

Recognizing Local & Global Benefits of Albedo Management

Cool Roof Rating Council Annual Meeting | June 11, 2025





Climate Resolve

Innovate.
Advocate.
Achieve.
Together.



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Solutions Analyst

Agenda



- I. Background on Climate Resolve's Cool Surface Work
- II. Shine On Initiative



Our purpose is a just and resilient future.

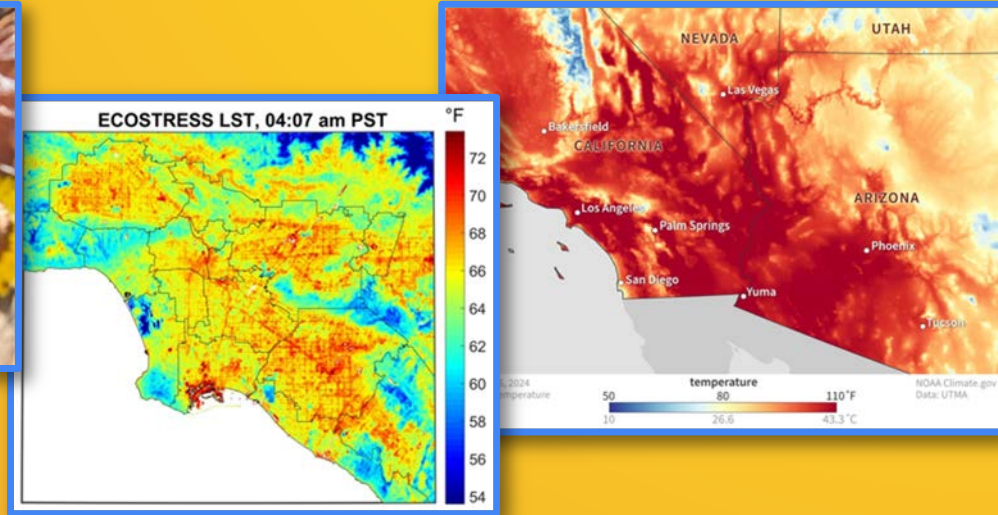
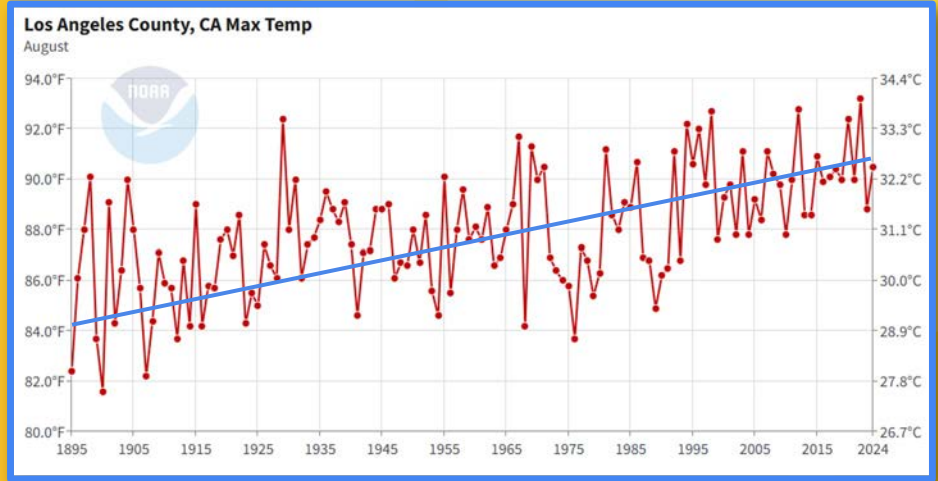


Climate Resolve builds collaborations to champion equitable climate solutions.

Extreme Heat is getting worse.

Urban Heat Islands exacerbates things.

40% asphalt cover radiates heat all day and night.



LA's Cool Roof Ordinance & Rebate



	Mandate (if >50% of total roof area)			Rebate	
Roof Slope	Minimum 3 YR Aged SR	Thermal Emittance	SRI	\$0.20 per sq. ft. for 3 YR SRI	\$0.60 per sq. ft. for 3 YR SRI
< 2:12 (low-slope)	0.63	.75	74	≥ 78	≥ 85
≥ 2:12 (steep)	0.20	.75	16	≥ 20	≥ 35

LA's Cool Roof Ordinance

- Went into effect Jan. 2015
- 18M sq. feet installed to-date
- Cost difference is negligible



Del Rey neighborhood in Los Angeles, CA

LA's Cool Pavement Pilot

Phase	Date	Scope	Product	Surface Temp. Differential
1	July 2015	City-owned parking lot	CoolSeal	10°F
2	June 2017	1 block in each council district (15)	CoolSeal	10°F
3	Jan. 2018	4 sections of LA Cleantech Incubator parking lot	CoolSeal Thermacote ePave StreetBond 150	6-12°F
4	June 2019	Colored bike lanes & different greys	StreetBond 150	
5	June 2019	3 neighborhood scale installations (~12 blocks each)	CoolSeal	9-11°F

Buzz-Worthy Research

Observed: a "Cool Crescent" in the Winnetka neighborhood, SF Valley



ECOSTRESS Land Surface Temperature 7/30/2020, midnight (UTC-8)

Los Angeles Daily News

'Cool pavement' to cut urban street heat gets first California tryout in Canoga Park



Canoga Park, north of Los Angeles, is getting a special coating to keep streets cooler. The coating is a mixture of reflective paint and a polymer binder designed to reflect heat. This is the first such installation on a public street in the State of California. (Source: Los Angeles Daily News, 8/1/2021, photo by David J. Phillip)

By SARAH KATZ/LOS ANGELES TIMES | Photo by David J. Phillip
UPDATED August 26, 2021 at 3:04 a.m. (PST)



Thermal radar shows the differences in heat on a basketball court after the reflective coatings were applied at Hubert H. Humphrey Memorial Park. (Source: Los Angeles Daily News, 8/1/2021, photo by David J. Phillip)



One of the art pieces symbolizing a heat scale near Hubert H. Humphrey Park in Pacoima, where 10 square blocks, a basketball court and elementary school yard have been coated with "cool paint." The whole street in this image is coated with the paint. (Source: Los Angeles Daily News)

Public Sector Champions



Synergy With Other Climate Strategies



LA's Cool Pavement Pilot

1. Equity-Driven Prioritization

Preliminary Screening

- Tree Canopy
- Extreme Heat
- Heat Island
- Disadvantaged Community
- Proximity to:
 - Other Cool Pavement
 - Multi-Density & Commercial
 - High Pedestrian Demand
 - Amenities
 - Other Planned Projects

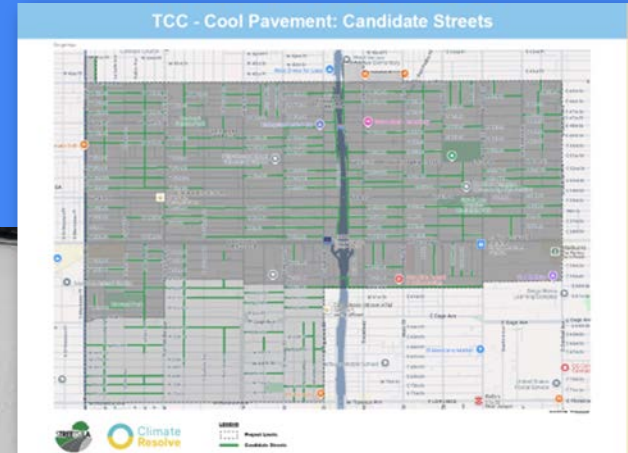
2. Feasibility & Maintenance Benefits

Street Segment Scoring

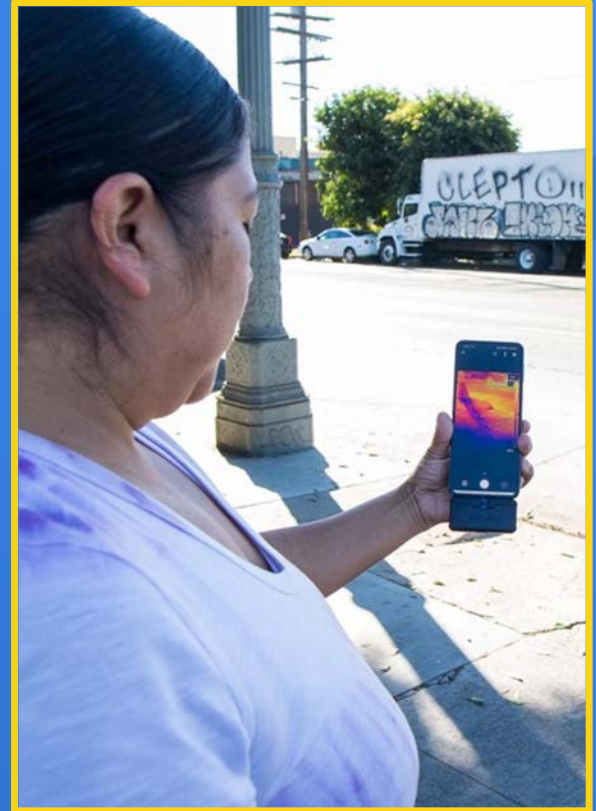
- Pavement Condition Index (PCI)
- Numerical rating system (0-100)
- Assess:
 - Cracking
 - Pothole
 - Raveling
 - Rutting
 - Patching
 - Utility Cuts

3. Community Preference

Community Engagement & Voting



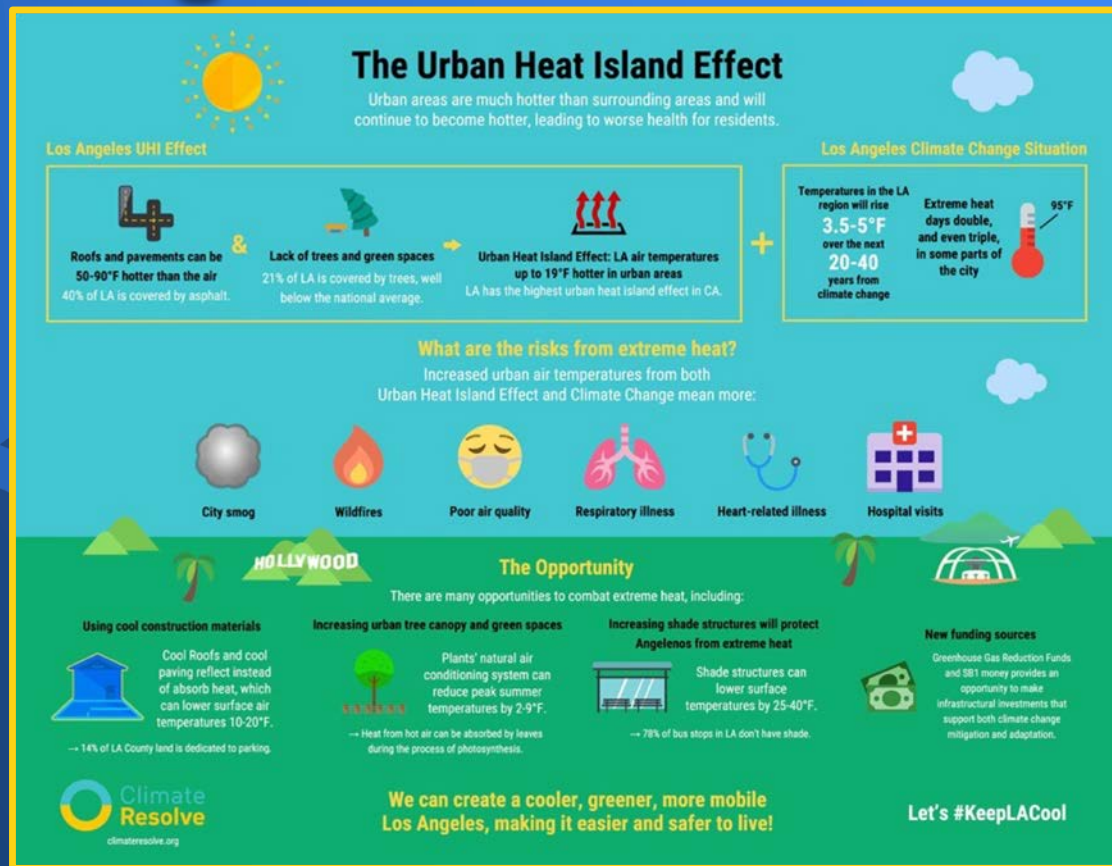
Community Engagement



LA's Cool Pavement Pilot

- 182 lane miles to-date
- 100 additional in procurement

Local Cooling



Cool Surfaces Explainer Video



Global Cooling

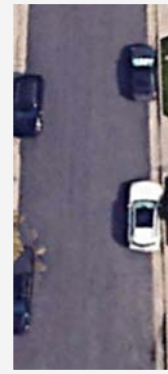
Input:
Albedo
Management



Albedo increase **+0.45**
for 80% of flat roofs



Albedo increase **+0.25**
for 80% of sloped roofs



Albedo increase **+0.20**
for 80% of pavements

Output:
Global
Cooling
Climate
Mitigation

U.S. Carbon
Offset

71 Gt CO₂e = **12 years**
of GHG inventory emissions

Entire U.S.
built environment



Global Carbon
Offset

320 Gt CO₂e = **7 years**
of GHG inventory emissions

Entire global
built environment



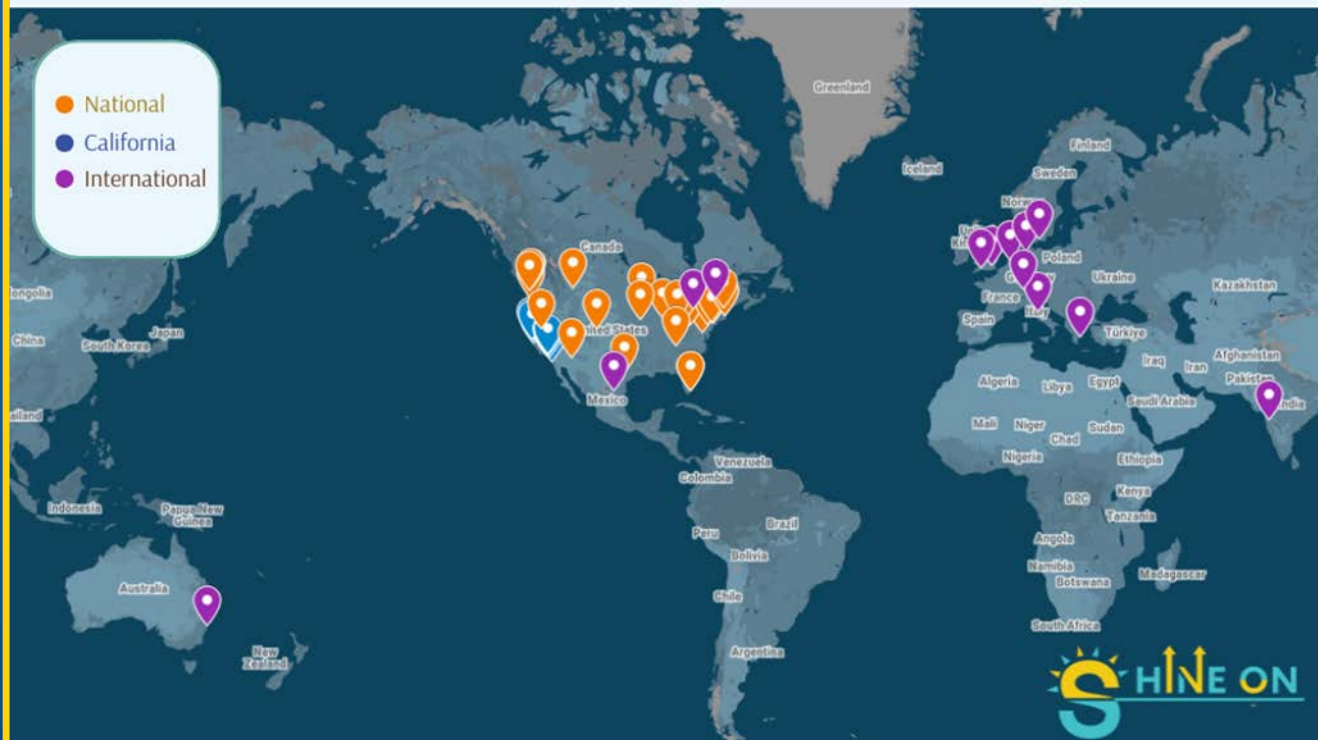
Shine On Initiative & Sol Collaborative



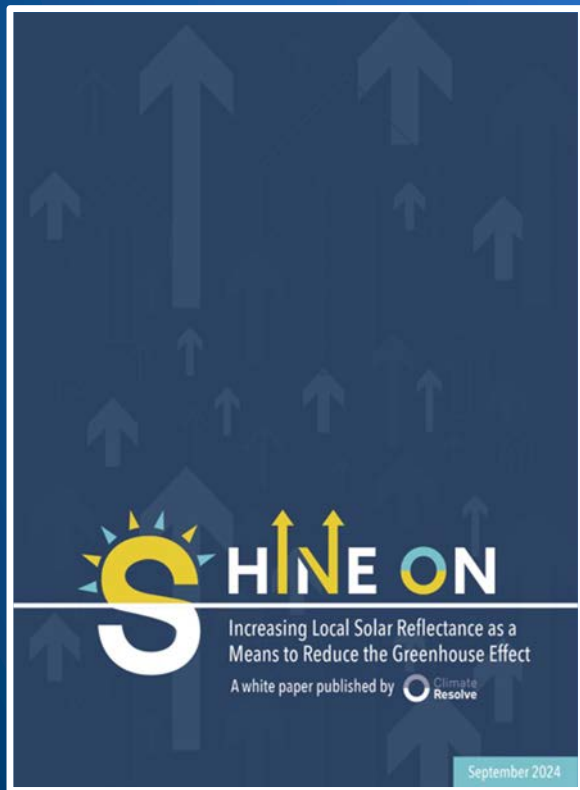
Sol Collaborative Working groups:

- Policy & Communications
- White Paper
- Albedo Project(s)
- Finance
- Technical
- International (2025)

140 participants across over **100**
different organizations and **12** countries



WHITE PAPER



- Research support
- Building and zoning codes
- Construction standards for facilities and infrastructure
- Albedo-based offsets in GHG regulatory systems
- Stipulations on government funding
- Large-scale pilot projects

Technical

Convened by: Frank Klink
Analysis Lead: Ronnen Levinson, LBNL

Goals:

- Enable financing or monetization of albedo projects by **establishing transparent and trustworthy estimation, measurement, and verification** (EMV) methods.

Estimation, Measurement, & Verification (EMV) Team

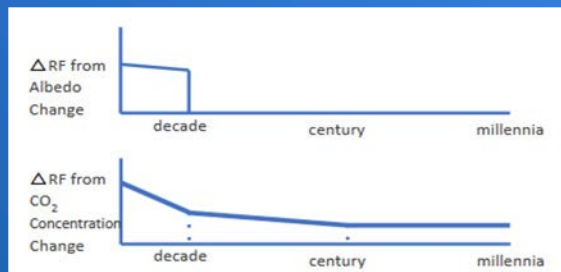
Top of Atmosphere (TOA)

Bottom of Atmosphere (BOA)

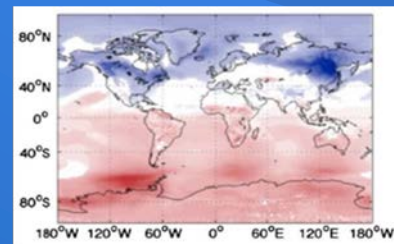


Smoliak et al. (2022).
<https://doi.org/10.1088/2515-7620/ac7a25>

Greenhouse Gas (GHG) Team



Spatial Disparity



Jones et al.
<https://doi.org/10.1002/qrl.50754>

Finance

Convened by Emilia García

Goals:

- Using market solutions and attracting private-sector capital to cool surface projects

Shine On Finance Working Group: Roadmap Report



December 2024

		Atmospheric CO2e Potential					Heat Impact		Debt levels	
Country	Region	Min.	1st Quartile	Median	3rd Quartile	Max.	% population +30 days	% population +100 days	Debt % GDP	Sovereign ratings
Kenya	Eastern Africa	2.2	2.5	2.7	2.9	4.9	99%	94%	68%	B/Negative/B
Oman	Western Asia	2.8	3.4	3.6	3.9	4.8	100%	92%	40%	BB+/Positive/B
Senegal	Western Africa	2.7	2.8	3.2	3.2	4.0	100%	98%	75%	B+/Stable/B
Mexico	Central America	1.9	2.5	2.7	3	3.5	98%	88%	41%	BBB/Stable/A-2
Colombia	South America	1.6	1.7	2.4	2.7	3.5	99%	94%	47%	BB+/Negative/B
Peru	South America	1.8	2.3	2.8	3.1	3.5	99%	95%	30%	BBB-/Stable/A-3

Policy & Communications

Convened by Kurt Shickman

Goals:

- Advance awareness, enabling policy, codes/standards, and investment to **accelerate the widespread deployment of affordable high-albedo projects globally, nationally, and in California.**



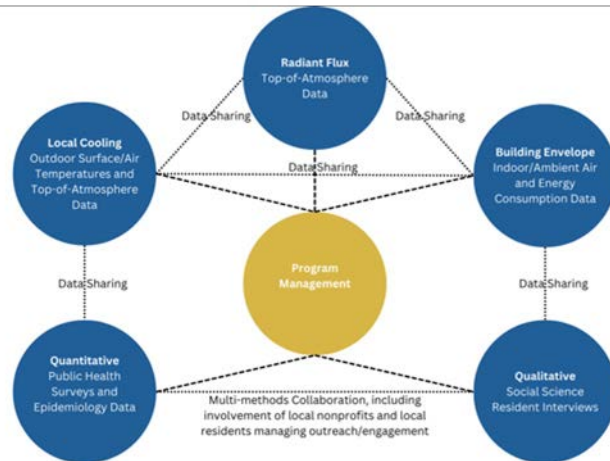
Albedo Project(s)

Convened by Selena Melgoza

Goals:

- Support the development and implementation of large-scale cool community projects in Southern California
- Design a research plan framework for **neighborhood-scale** cool communities

Cycle of Continual Improvement



In partnership with:



THE REFLECT EFFECT

a Shine On initiative

COOL SURFACES WORKSHOP

July 24 - 25, 2025
Los Angeles, CA



The Reflect Effect Sponsors

Table Top Display



To sponsor or learn more contact:
development@climateresolve.org

- Designated **hour-long** tabletop session for all sponsorship levels
- Opportunity for both remote and in-person sponsors
- Encouraged media: trifold boards, physical product examples, laptop screens, etc.
- Contact information and brand information provided in a **participant packet** to all attendees
- Further sponsorship opportunities including **bus tour, city hall networking session**, and more are available!

THANK YOU TO SHINE ON'S SPONSORS



Grantham Foundation
for the Protection of the Environment



climateworks
FOUNDATION





THANK YOU!



Join our global Sol Collaborative
on cool surfaces here →

