects of the system.

**Note:** Effective use of the control system critically hinges upon proper training and programming. Therefore, the District must plan for procuring adequate training during system installation. Success of the system is also critically dependent on the District's ability to assign a dedicated staff resource to remain knowledgeable and maintain such controls.

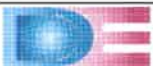
6. An important factor to consider in selection of a control system is the local support available in the area. Limited support in the area may result in long down times in cases of system failures.

### 7.2.2 HVAC Replacement

Industry standards suggest that the average service life of independent AC equipment (e.g., heat pumps, packaged units) is in the order of 15 to 20 years. These measures propose replacing the heat pumps with new high efficiency units that are above the minimum efficiency standard. Considering equipment that is near its expected service life, the payback period associated with these measures are usually irrelevant.

### Implementation Scope of Work

1. Assess whether existing load conditions in the space have changed significantly since the units were originally installed. If load has changed significantly, consider re-sizing the replacement unit. If so, do not oversize. Over sizing of units, besides raising purchase cost, will increase energy use, reduce humidity removal, and shorten product life, all due to excessive on/off cycling.
2. As long as the electrical capacity of the new units is within the limits of the original installation, the same switchgear and breakers could be used unless they are not in safe and operable conditions.
3. Reconnect existing control point to the new equipment.





4. Equipment installation shall comply with all associated Codes and Regulations, including but not limited to Building, Mechanical, Electrical, and Fire Codes, and Building Energy Efficiency Standards.
5. Measure shall comply with Title 24 Part 6 Section 120.1 and all associated Codes and Regulations, including but not limited to Building, Electrical, and Fire Codes, and Building Energy Efficiency Standards.

### **7.2.3 Tank-less Domestic Hot Water Heaters**

Tank-less water heaters, also called instantaneous or on-demand water heaters, provide hot water only as it is needed. These types of water heaters offer improved energy factors over traditional storage water heaters because they do not have standby losses incurred by continuous use of energy to maintain water in a tank to a set temperature. Like tank-type water heaters, tank-less water heaters use either gas or electricity to operate. Cold water travels through a pipe into the unit, and either a gas burner or an electric element heats the water when needed. Energy factors for tank-less water heaters range from 0.80 to 0.85 in gas units and 0.95 to 0.98 in electric units.

While efficiency is a key factor when comparing various unit types, there are other factors to consider:

- **Life Expectancy:** Tank-less units are estimated to last about 20 years vs. about 10 to 15 for a tank-type water heater
- **System Costs:** Installation costs of natural gas units are normally higher than electric units due to the infrastructure associated with constructing a gas based water heater. Costs include removing of old unit, cost of the new unit, gas piping, installation of flue, and sealing of roof penetrations.

#### **Implementation Scope of Work**

1. Seek the services of a plumbing contractor that specializes in the installation of tank-less water heaters.
2. Remove existing heater. Ensure that removal of all electrical elements is in accordance with latest NEC and local regulations.
3. Remove associated conduit and wiring.
4. Route and install a new natural gas service line (if not installed already). The requirements of the new tank-less water heater may exceed that of the existing tank-type water heater. Modifications of the existing gas line may be required in such cases.
5. Install new tank-less hot water unit. The heater must be sized to meet the maximum expected water temperature rise and flow demand of the facility. For improved efficiencies, select a water heater with an electronic ignition and not a standing pilot. Further, select a unit with modulating controls that increase or decrease energy input to maintain the selected outlet temperature despite varying flow rates and inlet temperatures.



6. Provide clearance and roof/wall penetration for new vent (if not installed already). Venting for the tank-less heater shall be Category III stainless steel (UL1738 certified). Type B venting accessories are not acceptable. Check local building code to ensure requirements are completely met.
7. Seal and patch roof/wall accordingly. Provide fire rated sealing on fire rated penetrations.
8. Install new vent and vent cap.
9. Provide roof flashing.
10. Installation of all new equipment shall comply with all applicable regulations including the California Mechanical Code, National Electric Code, California Fire Code, and gas service-related regulations.

## **7.3 Building Envelope and Insulation Technology**

### **7.3.1 Dual Pane Window Technology**

An energy saving option to consider is to replace existing glazing with new dual pane windows. Windows in buildings are typically responsible for large part of the heat loss during winter and heat gain in the summer. Heat is transferred by direct conduction through the glass and through the frame around the window assembly. Although not fully eliminated, this heat loss can be reduced by various means including converting from single to multiple panes, specialty selective films or coatings, and high-tech framing. Windows are rated by R-value (resistance to heat flow) and/or U-value (ability to transfer heat). The higher the R-value, the more efficient the window (U-values are the direct inverse). An ordinary well sealed dual pane window has a typical R-value of 3.0 compared to a single pane window which has typical R-value of 1.0. The implementation of this measure will save air conditioning energy and increase the life of the HVAC systems.

#### **Implementation Scope of Work**

1. Seek the services of a licensed building contractor specializing in building envelope remodeling.
2. Remove or demolish existing windows taking care to adhere to California Building Code and any local regulations.
3. Install new dual pane windows in existing openings in accordance with manufacturer's installation standards, California Building Code and any applicable local codes.
4. Apply appropriate weather stripping and vapor barriers per manufacturer's installation standards, California Building Code, and any applicable local codes.



## 7.4 Energy Technology

### 7.4.1 Occupancy Based Plug Load Control

Plug loads such as large size copy machines can contribute significantly to the overall electricity use in a facility. Even if the unit is not used a significant amount of time, leaving the unit in standby/sleep mode still adds to energy use. It is typical for copy machines to never completely turn off in order to start quickly when the user activates the device. Actual electric draw in standby/sleep mode varies machine to machine.

Use of a plug load occupancy sensor on a controlling power strip can result in significant energy savings. These control devices activate the controlled receptacles when the space is occupied and de-energizes them when the space is vacant. An adjustable time delay ensures that the controlled devices remain on without false triggers while the space is occupied.

#### Implementation Scope of Work

1. Install power strip and occupancy sensor per manufacturer's instructions.
2. Ensure sensor is located in a suitable location with a clear view of the controlled space.



1 - Recommended Energy Efficiency Measures

Measure #	Measure Description	Peak Demand Savings (kW)	Annual Electricity Savings (kWh)	Natural Gas Savings (Therms)	Annual CO2 Savings / Mitigation (Pounds)	Measure Cost Estimate (\$)	Electricity Cost Savings (\$)	Natural Gas Cost Savings (\$)	Payback Period without Incentive (years)	Estimated Incentive (\$)	Measure Costs w/ Incentive (\$)	Payback Period with Incentive (years)	Equipment Useful Life EUL (Years)	Total Energy Cost Savings over the effective EUL (\$)
L-1	Retrofit linear fluorescent fixtures with new LED tubes	13.7	27,069	0	18,677	\$21,384	\$5,781	\$0	3.7	\$5,303	\$16,080	2.8	15.0	\$86,717
L-3	Replace interior screw-in/pin-based lamps with new LED lamps	10.3	12,626	0	8,712	\$7,050	\$2,732	\$0	2.6	\$0	\$7,050	2.6	15.0	\$40,974
L-4A	Replace exterior screw-in/pin-based lamps with new LED lamps	n/a	8,402	0	5,797	\$1,131	\$1,184	\$0	1.0	\$0	\$1,131	1.0	15.0	\$17,766
L-5A	Replace exterior HID fixtures with LED fixtures	n/a	138,609	0	95,640	\$123,566	\$17,662	\$0	7.0	\$0	\$123,566	7.0	15.0	\$264,931
L-5B	Add exterior smart controls for new LED fixtures	n/a	63,984	0	44,149	\$25,902	\$8,118	\$0	3.2	\$0	\$25,902	3.2	8.0	\$64,945
M-1	Replace existing programmable thermostats with network wireless based thermostats	0.0	5,802	297	7,460	\$14,021	\$993	\$303	10.8	\$0	\$14,021	10.8	11.0	\$14,261
E-1	Install plug load occupancy sensor controls for copy machine	0.0	473	0	327	\$144	\$81	\$0	1.8	\$0	\$144	1.8	4.0	\$324
<b>Total Project (All Recommended Measures)</b>		<b>24.0</b>	<b>256,964</b>	<b>297</b>	<b>180,762</b>	<b>\$193,197</b>	<b>\$36,552</b>	<b>\$303</b>	<b>Avg. 5.2</b>	<b>\$5,303</b>	<b>\$187,894</b>	<b>Avg. 5.1</b>		<b>\$489,919</b>



# PLEASANT VALLEY RECREATION AND PARK DISTRICT

## DEBT MANAGEMENT POLICY Board approved 7/1/2009

Pleasant Valley Recreation and Park District's (District) most appropriate use of debt financing is for the purchase or construction of major capital facilities that will serve as a long-term community asset. The policies outlined below are not intended to serve as a list of rules to be applied to the District's debt issuance process, but rather to serve as a set of guidelines to promote sound financial management. The use of a long-term debt instrument such as the sale of certificates of participation can spread the acquisition and construction costs of the facility over the period of years during which it will be used by the community.

### **I. INCURRED DEBT**

District debt will be incurred mostly for major capital projects, not for any recurring purpose such as current operating and maintenance expenditures. For betterment and repair and replacement projects, debt financing may be used to better match the anticipated need and costs with available funds on hand. Smaller projects should be funded on a "pay-as-you-go" basis from current revenues. The District shall not construct or acquire a facility if it is unable to adequately provide for the subsequent annual operation and maintenance costs of the facility throughout its expected life. Capital projects financed through debt issuance will not be financed for a term longer than the expected useful life of the facility permitted by the internal Revenue Service.

### **II. DEBT SERVICE PAYMENTS**

The District will make debt service payments, acting with prudence and diligence and will allocate a Debt Reserve sufficient enough to the amount of debt service due in the next fiscal year. The District may purchase a surety policy or replace an existing cash-funded Debt Service Reserve Fund when deemed prudent and advantageous. The District may permit the use of guaranteed investment agreements for the investment of reserves funds pledged to the repayment of any District debt when it is approved by the Board of Directors.

### **III. NEW DEBT**

New debt will be established on parity with existing debt. An internal analysis will be conducted for each proposed long-term financing which analyzes the impact on current and future budgets for debt service and operations. This analysis will also address the reliability of revenues to support debt service. No new debt will be undertaken without consulting appropriate external financial advisors and bond counsel. Financial advisors and bond counsel will be selected in a manner consistent with the District's customary practice of hiring professional services.

### **IV. DISTRICT BONDS**

The District will determine on a case-by-case basis, whether to sell its bonds competitively or through negotiation. In a competitive sale, the District's bonds shall be awarded to the bidder providing the lowest true interest cost ("TIC"), as long as the bid adheres to requirements set



## PLEASANT VALLEY RECREATION AND PARK DISTRICT

### DEBT MANAGEMENT POLICY

Board approved 7/1/2009

forth in the official notice of sale. The District recognizes that some securities are best sold through negotiation. From time to time the District may elect to issue debt on a private placement basis. Such method shall be considered if it is demonstrated to result in cost savings or provide other advantages relative to other methods of debt issuance, or if it is determined that access to the public market is unavailable and timing considerations require that a financing be completed.

#### **V. REFUNDING OPPORTUNITIES**

The District shall have the responsibility to evaluate potential refunding opportunities presented by underwriting and/or financial advisory firms. The District shall establish a targeted savings level equal to 3% of par refunded on a net present value (NPV) basis. This figure should serve only as a guideline; the District must evaluate each refunding opportunity on a case-by-case basis and must take into consideration: time to maturity; size of the issue; current interest rate environment; annual cash flow savings; and the value of the call option.

#### **VI. RATING SERVICES**

The Financial Supervisor shall be responsible for maintaining the District's relationship with Standard & Poor's Rating Services. The District may choose to deal with another Ratings Service Agency as circumstances dictate and will strive to maintain the best possible bond rating on all debt issuances.

#### **VII. AUDITED FINANCIAL REPORT and BOND PROSPECTUS**

The Financial Supervisor will provide full disclosure on every audited financial report and bond prospectus and report to the Board of Directors feedback from the rating agency regarding the District's financial strengths and weaknesses and recommendations for addressing any weaknesses of the District.

#### **VIII. LEGAL REQUIREMENTS FOR ISSUANCE OF DEBT**

The District will adhere to the following legal requirements for the issuance of public debt: California state law which authorizes the issuance of the debt; federal and state laws which govern the eligibility of the debt for tax-exempt status; federal and state laws which govern the issuance of taxable debt; and the federal and state laws which govern disclosure, sale, and trading of the debt.



## PLEASANT VALLEY RECREATION AND PARK DISTRICT

### STATEMENT OF INVESTMENT POLICY

It is the policy of the Pleasant Valley Recreation and Park District to invest public funds in a manner which will provide the highest investment return with the maximum security, while meeting the daily cash flow demands of the agency and conforming to all state, county, and local statutes governing the investment of public funds – safety, liquidity, and yield. All investments made will comply with the laws set forth in the 53600 series of the Government Code, State of California, as amended or hereafter amended.

Investments shall be made with judgment and care – under circumstances then prevailing – which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation but for investment, considering the probable safety of their capital as well as the probable income to be derived.

All solicitations for investments shall be made to and through the General Manager. All authorizations for the transfer of funds with the local Agency Investment Fund shall be made only by the General Manager or one other authorized administrative employee.

The Pleasant Valley Recreation and Park District can diversify its investments by security type and institution. Permitted investments/deposits with no minimum or maximum requirements include:

- Local Agency Bonds
- U.S. Treasury Obligations
- State Obligations
- CA Local Agency Obligations
- US Agency Obligations
- Repurchase Agreements
- Collateralized Bank Deposits
- Bank/Time Deposits
- County Pooled Investment Funds
- Joint Powers Authority Pool
- State Pool Local Agency Investment Fund.





**PLEASANT VALLEY  
RECREATION AND PARK DISTRICT**

**STATEMENT OF INVESTMENT POLICY**

Other permitted investments/deposits with percentage and maturity limits are:

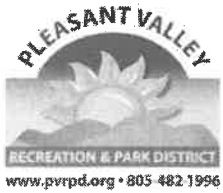
- Bankers' Acceptances - 40% 180 days
- Commercial Paper - 25% 270 days
- Negotiable Certificates of Deposit - 30% 5 years
- CD Placement Service(CDAR's) - 30% 5 years
- Medium-Term "A" Rated Notes - 30% 5 years
- Mutual Funds and Money Market Accounts - 20% no maturity
- Mortgage Pass-Through Securities "AA" Rating - 20% 5 years

This information reflects the guidelines provided by the California Debt & Investment Advisory Commission effective January 1, 2015.

The Pleasant Valley Recreation and Park District can diversify its investments by security type and institution. With the exceptions of the State LAIF and County Pooled Investment Funds, no more than 40% of the District's total investment portfolio will be invested in a single security type.

To the extent possible, the District will attempt to match its investments with anticipated cash flow requirements. Unless matched to a specific cash flow, the District will not directly invest in securities maturing more than two years from the date of purchase.

A system of internal control shall be established. Controls deemed most important include: control of collusion, separation of duties, separating transaction authority from accounting and record keeping, custodial safekeeping; clear delegation of authority; specific limitations regarding securities; minimizing the number of authorized investment officials; documentation of transactions and strategies; and code of ethics standards.



## PLEASANT VALLEY RECREATION AND PARK DISTRICT

### RESERVE POLICY Board approved September 2, 2020

The Pleasant Valley Recreation and Park District (the District) shall maintain reserve funds from existing unrestricted funds as designated by the PVRPD Reserve Policy. This policy establishes the procedure and level of reserve funding to achieve the following goals:

- Fund replacement and major repairs for the District's vehicle fleet.
- Fund regular replacement of computer hardware and software for District employees.
- Fund "dry period" to assure funds are available for expenditures incurred from April to December
- Fund capital improvements of District's facilities.
- Maintain minimal operational sustainability in periods of economic uncertainty.

#### POLICY

Use of District's Reserves is limited to available "Unrestricted" Funds (not obligated by law, contract or agreement), including donations, interest earned, fees for service or other non-grant earnings. All special use funds will be designated by formal action of the PVRPD Board of Directors.

- VEHICLE FLEET RESERVE

Vehicle Fleet Reserves will accumulate from existing unrestricted funds, at a rate up to \$15,000 annually. The maximum amount of Vehicle Fleet Reserves will be \$80,000. When the annual accumulation would increase the reserve beyond \$80,000 only the amount required to reach the maximum will be reserved.

- COMPUTER HARDWARE RESERVE

Computer Hardware Reserves will accumulate from existing unrestricted funds at a rate up to \$8,000 annually. The maximum amount of Computer Hardware Reserves will be \$40,000. When the annual accumulation would increase the Reserve beyond \$40,000 only the amount required to reach the maximum will be reserved.

- DRY PERIOD RESERVE

Dry Period Reserves are funds that would be set aside for the period of April through December when a minimum or no property tax is received from the County of Ventura. During this time the District sees a drop in revenue while the costs of expenditures outpace the revenue during this period. The Dry Period Reserve will have up to a minimum of 5% of the annual operating budget set aside to be used during the months of November and December when the District needs these funds to meet accounts payables and payroll obligations. A Dry Period Reserve amount will be designated each budget workshop (budget permitting) to ensure the funding in the reserve can sustain the District's operating expenses for the months of November and December.

- PVRPD CAPITAL IMPROVEMENTS RESERVE

Capital Improvement Fund Reserve is set up to cover non-budgeted capital improvement items and may be used to cover emergency major facility improvements (construction, installation of new doors or windows, replacing doors and windows, roof replacement, HVAC replacement, alarm system



## PLEASANT VALLEY RECREATION AND PARK DISTRICT

### RESERVE POLICY

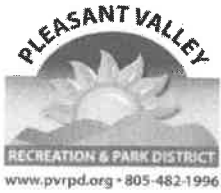
**Board approved September 2, 2020**

improvements and parking lot improvements, etc.). The minimum amount of Capital Improvement Reserves should be a minimum of \$500,000. This reserve fund will have a yearly accumulation of \$75,000 with a maximum of \$500,000 balance.

- PVRPD REPAIR/OPERATIONS & ADMINISTRATIVE OPERATIONS RESERVE  
District and Administrative Operations Reserve will accumulate from existing unrestricted funds at a maximum up to \$500,000 annually. The minimum amount of District & Administrative Operations Reserve will be based on the total operations expense stated in the current fiscal year budget which equates to 3 months of Operational Expenses.
- TOTAL ALL RESERVE FUNDS  
The total amount of Reserves designated annually for the Vehicle Fleet, Computer Hardware, Capital Improvement Reserve and PVRPD Repair/Operations & Administrative Operation Reserve is up to \$1,613,000 annually. The amount set aside for Dry Period Reserves is 5% of the annual operating budget. The cumulative accrual cap of \$2,877,597 is for all reserve funds including the Dry Period Reserve.

#### USING RESERVE FUNDS

- Vehicle Fleet Reserve  
Vehicle Fleet Reserves will be used exclusively for the non-budgeted purchase of vehicles to support District operations, or to make major repairs to existing vehicles.
- Computer Hardware Reserve  
Computer Hardware Reserves will be used to purchase non-budgeted computer hardware and software in support of District operations, with the intent of maintaining a modern computer fleet for employees.
- Dry Period Reserve  
Funds that are designated to cover the operational costs during the “dry period” between the receipt of property taxes in April and the receipt of the property taxes in December, when expenditures typically far outpace revenues. These funds will be used at the discretion of the Administrative Services Manager and/or General Manager
- Capital Improvement Reserve  
Capital Improvements Reserves shall be limited to non-budgeted and/or emergency costs related to making changes to improve capital assets, increase their useful life, or add to the value of these assets
- District Operations/Repair & Administrative Operations Reserve  
Operational Reserves shall be accrued to ensure 3 months of minimal District and administrative functions at a maximum up to \$500,000 annually. Reserve funds shall be utilized to support:



## PLEASANT VALLEY RECREATION AND PARK DISTRICT

### RESERVE POLICY

**Board approved September 2, 2020**

- Administrative operational functions, including minimal staffing levels and administrative/office expenses:
- District operations.
- District repairs (distinguished from Capital Improvements which may include painting, caulking of seams, roof repairs, HVAC repairs, patching of walls, etc.).

#### MONITORING RESERVE LEVELS

The General Manager, in collaboration with the District's Administrative Services Manager shall perform a reserve status analysis annually, to be provided to the Board of Directors' annual approval of Budget and Reserve Funds. Using this reserve policy model, the minimum amount the District will be setting aside based on the fiscal year 2020-2021 budget is .33% of the total operational budget.

Additional information may be provided to the Board of Directors upon the occurrence of the following events:

- When a major change in conditions threatens the reserve levels established within this policy, or calls into question the effectiveness of the policy;
- Upon General Manager and/or Board request