

October 4, 2016

Board of Education Meeting

**Glendale Unified School District:
2016-17 Solar Electric
Procurement Project**

Clyde Murley, District Solar Consultant



PROCURING CLEAN ENERGY FOR THE PUBLIC SECTOR

Presentation Content

1. Project Scope
2. District - SunPower Contract Documents
3. Key Assumptions Used in Solar Savings Analysis
4. Anticipated Net Solar Savings: Years 1 -25
5. Anticipated Board Approval & Design-Build Schedule
6. Proposed Solar System Layouts

Solar Photovoltaic Systems by School Site

Site	System Size (kW peak)	Generation (kWh /Year 1)	School Usage Offset by Solar (%)	Solar System Type
Cerritos ES	95.7	173,175	46%	Elevated "Carport"
E. Toll MS	287.1	524,325	64%	Elevated "Carport"
Horance Mann ES	95.7	173,306	42%	Elevated "Carport"
John Muir ES	208.8	374,587	57%	Elevated "Carport"
RD White ES	182.7	332,854	93%	Elevated "Carport"
T. Jefferson ES	117.5	212,508	71%	Elevated "Carport"
W. Wilson MS.	365.4	657,508	92%	Elevated "Carport"
Glendale HS	461.1	806,032	32%	Rooftop & Elevated "Carport"
H. Hoover HS	625.6	1,099,273	68%	Rooftop & Elevated "Carport"
Total	2,439.6	4,353,568	56%	

SunPower Contract Documents

- Contract negotiations with SunPower are ongoing and we expect to have completed documents in time for the October 18 Board Meeting.
- 4 documents, each of which covers all 9 sites:
 - Design-Build Agreement
 - Operations and Maintenance Agreement (25 years)
 - Includes no-cost repair/replacement for entire 25 years.
 - Performance Guarantee Agreement (25 years)
 - Each solar system must produce at least 97% of expected each year or SunPower makes payment to District for the shortfall.
 - Energy Management Agreement (3 years)
 - Powerful on-line monitoring platform that will measure monetary value of the District's solar production and District energy efficiency measures, as well as identify future cost-saving energy opportunities.
 - This platform has great potential to be incorporated into new curricula.
 - The District may extend this subscription after the initial 3-year period.

Key Assumptions Used in Solar Savings Analysis

Glendale Unified School District 2016-17 Solar PV Project 2.44 Megawatts of Solar Systems at 9 District Sites Anticipated 25-Year General Fund Savings

Cost and System Specifications and Assumptions

	Final System Size (kWp) =	2,439.6
	Solar System Contract Price =	\$9,843,465
	District Project Development Costs =	\$890,000
	CREB Issuance Costs =	\$182,500
	Total CREB Loan Amount =	\$10,915,965
	Clean Renewable Energy Bond (CREB) Net Interest Rate =	0.616%
	Total Solar kWh Generated (First Full Year) =	4,353,566
Assuming Systems Receive	Annual Rate of PV Degradation =	0.25%
Net Energy Metering:	1st Full Year Utility Bill Reduction per Solar kWh (\$/kWh) =	\$0.163
	Assumed Utility Annual Rate of Cost Escalation =	3.00%
	Assumed % of Expected Solar Production Achieved =	97%

Middle/Elementary Schools' Solar On-Line Oct. 2017; High Schools' Solar On-Line Dec. 2017

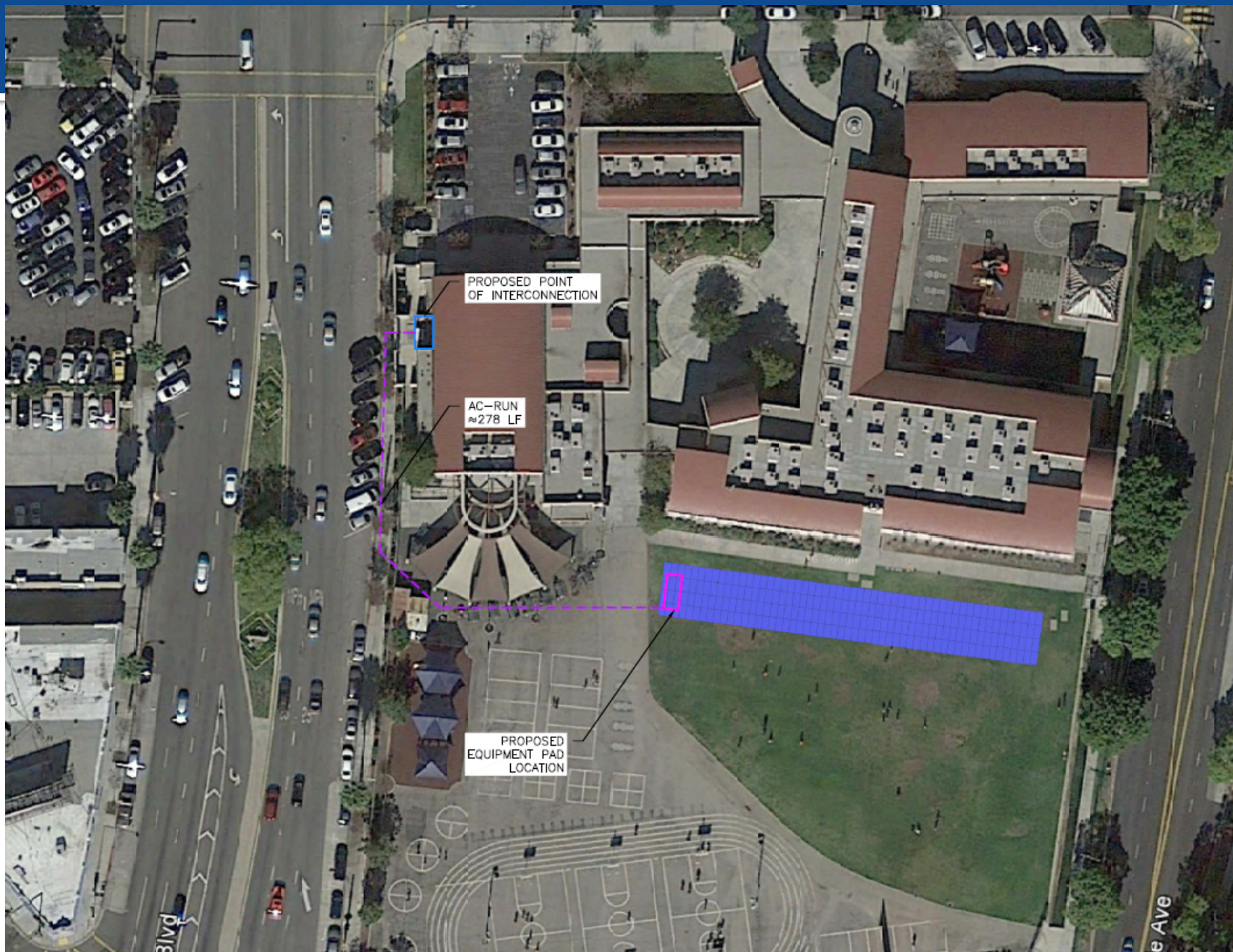
Anticipated Net Solar Savings: Years 1 - 25

Fiscal Year of Solar Operation	<u>Benefit:</u> Avoided Electricity Costs	<u>Cost:</u> Operations & Maintenance	<u>Cost:</u> CREB Payments	Annual General Fund Savings	Cumulative General Fund Savings
Design/ Build					
1 (FY 2017-18)	\$401,489	(\$56,740)	(\$290,436)	\$54,314	\$54,314
2	\$706,092	(\$84,212)	(\$573,278)	\$48,603	\$102,917
3	\$725,457	(\$86,738)	(\$588,121)	\$50,598	\$153,514
4	\$745,352	(\$89,340)	(\$604,850)	\$51,162	\$204,677
5	\$765,794	(\$92,020)	(\$621,455)	\$52,318	\$256,995
6	\$786,795	(\$94,781)	(\$637,938)	\$54,076	\$311,071
7	\$808,373	(\$97,625)	(\$656,294)	\$54,454	\$365,525
8	\$830,543	(\$100,553)	(\$674,515)	\$55,474	\$421,000
9	\$853,321	(\$103,570)	(\$692,601)	\$57,150	\$478,150
10	\$876,723	(\$106,677)	(\$710,550)	\$59,496	\$537,645
11	\$900,767	(\$109,877)	(\$730,362)	\$60,528	\$598,174
12	\$925,471	(\$113,174)	(\$750,025)	\$62,272	\$660,446
13	\$950,852	(\$116,569)	(\$771,537)	\$62,745	\$723,191
14	\$976,929	(\$120,066)	(\$792,890)	\$63,973	\$787,164
15	\$1,003,721	(\$123,668)	(\$814,082)	\$65,971	\$853,136
16	\$1,031,248	(\$127,378)	(\$835,114)	\$68,756	\$921,892
17	\$1,059,530	(\$131,199)	(\$863,973)	\$64,358	\$986,250
18	\$1,088,588	(\$135,135)	\$0	\$953,452	\$1,939,702
19	\$1,118,442	(\$139,189)	\$0	\$979,253	\$2,918,955
20	\$1,149,115	(\$143,365)	\$0	\$1,005,750	\$3,924,705
21	\$1,180,630	(\$147,666)	\$0	\$1,032,964	\$4,957,669
22	\$1,213,009	(\$152,096)	\$0	\$1,060,913	\$6,018,582
23	\$1,246,275	(\$156,659)	\$0	\$1,089,617	\$7,108,199
24	\$1,280,454	(\$161,358)	\$0	\$1,119,096	\$8,227,295
25	\$1,315,571	(\$166,199)	\$0	\$1,149,372	\$9,376,667
Years 1 - 25	\$23,940,540	(\$2,955,854)	(\$11,608,019)	\$9,376,667	\$9,376,667

Anticipated Board Approval & Solar Design-Build Schedule

Milestone	Anticipated Date Range
Board Approves Contract Documents & Issues Notice to Proceed to SunPower	October 25, 2016
SunPower Completes System Designs & Receives DSA Approval	"Carports": April 27 - May 9, 2017 Rooftops: May 29 – June 26, 2017
Construction Begins	"Carports": June 5 - 15, 2017 Rooftops: June 5 – 27, 2017
Systems Completed & SunPower Requests Permission to Operate from GWP	September 4 - 14, 2017
Systems On Line	October 19 - 31, 2017
Punchlists Completed & District Issues Notice of Completion	December 8 - 20, 2017

1. Cerritos ES – 95.7 kW



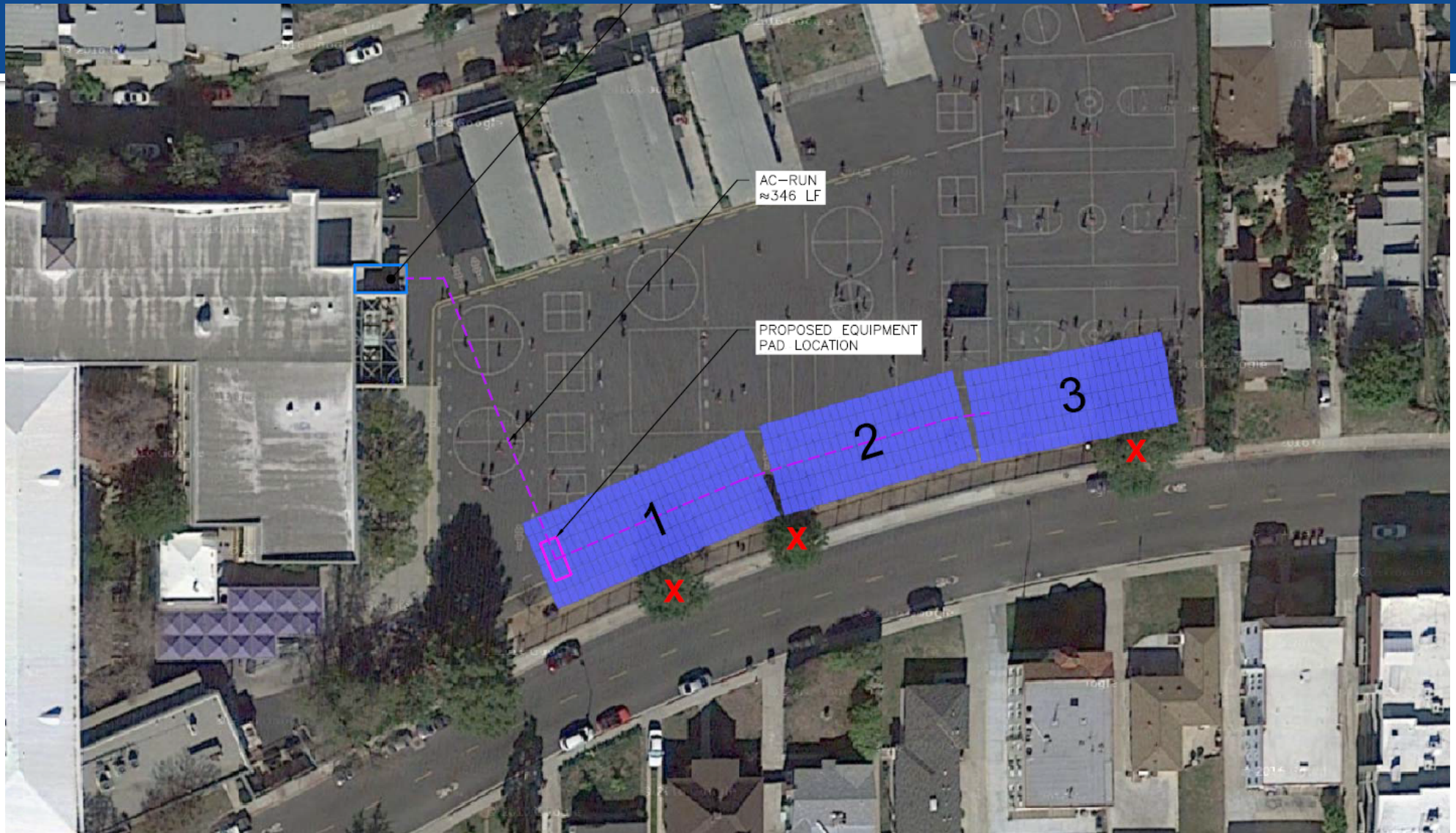
2. E. Toll MS – 287.1 kW



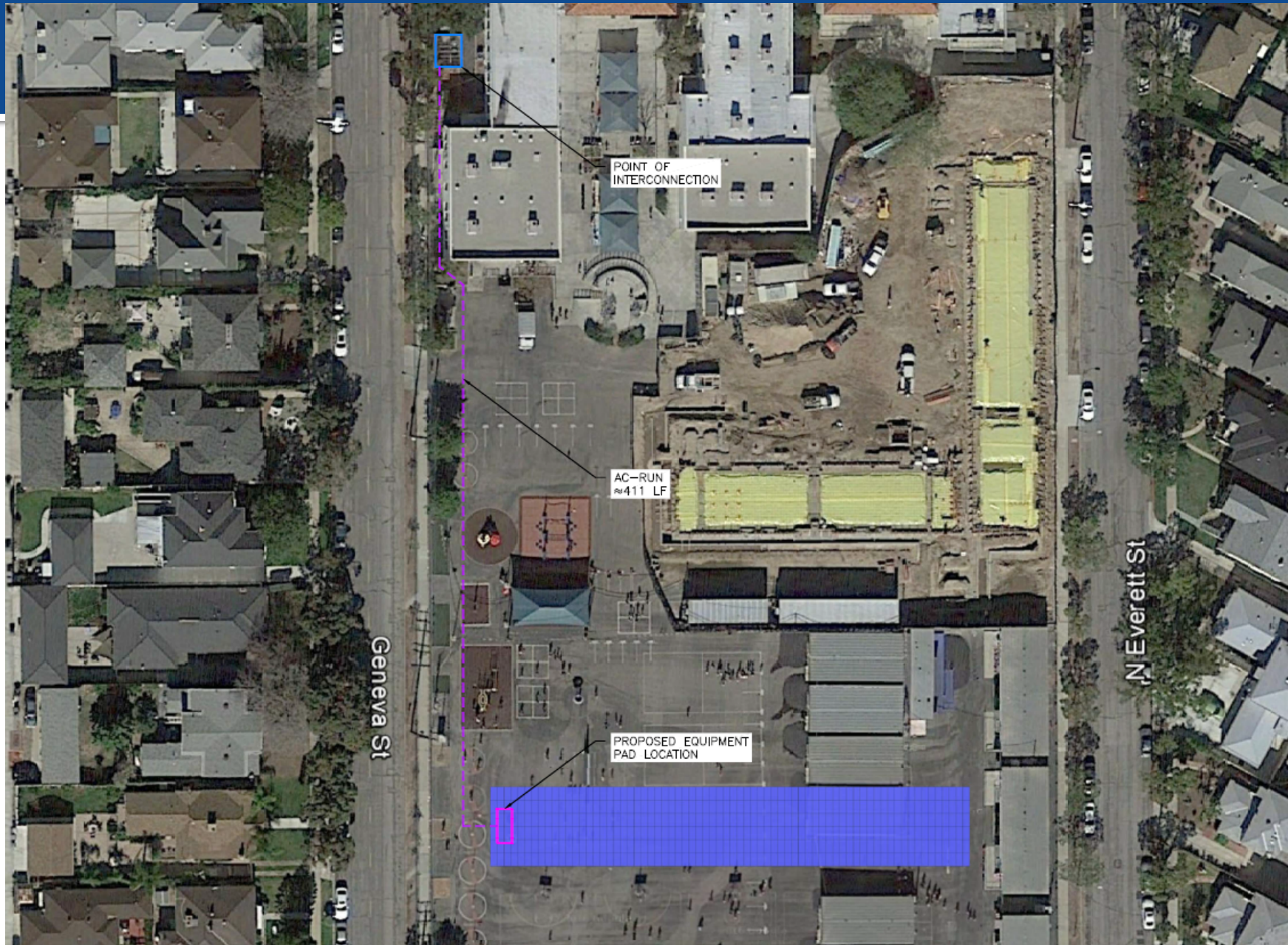
3. Horace Mann MS– 95.7 kW



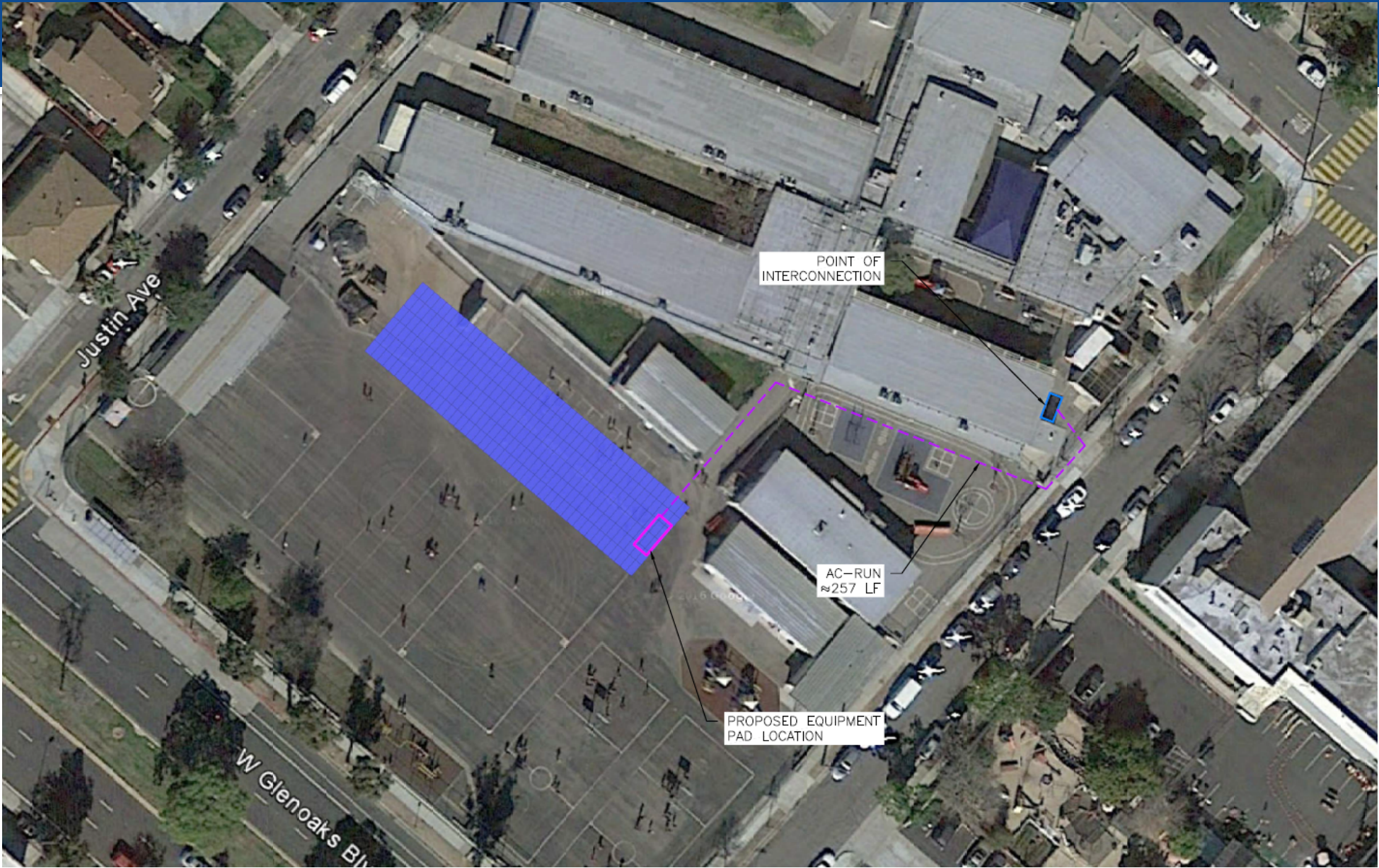
4. John Muir ES – 208.8 kW



5. RD White ES- 182.7 kW



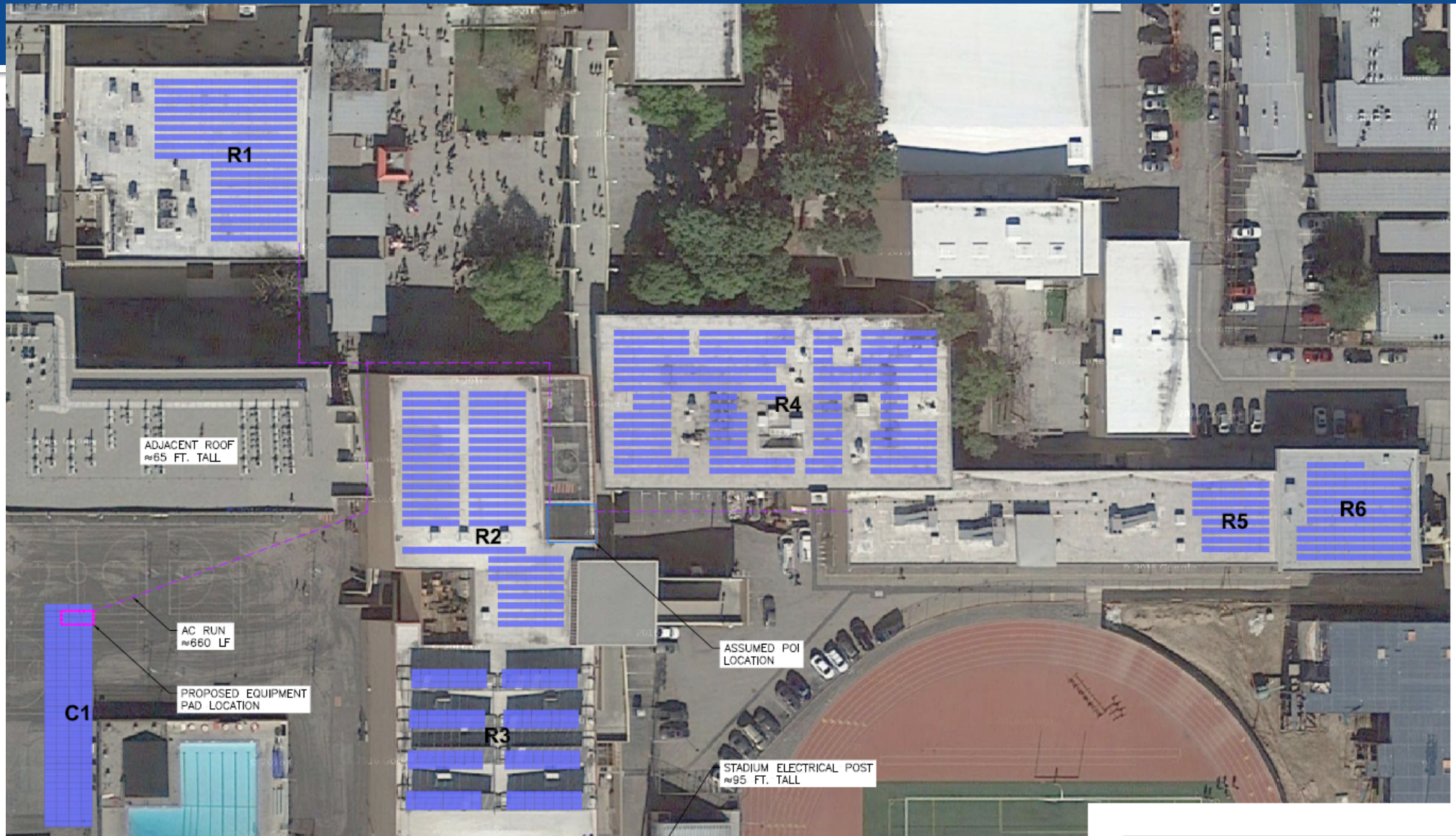
6. T. Jefferson ES – 117.5 kW



7. W. Wilson MS – 365.4 kW



8. Glendale HS – 461.1 kW



9. Hoover HS – 625.6 kW

