

City of Dinuba

PROJECT HIGHLIGHTS

- Developed and installed a special ballast-supported solar PV system at the Wastewater Treatment Plant, which was located next to an inactive landfill. The system made unused land viable again.
- Utilized a Power Purchase Agreement financial structure so the City benefits from steady electricity rates over 20 years
- Reduces greenhouse gas emissions equivalent to removing 733 cars from the road annually

\$24.8MM

in total net energy savings over the life of the project

2.9 MW of solar PV at multiple City sites including the Public Works Facility, Wastewater Reclamation Facility, Vocational Center, and two ground mount arrays adjacent to the City's water wells

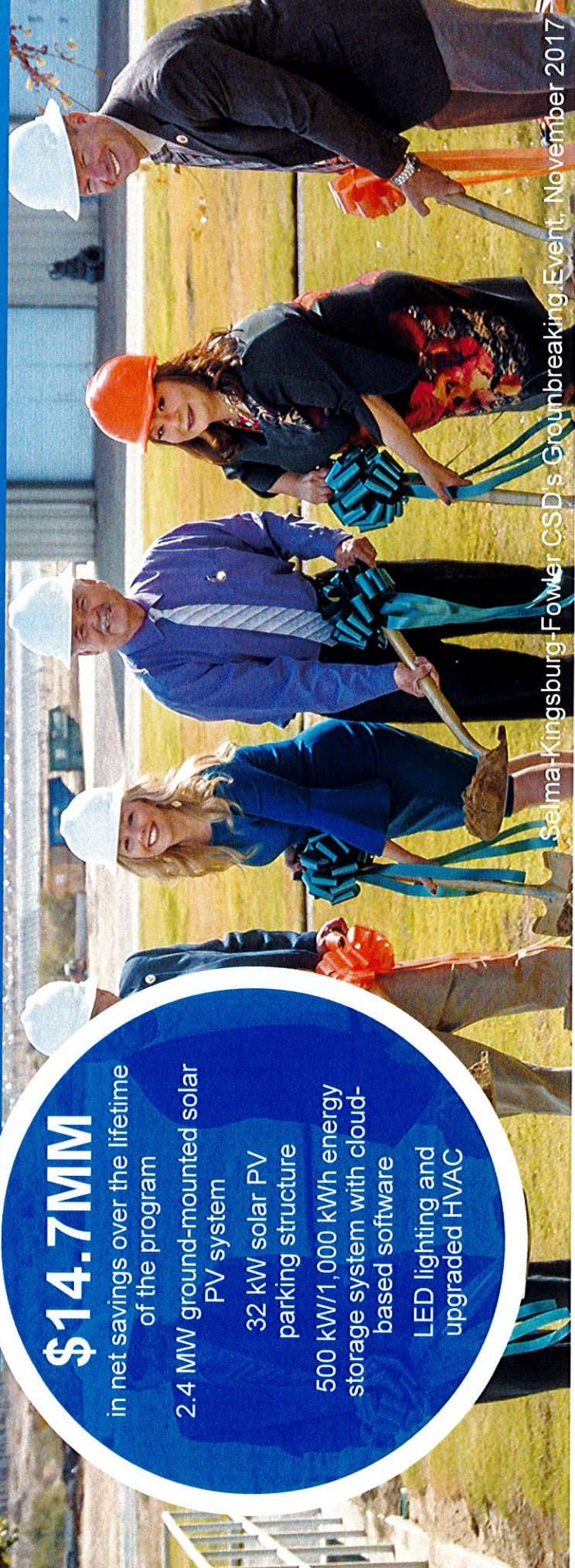
Selma-Kingsburg-Fowler County Sanitation District

PROJECT HIGHLIGHTS

- Stimulates economic activity in the region with 244 jobs created over the lifetime of the program
- Reduces the District's electricity spending by 70%
- Reduces carbon emissions equivalent to removing 700 cars from highways annually

\$14.7MM
in net savings over the lifetime of the program

- 2.4 MW ground-mounted solar PV system
- 32 kW solar PV parking structure
- 500 kW/1,000 kWh energy storage system with cloud-based software
- LED lighting and upgraded HVAC



Selma-Kingsburg-Fowler CSD's Groundbreaking Event, November 2017

Energy & Water Program Scope of Work

- HVAC Units Replacement
- LED Lighting Retrofit
- Solar Parking Shade Canopies

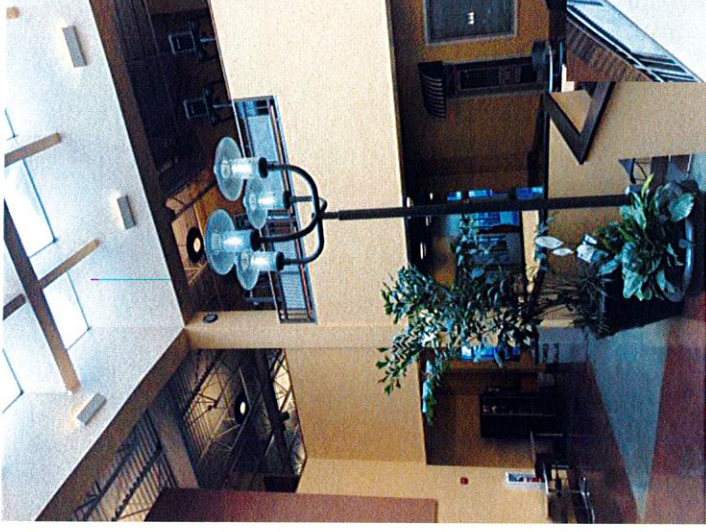
HVAC Units Replacement

- Replace four (4) HVAC units that run 24/7 and are past the end of their useful life
 - Total 101 tons of cooling to be replaced
- **Benefits include:**
 - Improves comfort
 - Savings in energy cost
 - Reduces maintenance cost
 - Standardize on preferred unit manufacturer
 - Planned replacement vs. emergency breakdown



Retrofit Interior Lighting

- Replace older generation fluorescent lamps and ballasts with new, more efficient, longer lasting LED lamps
- Install wireless occupancy sensors with option to shut off interior lighting, where applicable
- LED lamps have a life of 75,000 to 100,000 hours leading to substantial savings in maintenance cost
- Benefits include:
 - Replaces old lamps and ballasts
 - Savings in energy cost
 - Longer life of lamps
 - Substantial reduction in maintenance cost



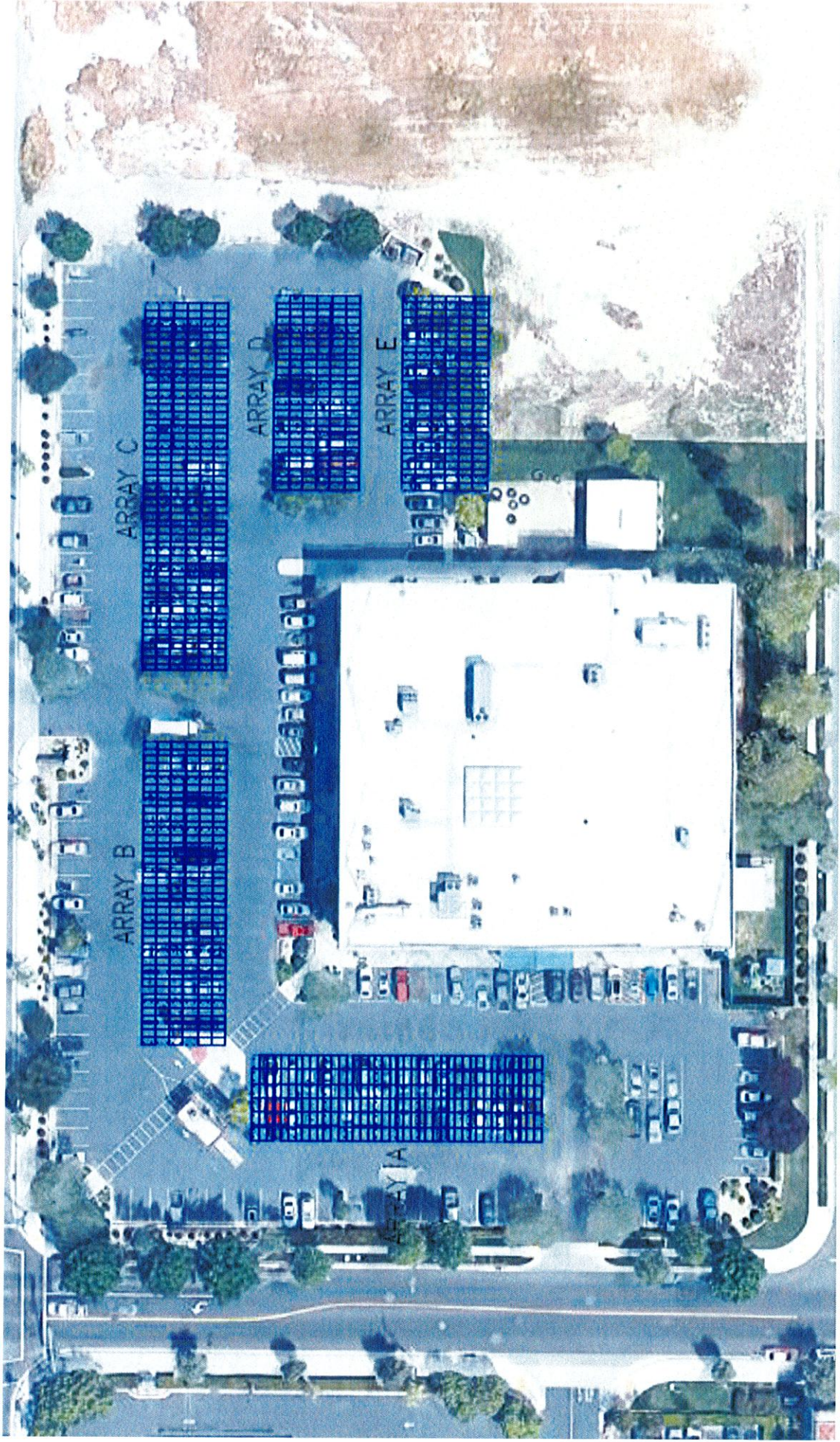
Retrofit Exterior Lighting

- Replace existing metal halide lamps with corresponding LED fixtures
- Install dual-level motion sensors for LED fixtures, which increase lighting level when pedestrians approach, otherwise stay at lower lighting level
- Benefits include:
 - Replaces old lamps and ballasts
 - Savings in energy cost
 - Longer life of lamps and ballasts
 - Reduces maintenance cost
 - Increases safety



Solar Parking Shade Canopy System

454 kW Solar System



Preliminary Financial Analysis

Comprehensive Project – Tax-Exempt Lease Purchase



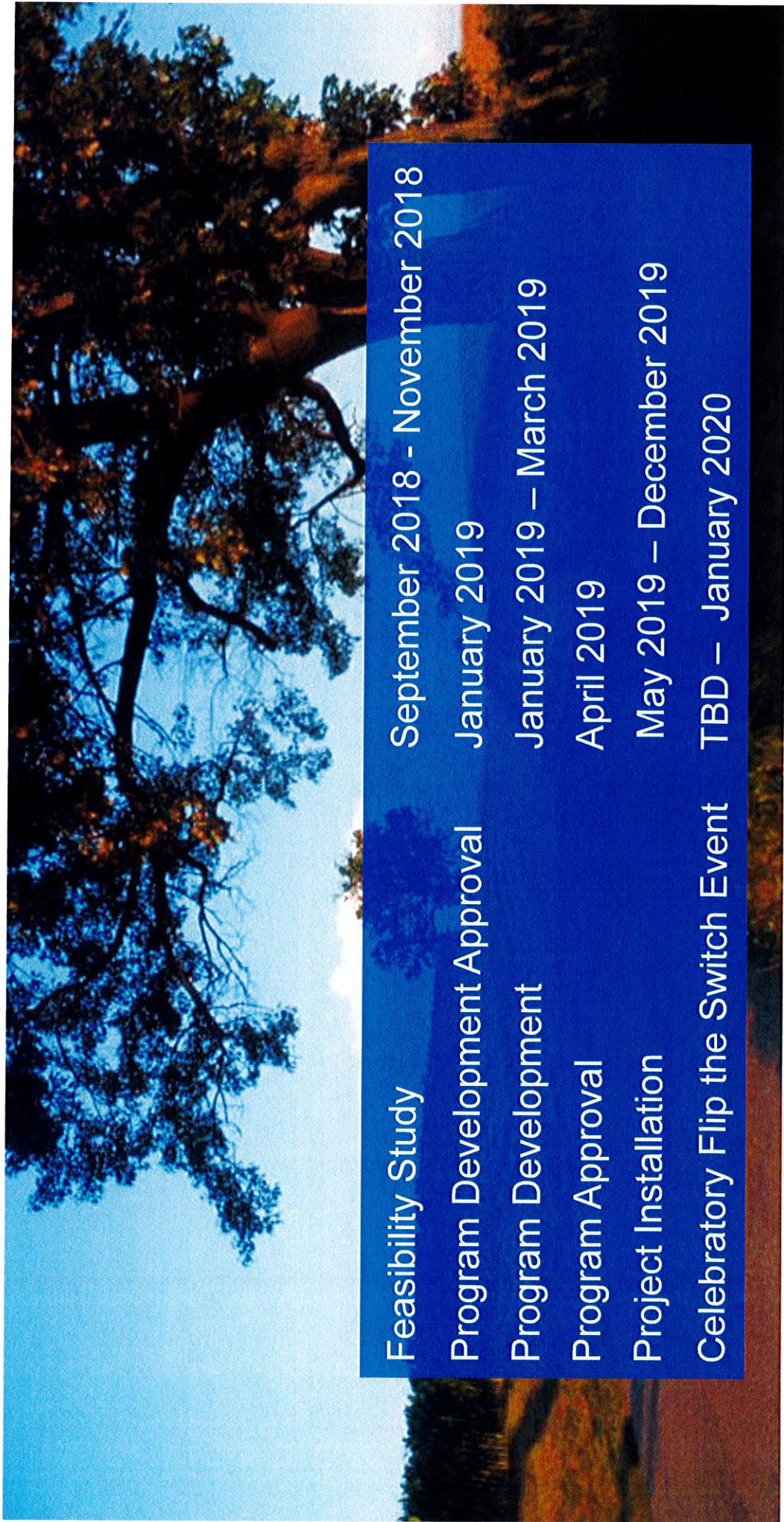
Year	Energy Efficiency Savings	Solar Energy Savings	Projected O&M Savings	Incentives	Total Program Savings	Lease Payment	Solar Operations & Maintenance Cost	Total Program Costs	Net Savings
Year 1	\$35,694	\$71,046	\$15,585	\$0	\$122,326	\$101,865	\$5,436	\$107,301	\$15,025
Year 2	\$37,479	\$74,225	\$16,053	\$0	\$127,757	\$107,134	\$5,599	\$112,733	\$15,025
Year 3	\$39,363	\$77,547	\$16,534	\$0	\$133,434	\$112,643	\$5,767	\$118,410	\$15,025
Year 4	\$41,321	\$81,017	\$17,030	\$0	\$139,368	\$118,404	\$5,940	\$124,344	\$15,025
Year 5	\$43,387	\$84,643	\$17,541	\$0	\$145,571	\$124,428	\$6,118	\$130,546	\$15,025
Year 6	\$45,556	\$88,431	\$18,068	\$0	\$152,054	\$130,728	\$6,302	\$137,030	\$15,025
Year 7	\$47,834	\$92,388	\$18,610	\$0	\$158,831	\$137,316	\$6,491	\$143,807	\$15,025
Year 8	\$50,226	\$96,522	\$19,168	\$0	\$165,916	\$144,205	\$6,686	\$150,891	\$15,025
Year 9	\$52,737	\$100,842	\$19,743	\$0	\$173,321	\$151,410	\$6,886	\$158,297	\$15,025
Year 10	\$55,374	\$105,354	\$20,335	\$0	\$181,063	\$158,946	\$7,093	\$166,038	\$15,025
Year 11	\$58,142	\$110,069	\$20,945	\$0	\$189,156	\$166,826	\$7,306	\$174,132	\$15,025
Year 12	\$61,050	\$114,994	\$21,574	\$0	\$197,618	\$175,068	\$7,525	\$182,593	\$15,025
Year 13	\$64,102	\$120,140	\$22,221	\$0	\$206,463	\$183,688	\$7,750	\$191,439	\$15,025
Year 14	\$67,307	\$125,517	\$22,887	\$0	\$215,711	\$192,704	\$7,983	\$200,687	\$15,025
Year 15	\$70,672	\$131,134	\$23,574	\$0	\$225,380	\$202,133	\$8,222	\$210,355	\$15,025
Year 16	\$74,206	\$137,002	\$24,281	\$0	\$235,489	\$211,995	\$8,469	\$220,464	\$15,025
Year 17	\$77,916	\$143,133	\$25,010	\$0	\$246,059	\$222,311	\$8,723	\$231,034	\$15,025
Year 18	\$81,812	\$149,538	\$25,760	\$0	\$257,110	\$233,100	\$8,985	\$242,085	\$15,025
Year 19	\$85,903	\$156,230	\$26,533	\$0	\$268,665	\$244,386	\$9,254	\$253,641	\$15,025
Year 20	\$90,198	\$163,221	\$27,329	\$0	\$280,748	\$256,191	\$9,532	\$265,723	\$15,025
Year 21	\$0	\$170,525	\$0	\$0	\$170,525	\$0	\$9,818	\$9,818	\$160,707
Year 22	\$0	\$178,156	\$0	\$0	\$178,156	\$0	\$10,113	\$10,113	\$168,043
Year 23	\$0	\$186,129	\$0	\$0	\$186,129	\$0	\$10,416	\$10,416	\$175,713
Year 24	\$0	\$194,458	\$0	\$0	\$194,458	\$0	\$10,728	\$10,728	\$183,729
Year 25	\$0	\$203,160	\$0	\$0	\$203,160	\$0	\$11,050	\$11,050	\$192,109
Year 26	\$0	\$212,251	\$0	\$0	\$212,251	\$0	\$11,382	\$11,382	\$200,869
Year 27	\$0	\$221,749	\$0	\$0	\$221,749	\$0	\$11,723	\$11,723	\$210,026
Year 28	\$0	\$231,673	\$0	\$0	\$231,673	\$0	\$12,075	\$12,075	\$219,598
Year 29	\$0	\$242,040	\$0	\$0	\$242,040	\$0	\$12,437	\$12,437	\$229,603
Year 30	\$0	\$252,871	\$0	\$0	\$252,871	\$0	\$12,810	\$12,810	\$240,061
Totals	\$1,180,269	\$4,316,003	\$418,780	\$0	\$5,915,053	\$3,375,481	\$258,620	\$3,634,101	\$2,280,952

Project Benefits



- ✓ Create \$2.3 million in net savings after paying for all costs
- ✓ Reduce electricity spend by 60%
- ✓ Hedge against rising energy costs
- ✓ Utilize project savings to replace older HVAC units
- ✓ Utilize project savings to install better quality LED lighting
- ✓ Provide shaded parking for employees and visitors
- ✓ Save staff's time with new HVAC systems and LED lighting
- ✓ Stimulate local economy and provide local jobs
- ✓ Substantial environmental benefits – equivalent to removing 166 cars off the highways annually

Roadmap



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