



Alvord Unified School District

Our Promise: All students will realize their unlimited potential.

Energy Infrastructure Modernization Program

Kevin Emenaker

Executive Director, Administrative Services

June 3, 2021





Alvord Unified School District

Our Promise: All students will realize their unlimited potential.

Agenda

- Energy Master Plan Update
 - Overview by Phase
 - Savings Update for Villegas Pilot Solar Program
 - Phase III Proposed Shade Structure Locations
 - Phase III Funding Plan
 - Next Steps



Alvord USD Energy Master Plan

		Phase I			Alvord HS	Arizona MS	Arlanza ES	Collett ES	Facilities (M.O.T.)	Foothill ES	Hillcrest HS	La Granada ES	La Sierra HS	Lake Hills ES	Loma Vista MS	McAuliffe ES	Myra Linn ES	Norte Vista HS	Orrenmaa ES	Stokoe ES	Promenade ES	RMK ES	Terrace ES	Twinhill ES	Valley View ES	Villegas MS	Wells MS		
		Phase II																											
		Phase III																											
		Future Phases																											
BUILDING AUTOMATION SYSTEM (BAS)	New Wi-Fi Based BAS													✓							✓		✓		✓				
	New BACnet Compatible BAS				✓	✓	✓	✓	✓		✓	✓			✓	✓	✓	✓		✓	✓			✓	✓	✓			
	Advanced BAS Programming						✓	✓		✓	✓			✓			✓	✓				✓							
	Integrate Occupancy Sensors				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Exterior Lighting Control				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Demand Control Ventilation					✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	BAS Training				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
HEATING & COOLING	New High Efficiency HVAC Units (rooftop, wall-mount + split systems)	Completed (Phase I & II)		2		26	30	2	12	7	15		15	7	13			21	92				13	7		15			34
		Phase III Modernizations*			24	11	19	9	11			15	25	52			22	25	13	66	11		20	14	7			21	
		Future Phases		19	5	11		4	4			5	101	1	15	41	2	3	6	6	42	43	8	11	27	76			
	Central Plant Systems	New High Efficiency Chiller/ Re-Condition Chiller			1							1		2				1	1										
		New High Efficiency Boiler			2							1						1	2										
		Other Modernizations**			37								21					21	21										
	Add High Efficiency Air Conditioning to Gym												✓					✓											
LIGHTING	Interior Fluorescent Lighting Upgrades			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		
	Interior LED Lighting Modernization			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Exterior LED Lighting Modernization			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Install/Modify Dual Technology Occupancy Sensors			✓	✓	✓	✓	✓		✓		✓	✓	✓		✓					✓	✓	✓	✓	✓	✓	✓		
	Fixture Mounted Dimming Sensor				✓			✓		✓	✓	✓	✓				✓		✓	✓				✓		✓	✓		
SOLAR	Pool Solar Thermal Water Heating									✓		✓					✓												
	Solar Shade Structures									✓		✓	✓				✓			✓					✓				
OTHER	Non-Solar Shade Structures					✓	✓			✓		✓			✓				✓										

* New HVAC units will have MERV-13 filters & economizers for enhanced ventilation

** Modernizations include new pumps, air handling units, fan coil units, and/or variable air volume (VAV) boxes; see mechanical inventory for further details

Phase I

Implemented FY 15/16
(Govn't Code 4217)

- HVAC Modernizations at 10 Sites (252 Units)
- New Central Plant Systems at 2 Sites
- New Building Automation Systems (BAS) at 6 Sites
- Lighting Modernizations
- Solar Thermal Pool Heating at 3 Sites

Phase II

Implemented FY 19/20
(Govn't Code 4217)

- HVAC Modernizations at 6 Sites (59 Units)
- Add A/C to La Sierra & Norte Vista Gyms
- New Central Plant Systems at 2 Sites
- New BAS + BAS Upgrades at 14 sites
- Complete LED Lighting Districtwide
- Solar Parking at 1 Site

Phase III

Board Considers for
Implementation June 2021
(Govn't Code 4217)

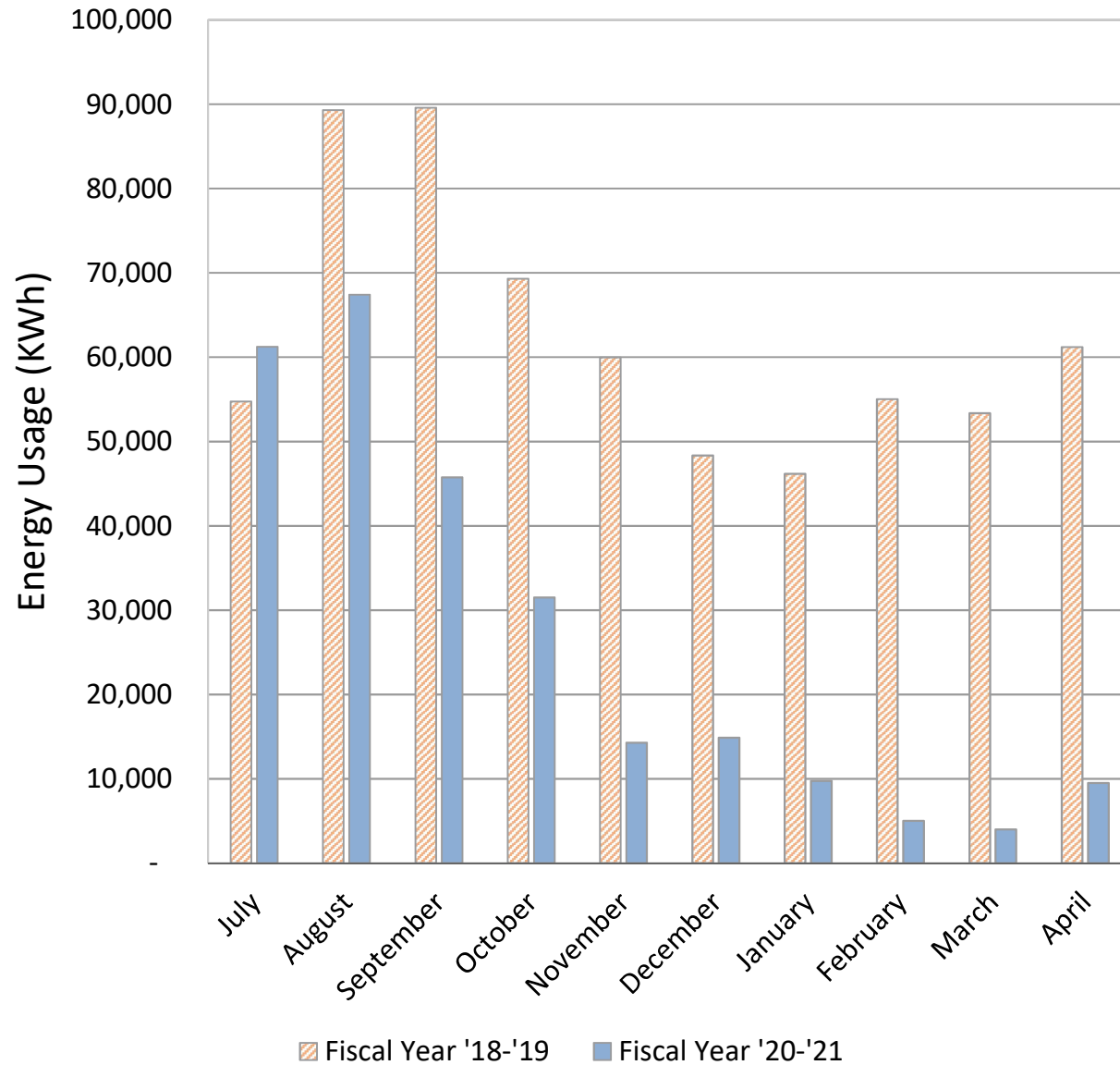
- HVAC Modernizations at 17 sites (365 Units)
- Enhanced Ventilation & MERV-13 filters for New HVAC Units
- New BAS at 6 Sites
- Solar Outdoor Learning & Dining Structures at 5 Sites
- Shade Structures (Non-Solar) at 6 Sites

Future Phases

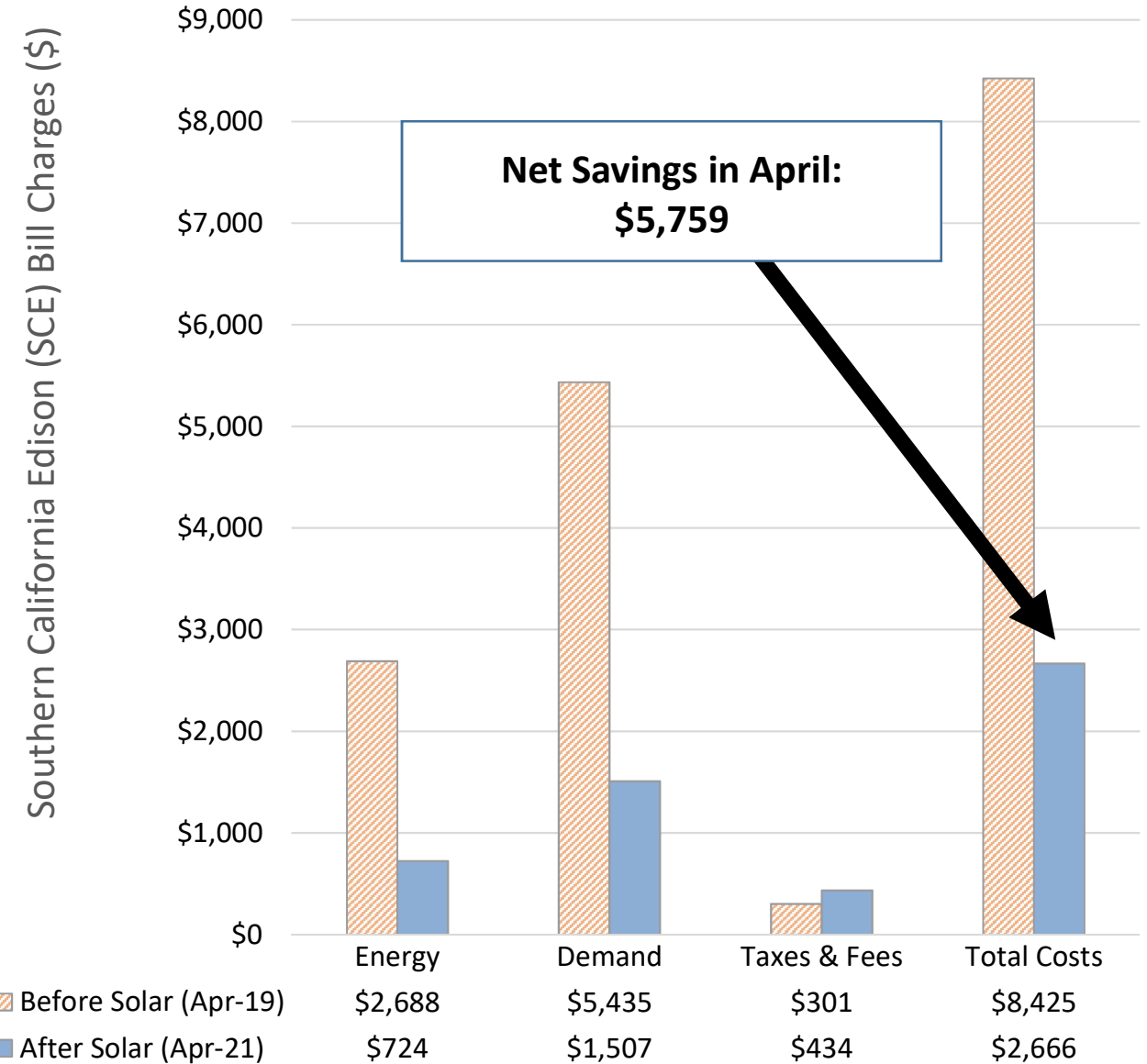
- HVAC Modernizations at 18 sites (430 Units)
- Central Plant Modernizations at 4 Sites
- Enhanced Ventilation & MERV-13 filters for New HVAC Units
- New BAS at 9 sites

Villegas Solar Pilot Program

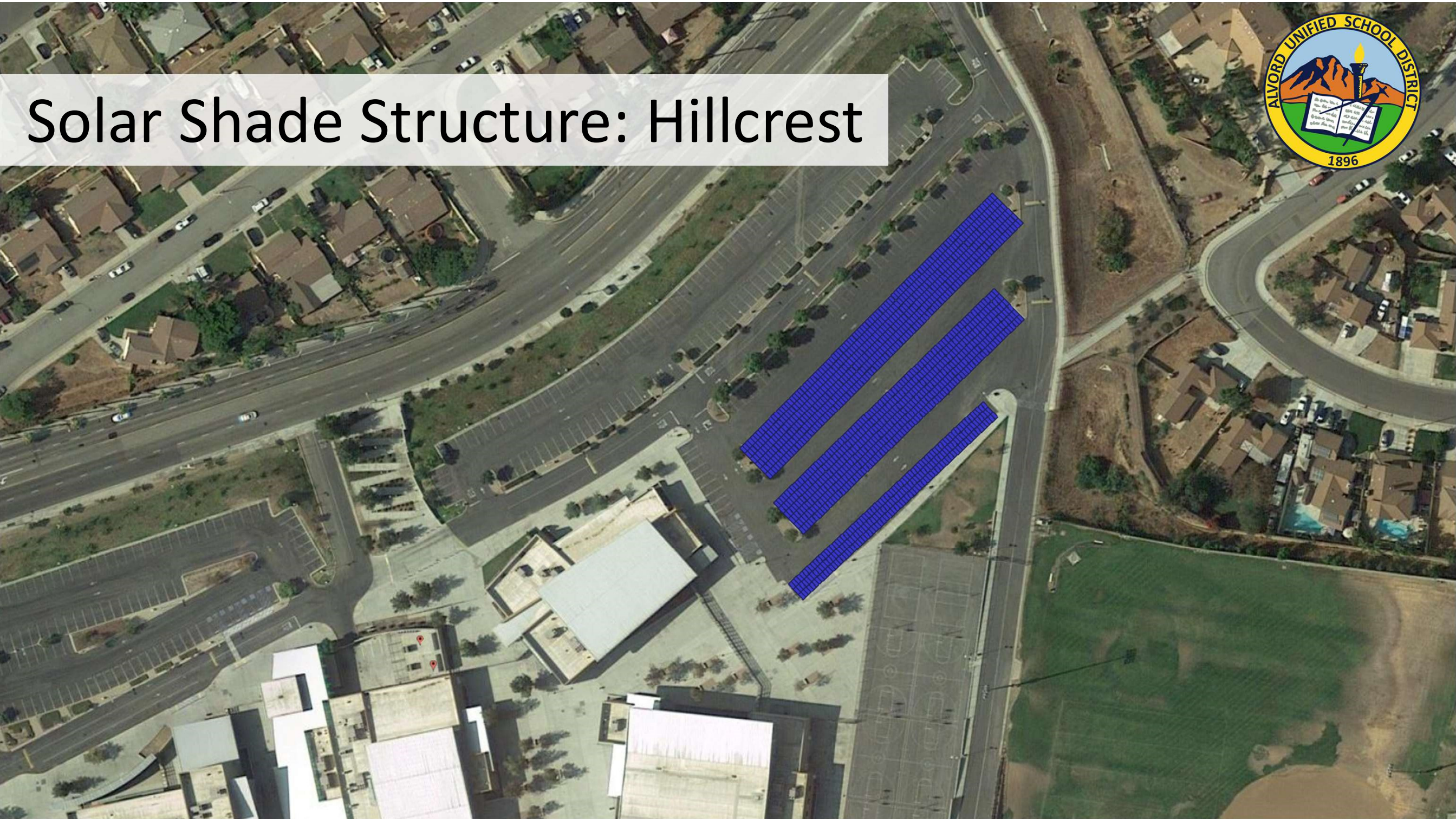
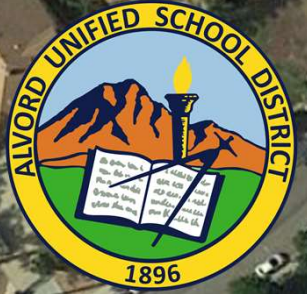
Villegas Energy Usage: Before & After Solar



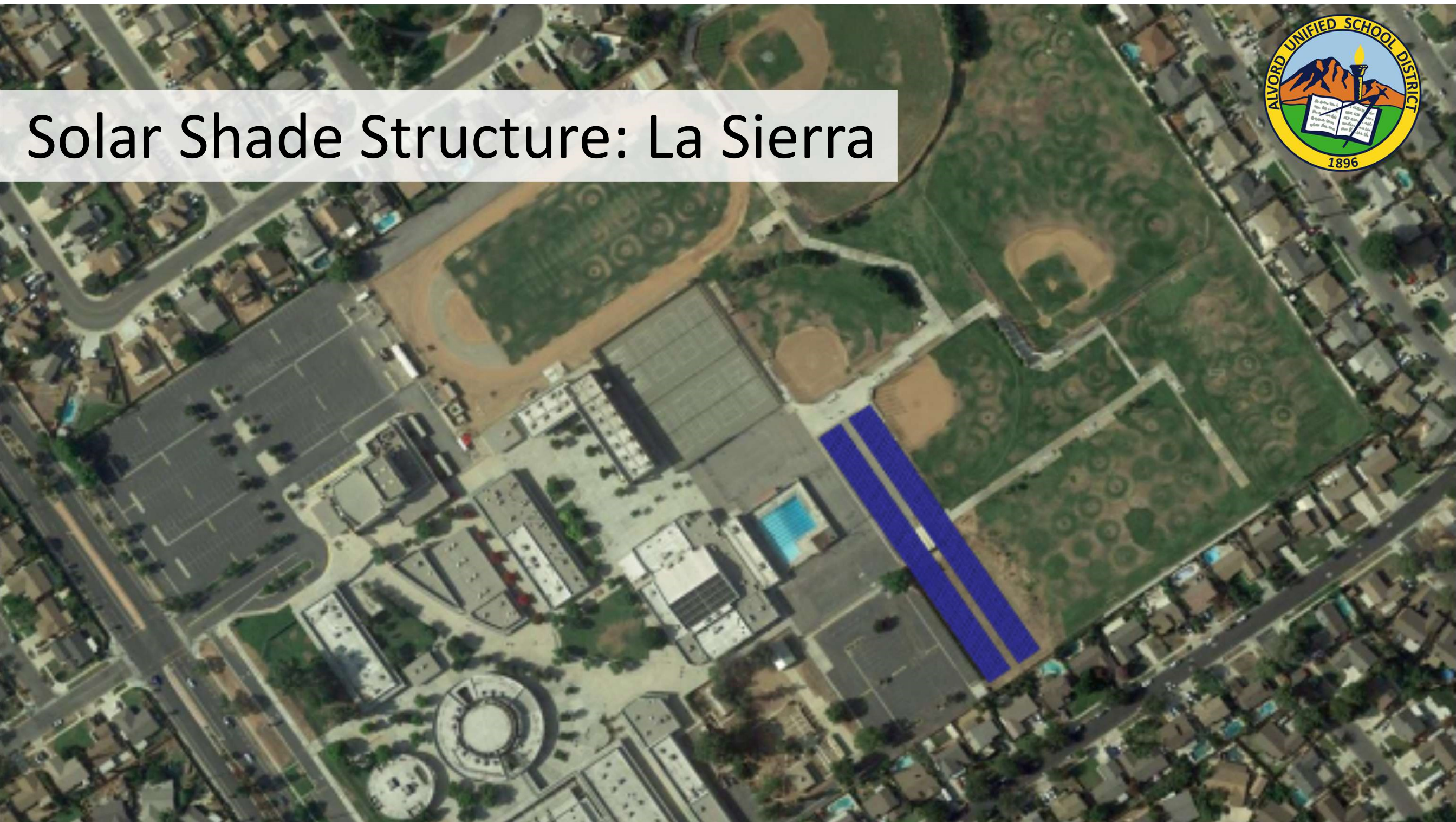
Villegas Energy Bill: Before & After Solar



Solar Shade Structure: Hillcrest



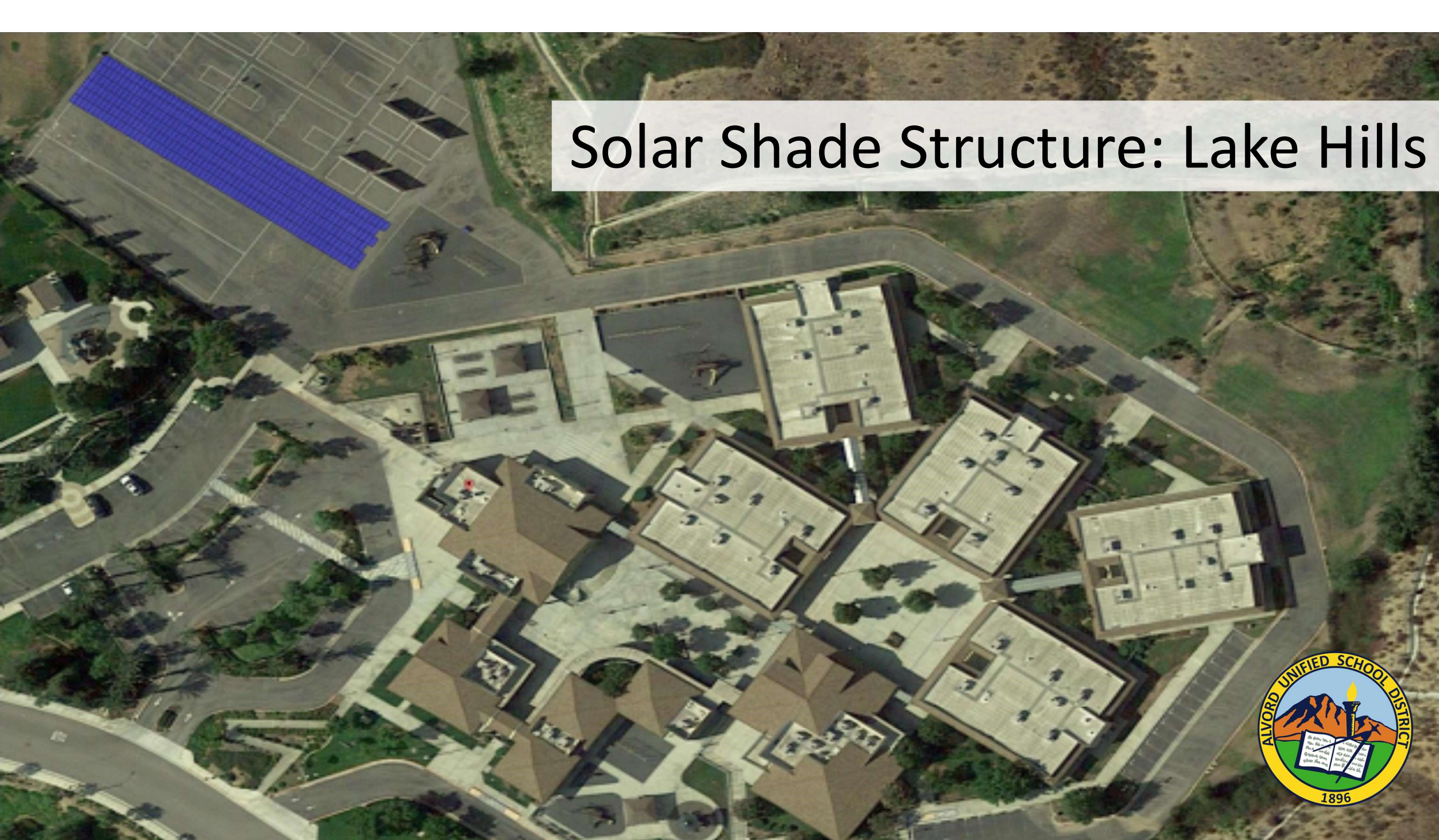
Solar Shade Structure: La Sierra



Solar Shade Structure: Norte Vista

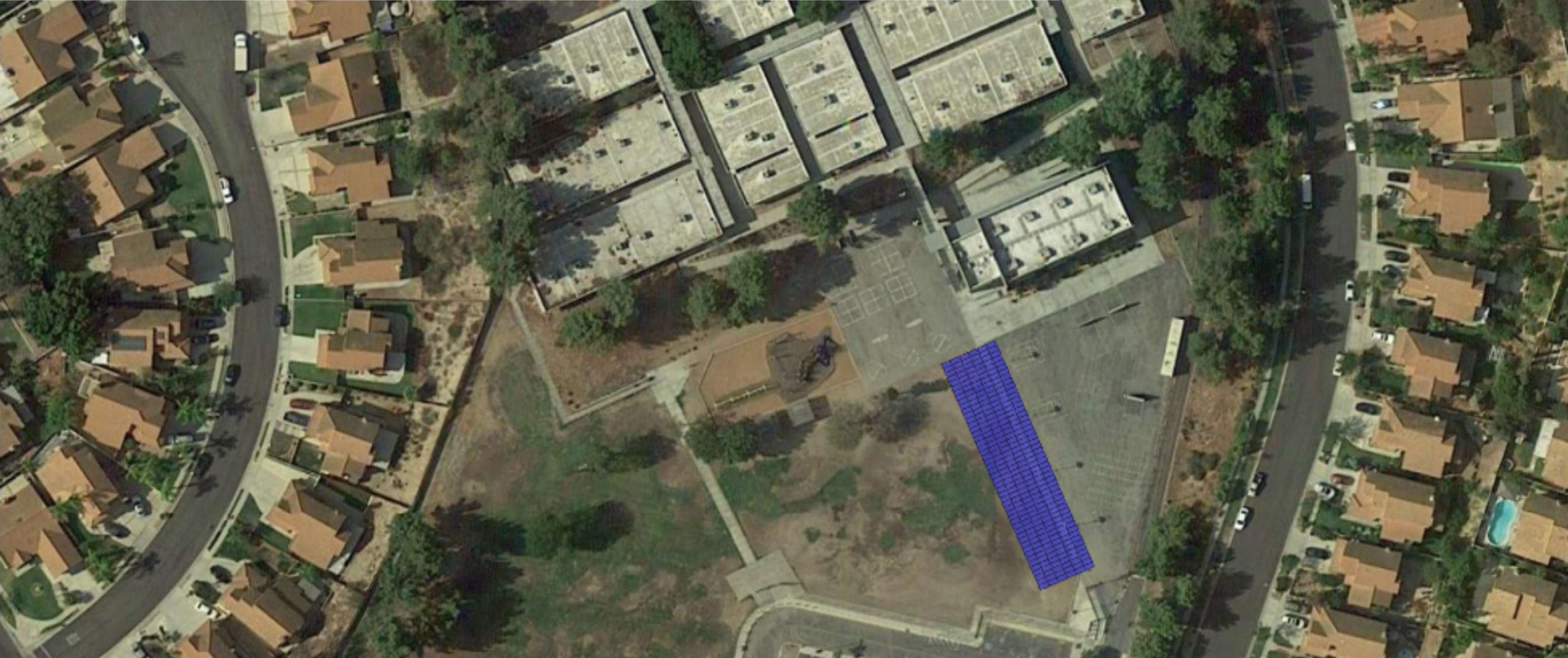


Solar Shade Structure: Lake Hills





Solar Shade Structure: Promenade



Non-Solar Shade Structures at 6 Sites



Phase III Funding Plan



Total Infrastructure Improvements: \$ 18,987,222

Lifecycle Savings: \$ 26,985,517

Funding Source:

- ESSER III Federal Stimulus* (\$16.5 million)
- Extended Learning Opportunity (ELO) BA 5/20/21 (\$2.5 million)

**AUSD Allocation for ESSER III is \$40,722,415 according to CDE data posted on 5/24/2021*



Alvord Unified School District

Our Promise: All students will realize their unlimited potential.

Next Steps

- | | |
|--|--------------|
| ➤ Board Considers Phase III for Implementation | Tonight |
| ➤ Complete Phase III Design | June |
| ➤ Phase III Equipment Ordered | July |
| ➤ Phase III Modernizations Begin | August |
| ➤ Solar Plans Submitted to DSA & Utility Company | Fall 2021 |
| ➤ Solar Construction Begins | Winter 2021 |
| ➤ Phase III Construction Period | 12-18 months |

