

Sustainable Transportation and Communities Research Engagement Project FINAL REPORT

The Sustainable Transportation and Communities Research Community Engagement Plan (STCRCEP)

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Institute for Urban and Regional Development (IURD)

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SUSTAINABLE TRANSPORTATION & COMMUNITIES RESEARCH COMMUNITY ENGAGEMENT PLAN

TO ADVANCE
SUSTAINABLE
TRANSPORTATION &
COMMUNITIES RESEARCH



Figure 1: Photo of Madison Park Mural Project Located in Santa Ana, CA by Artist Cody Lusby



Figure 2: Rooted and Rising Artwork by Hlee Thao (Hlee Thao) and Yi Thon (Yee Thao)



Figure 3: Artwork by Stockton Artist Jo Sagaral

Land Acknowledgement

An important practice at the monthly meetings with the Community Engagement Research Advisory Committee (CERAC) members was beginning each meeting with a centering moment to acknowledge the original caretakers of the land. Research team member Justine Medina shares, “As a citizen of the Navajo Nation and a descendant of the Winnebago and Menominee Tribe, I believe it is essential to recognize the lands we live and work on.”

At UC Berkeley, we acknowledge that the land on which we gather on today is the unceded territory of the Ohlone people who continue to live, care for and advocate for their Indigenous rights today.¹

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¹ For more information, see: <https://native-land.ca/>

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With gratitude and in community,

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Abstract

The California Air Resources Board's (CARB) Sustainable Transportation and Communities Division (STCD) commissioned this project as part of a broader CARB effort to address a longstanding disconnect between state-sponsored research and the lived experiences of environmental justice (EJ) communities. Growing evidence demonstrates that when impacted communities define research problems and participate in conducting research, both the quality and outcomes improve significantly. Principal Investigators Dr. Charisma Acey and Margaretta Lin, JD, along with community scholar and EJ activist, Marisol Cantú, formed a Community Engagement Research Advisory Committee (CERAC) with nine EJ leaders from geographically and demographically diverse communities across California to guide the creation of a Community Engaged Research Plan for STCD's research portfolio.

The project addressed two central research questions: (1) what are future research priorities for STCD to consider; and (2) what are best practices for community engaged researchers and recommendations for STCD implementation actions to support these best practices? Using a transformative community-based research approach grounded in principles of cultural humility, racial justice, and partnership, the project employed mixed methods including: a demonstration project with CERAC members who were trained in Community-Based Participatory Action Research (CBPAR) and led focus groups in their communities (92 participants); an interdisciplinary literature review of over 150 scholarly and practice-based sources; and a practice review comprising of interviews and focus groups with EJ organizers, academic researchers, and government officials across California. A total of 134 participants identified 29 priority research areas spanning housing, land use, transportation, and environmental health, and informed best practices for community engaged research.

The final report delivers four products: (1) recommended research priorities and STCD implementation actions; (2) a How to Guide for conducting community engaged research, co-created with CERAC leaders; (3) a literature review synthesizing frameworks from Research Justice, CBPAR, and collaborative governance; and (4) a practice review documenting lessons from EJ leaders, academics, and government practitioners. Together, these products provide STCD with an evidence-based framework for institutionalizing community-driven research across its programs, strengthening both scientific rigor and community trust.

Chapter 1: Final Report & Recommendations

Project Purpose: The Sustainable Transportation & Communities Research Community Engagement Plan

The California Air Resources Board's (CARB) Sustainable Transportation and Communities Division (STCD) commissioned this project as part of a broader CARB effort to address a longstanding disconnect between state-sponsored research and the lived experiences of environmental justice (EJ) communities. Stakeholders have raised concerns that state funded research can fail to reflect the realities of communities disproportionately impacted by exclusionary housing, land use, and transportation policies. Conventional research methods using top-down data collection and narrowly defined metrics have contributed to harmful policy outcomes by excluding the voices and knowledge of those most affected. CARB, as an overall agency, has responded to these concerns with official commitments to racial equity, environmental justice, and community engagement across agency activities.²

STCD selected principal investigators (PIs) experienced in designing empowering community governance models and in conducting community based participatory action research—Dr. Charisma Acey and Margaretta Lin from UC Berkeley to produce this Sustainable Transportation and Communities Research Community Engagement Plan (STCRCEP). Specifically, the STCRCEP is meant to guide STCD's future projects and to add to existing literature and practice reviews on transformative research models.

The PIs proposed the creation of a statewide community advisory committee to inform and guide key aspects of the research project—the Community Engagement Research Advisory Committee (CERAC). The PIs also proposed to use this project as a “demonstration project” to implement community engaged research principles and draw lessons from the actual practices engaged in through this project. In addition, the PIs contracted with Just Cities, a community based planning and public policy organization to support the research project, with a focus on coordinating and administering the CERAC.

STCD through this project aims to meaningfully engage low-income communities of color and Tribal communities to identify research topics in land use planning, housing, and transportation that CARB's STCD could potentially fund. The findings and recommendations prioritize the research interests of frontline leaders and affected communities, acknowledging their long-standing concerns and insights on current research and gaps in these areas. As stated in the project Scope of Work (SOW),

The intent is for this project to be the beginning of a long-term effort at STCD. After project completion, STCD would continue to engage with communities utilizing the guidance developed through this project while also following CARB's Community Engagement Model³ to continue incorporating community-identified research ideas in future STCD's research planning efforts.

In applying best practice principles of community engaged research, the CERAC members have reviewed and blessed the different components of the STCRCEP. While this type of process

² See Board Resolution 20-33. <https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2020/res20-33.pdf>. The CARB Board Resolution was motivated in part by a collective letter from CARB Black employees. <https://ww2.arb.ca.gov/sites/default/files/2020-11/Letter-Action%20Plan%20for%20Racial%20Change%20at%20CARB.pdf>

³ CARB Community Engagement Model. <https://ww2.arb.ca.gov/community-engagement-model>

may take more time and multiple meetings and review processes, it results in substantial improvements in the final content.

This STCRCEP provides concrete evidence for WHY community engaged research is essential and also HOW to conduct it through implementing best practice community engagement activities at every stage of this research project. It incorporates the collective lessons learned through this demonstration project, as well as references evidence from the Literature and Practice reviews conducted.

Overall Methodology

Transformative Planning Methodology

Derived from abolitionist frameworks of transformative justice⁴, transformative planning aims to study the roots of structural inequities to address current harms. This model upends the prevailing model of community engagement that extracts, exploits, and tokenizes residents, especially low-income communities of color. We define transformative justice in the community engagement process as including the following elements:

- Diversity of perspectives: It is critical to community equity that there is intentional, inclusive, and authentic involvement of groups who are historically excluded from planning and policy processes.
- Partnership and not token engagement: Engaging in partnerships with the diversity of California to ensure that people's voices are heard, including community, faith, political, service providers, and other institutional leaders and organizations.
- Deep listening: Engaging in authentic and responsive listening that leads to actionable steps.
- Actionable change: Community engagement requires time and emotional investment from community members, so when the government engages people, it is critical that this translates into a unified and collective plan of action that integrates community voices, is implementable, and advances racial and social justice.

This methodology is grounded in California's racialized policy landscape, where low-income communities of color have experienced disproportionate transportation burdens while being excluded from state research and decision-making. Historically, public research has been extractive, opaque, and misaligned with local priorities. Transformative planning—as rooted in CBPAR, research justice, and love ethics—offers an alternative framework that centers community leadership, shared power, and culturally grounded knowledge. This approach directly responds to demands from environmental justice leaders across the state to make research processes equitable, trauma-informed, and accountable.

To ensure accountability to our transformative framework, we embedded ongoing participatory reflection and course correction throughout the project. CERAC members reviewed and co-developed materials at each stage, from focus group questions to final findings. Debriefs after focus groups, structured monthly meetings, and one-on-one office hours created space to assess

⁴Mariame Kaba, *We Do This 'Til We Free Us: Abolitionist Organizing and Transforming Justice* (Haymarket Books, 2021).

what was working and to adapt tools and approaches. This input directly informed changes to research instruments, meeting facilitation, and project timelines.

Each element in this report followed transformative planning methods, as highlighted below:

Table 1: Transformative planning methods in elements of this research

Community Scholar	To build trust with grassroots organizations, we recruited a respected environmental justice leader known by the research team to serve as Community Scholar and lead the recruitment and orientation of the CERAC. The Community Scholar, Marisol Cantu, led one-on-one and small group sessions with CERAC members to adapt materials and build trust; offered culturally grounded, trauma-informed coaching to ensure inclusive co-facilitation of focus groups.
CERAC Development & Leadership	Recruited grassroots leaders and activists with deep community ties across California as co-researchers. Provided CBPAR training, compensated participation, and co-designed engagement tools and questions. Conducted a statewide landscape scan to identify diverse EJ organizations. Used intentional outreach and screening to recruit members from varied geographies, racial/ethnic groups, coalitions, and lived experiences. Centered relational trust and compensated their time. Built trust through regular Zoom meetings, co-developed agreements, and invested in deep listening. Structured monthly meetings included office hours, small group check-ins, and culturally responsive facilitation. Members represented tribal, youth-led, migrant, and urban EJ groups. CERAC members reviewed and provided feedback on draft versions of the literature and practice review reports. They co-created and verified the details and recommendations in the How to Guide, Chapter 2.
CERAC-Led Focus Groups	CERAC members co-designed focus group guides, led recruitment of participants, and facilitated groups in culturally appropriate and trauma-informed ways. Focus groups were held in multiple languages and formats (Zoom/in-person). Focused on lived experience, priority setting, and guidance to CARB. Interpreters and accessible materials were provided. Focus groups embedded the principles of restorative justice and Freirean popular education: each opened with relational grounding, storytelling, and trust-building, and closed with participant validation. As part of community engaged research best practice, the CERAC member who organized the focus group verified the preliminary findings and recommendations from their focus group.

Practice Review	Reviewed strategies and lessons from similar state-led EJ research and planning initiatives, prioritizing insights from community-led processes. Included examples of co-governance, participatory budgeting, and CBPAR-informed evaluation frameworks. Featured practitioner interviews across state and community institutions; identified best practices like flexible timelines, compensation equity, and reflexive facilitation.
Literature Review	Prioritized scholarship and practice-based reports from BIPOC scholars and EJ organizations. Used a justice-centered lens to critique dominant planning and research paradigms and to identify community-rooted alternatives. Frameworks included CBPAR, research justice, love ethics, IAP2 spectrum of participation, reparative and insurgent planning models. Adapted literature and practice reviews in consultation with CERAC to ensure clarity, relevance, and accessibility for non-academic, community based audiences.

Synthesis of Recommendations

There were three main research activities and participants that contributed to the overall final recommendations: 1) literature review, 2) practice review interviews and focus groups with 125 EJ grassroots leaders, academic researchers, or government officials; and 3) a demonstration project that the research team operated with the nine (9) CERAC members. The research team engaged in coding of keywords from the interviews and focus groups, an iterative process to create an overall code book with major themes, produced key recommendations and findings from each set of research activity, and then synthesized the final recommendations across the different sets of recommendations and findings.

Project Limitations

The PIs acknowledge that this project accomplished important outcomes to advance STCD's goals. We are extremely proud of the labor of many dedicated people to produce transformative deliverables.

However, it is also important to acknowledge key project limitations, namely the following:

1. The research team conducted outreach to California tribal communities to seek their involvement. California indigenous leaders participated in the CERAC, interviews, and a dedicated focus group. However, California tribes in their official capacities were not involved. The research team recommends that STCD consider a dedicated research project led by Indigenous scholars in partnership with California tribes that is solely focused on soliciting recommendations from members of California tribes.
2. The research team conducted outreach to northern California rural communities. Northern rural community and government leaders participated in interviews and in the government focus group. However, there were no members of northern California rural communities on the CERAC nor were there dedicated focus groups for just northern California rural communities. Given the significant differences of northern rural communities, the research team recommends that STCD considers a dedicated

research project led by researchers based and specializing in California's northern rural communities.

Given the vast geographic expanse of California and its multi-faceted population diversity, to capture the full diversity of California would have required a collaboration of research teams with significantly more funding and time.

Overall Roadmap of the STCRCEP

The STCRCEP includes the following five sections or chapters that embody the project's collective journey, major lessons learned, and key recommendations. These chapters are also designed to be stand alone documents.



Summary of Overall Research Recommendations (contained in this chapter, Chapter 1)

Priority research areas and researcher qualifications for future STCD projects drawn from the CERAC, literature review, and practice review.



How to Guide (Chapter 2)

7 main guiding principles from this demonstration project's work with the nine (9) Community Engagement Research Advisory Committee (CERAC) on how to conduct community engaged research.

The research team and CERAC members' short/mid/long term recommendations for STCD, academic researchers & community leaders.

CERAC members profiles including first person information, lessons learned, and recommendations for researchers.



Literature Review (Chapter 3)

A summary of best practice principles from previous research articles, reports, and other writings.



Practice Review (Chapter 4)

A summary of interviews and focus groups with 125 practitioners, academic researchers, and government officials. The CERAC members were also involved in reviewing and providing feedback on the recommendations.



How to Guide Toolkit (Appendix)

Sample materials used in this demonstration project with the CERAC and their focus groups.

The STCRCEP incorporates findings from four major research activities that involved 134 grassroots EJ and community leaders, practitioners, academic researchers, and current or former government officials.

- Recommendations from the **9 CERAC members** and findings from operating the CERAC found in the **How to Conduct Community Engaged Research** chapter.
- Recommendations from 125 practitioners in the **Practice Review**.
 - **92 frontline leaders** who participated in community focus groups organized and led by the CERAC members. These leaders represented the diversity of California including urban indigenous, Asian and Hispanic/Latinx immigrants, and Black/African American people living in somewhat rural, urban, and suburban

communities. More information about these focus groups can be found in the **Practice Review**.

- Interviews and a government focus group with an additional **33 practitioners**, provided in the **Practice Review**.

Project participant diversity is summarized in the below table, with more details in the Practice Review.

Areas	Geographic type	Industries	Race/ethnicity
1. Bay Area 2. Central Valley 3. Imperial Valley 4. Inland Empire 5. Los Angeles 6. Sacramento 7. San Diego	1. Urban 2. Suburban 3. Agricultural	1. Academic research 2. Community based organizations 3. Local, regional, and statewide government agencies	● Black/African American ● Asian American ● Indigenous ● Latinx/Hispanic ● White ● Multiracial

The STCRCEP seeks to provide practical guidance for three audience members: 1) CARB STCD, 2) academic researchers interested in conducting community engaged research, and 3) community leaders interested in partnering with academic researchers on their community engaged research. The researchers understand that not all of the recommendations and suggestions contained in the STCRECP are within STCD's scope of work, budget, or authority to implement or adopt. However, it is an important principle of community engaged research to fully share community recommendations.

The STCRCEP visually looks different from many research reports because it was co-designed by CERAC members for community accessibility. A critical principle of community engaged research is that community participants should play a key role in how the research outcomes are analyzed, interpreted, presented, and distributed.⁵

The CERAC members identified the following criteria as essential for community accessibility. These best practice principles also resonate with findings from the Literature and Practice Review.

1. Minimize the amount of words and use plain language.
2. Incorporate attractive visual design elements such as meaningful community artwork and infographics.
3. Incorporate creative arts such as poetry for more profound communication.

⁵See Literature Review, Chapter 4.

Chapter Roadmap

This Chapter includes overall recommendations for STCD on the two main research questions:

- What are priority research areas for potential future STCD research projects?
- What are important researcher qualifications and conduct for potential selection for future STCD research projects and what actions can STCD take to implement these recommendations.

These overall recommendations incorporate findings from the following three main research activities: 1) operating the demonstration project with the CERAC (9 people) and other findings from operating this project; 2) conducting the practice review with 125 different participants (CERAC focus groups, a government focus group; practitioner interviews); and 3) conducting the literature review.

The below recommendations serve as a synthesis of the many rich recommendations provided throughout these research activities.

While all of the below recommendations may not necessarily fall within the scope of STCD's mission, an important principle of community engaged research is to fully share community recommendations. In addition, STCD could utilize other resources beyond STCD funding to advance these recommendations. For example, STCD is part of working groups with other CARB divisions and other state agencies on climate investments or examining cumulative health impacts from pollutants or proposed policies.

Recommended Priority Research Areas

The following table summarizes the themes and community research questions identified as priority areas for future STCD research funding.

Summary Recommendations for Future STCD Research

Research Areas	Summary of Community Research Questions
Indigenous-Led Research	Prioritize research led by Indigenous scholars, including both Tribal and urban indigenous scholars. Priority topics identified include how to institutionalize the recognition of Native cultural districts; and how to guarantee equitable access to land, water and mobility issues.
Affordable Housing Programs Access, Barriers & Impacts	What barriers do community members face when trying to access affordable housing programs? Examples include applications to Section 8, Below Market Rate (BMR), student housing; documentation requirements; credit history; income verification deposits; and fees. How do factors like race, income, neighborhood, immigration status, and access to support shape who is most likely to secure housing? What community-driven solutions such as housing counselors, vouchers, and protections for immigrant and undocumented residents could reduce these burdens and expand access?
Rent Burden, Displacement & Gentrification	How do rising rents, even under rent control, create displacement, overcrowding, and instability for students, youth, immigrants, long-term residents, and families with children? How do these pressures affect household well-being, mental health, and children's development? How are unhoused residents impacted by encampment removals and hostile architecture in neighborhoods where luxury housing is prioritized? What community-driven strategies could ensure stability and dignity for both housed and unhoused residents?
Housing Provider Accountability & Housing Quality	What policies and enforcement tools are effective in helping to ensure habitable conditions by addressing critical factors such as maintenance, deposits and fees, code enforcement, anti-retaliation protections, and access to legal support?

Research Areas	Summary of Community Research Questions
Infrastructure Strain from Multifamily Housing Growth	As apartment complexes increase in size, how are issues like traffic, parking availability, and the loss of open space being addressed by local planning?
Intergenerational Wealth & Housing Access	What is the role of intergenerational wealth in determining current access to stable rental or homeownership opportunities? What policies can address these systemic inequities?
Private Housing: Multiple Property Ownership & Vacancy	How do speculative property ownership practices, including private housing providers owning multiple vacant homes, affect housing availability, affordability, and neighborhood stability? What policies and community-led campaigns, such as vacancy taxes or land trusts, could address these challenges?
Land Use & Community Health & Power	How do land use decisions and private land ownership, especially in neighborhoods near freeways, ports, and industrial zones, shape access to open space, amenities, and environmental quality? Why do disparities in design, investment, and infrastructure persist across communities, impacting health, mobility, and quality of life? How can land use decisions prioritize community needs over private profit, and what strategies can expand the development of public parks, community centers, and shared spaces? How do zoning and land use policies like urban limit line policies and downtown specific plans shape development patterns? Is there a way to know which areas can support denser, walkable growth while protecting open space and agricultural land?
Public Access to Natural Resources & Open Space	Why is access to rivers, beaches, parks, and other public spaces so limited? What barriers such as safety, distance, and maintenance prevent equitable use by low-income and underinvested communities? How do private land ownership and uneven public investment restrict access? What policies or planning approaches can prioritize community benefit and expand inclusive public spaces?

Research Areas	Summary of Community Research Questions
Balancing Housing Growth with Agricultural Land Preservation	How can cities prevent sprawl and protect agricultural land while creating affordable homeownership opportunities, support job growth, and promote walkable, mixed-use neighborhoods?
Bike, Pedestrian & Safe Routes to School Infrastructure	How do community members, especially students, older adults, people with disabilities, and those without cars, experience gaps in sidewalks, bike lanes, and safe routes? How do disparities in walkability, infrastructure design, and cross-city connectivity affect health, safety, and daily mobility? What are community based strategies, including grounded in best practice policies, to create safer, more reliable, and more accessible walking, biking, and rolling options in under-resourced neighborhoods? What are specific measures to make public transportation safer and more reliable for children and youth, including those commuting to school?
Transit Affordability, Reliability & Coverage	How do unreliable schedules, limited service in low-income and rural areas, and costly fares affect youth, elders, people without cars, and low-income workers who rely on transit? What are community based strategies, including grounded in best practice policies, to improve affordability, coverage, and reliability while balancing local access, regional service, and cultural and equity concerns?
Transit Service Design and Equity Trade-offs	How do decisions about transit service design—such as prioritizing more local stops versus faster regional service—affect mobility for marginalized residents?
Traffic Congestion, Parking & Enforcement	How do traffic congestion, highway design, and inadequate parking enforcement, such as cars blocking sidewalks, affect community safety, air quality, and mobility, particularly for elders and children? What are community based strategies, including grounded in best practice policies, , including traffic calming, stronger enforcement, and safer street design?
Food Deserts & Land Use Policy	How have zoning and land use decisions contributed to food deserts? What structural factors limit access to fresh, affordable groceries in low-income neighborhoods? How can equitable planning and the use of vacant or

Research Areas	Summary of Community Research Questions
	underused land expand community spaces, improve food access, and support food sovereignty?
Vacant Land Activation & Community Ownership	Why are so many parcels of land left vacant or inaccessible, and how do we ensure that community ideas for reuse are incorporated into planning decisions for these parcels? What policies or community-driven strategies such as vacancy taxes, land trusts, and public investment can transform vacant lots into affordable housing, gardens, parks, and other community-serving uses that strengthen long-term neighborhood stability and ownership?
Culturally-Inclusive Public Spaces	How can parks, plazas, and other public spaces be designed to reflect cultural knowledge, agricultural roots, and elders' traditions while supporting multigenerational community life? What innovative models and community-led design processes can ensure these spaces are accessible, safe, and inclusive, especially in under-resourced neighborhoods?
Public Health & Pollution Exposure	How do multiple environmental hazards such as groundwater contamination, air pollution, agricultural chemicals, noise, and waste infrastructure from sources like freeways, ports, factories and Superfund sites affect community and mental health, particularly in low-income, tribal, and rural areas? A specific example includes examining the pollution coming from Natural Gas Peaker plants and Battery Energy Storage Systems, and community health impacts. What strategies and policies can reduce these harms, and how can environmental data be made clear, accessible, and actionable for community-led advocacy and solutions?
Heavy Vehicle Impacts in Residential Areas	How can zoning and transportation policies reduce the presence of heavy trucks near residential neighborhoods, and what strategies can mitigate the resulting air pollution and safety risks?
Highway Impacts on Community Health & Safety	What are the effects of chronic traffic congestion and highway design on safety and air quality in nearby neighborhoods, and what solutions, such as traffic calming or redesign, can address these concerns?

Research Areas	Summary of Community Research Questions
Environmental Literacy & Information Accessibility	How can environmental data, such as air quality information, be made accessible and easy to understand for all residents, and how can the causes and implications of environmental conditions be clearly communicated?
Industrial to Residential Transitions & Health Protections	How are land use policies managing the transition of industrial areas to residential neighborhoods, and what measures are being implemented to protect the health and quality of life of new residents in these redeveloping zones?
Mobility Innovations & Alternative Modes	What multimodal and alternative sustainable transportation options such as bus rapid corridors, shuttles, e-bikes, electric buses, vouchers, and rural mobility solutions can better serve disconnected or low-income communities? How can these programs be made affordable, accessible, and equitable? How can transportation infrastructure be designed or reconfigured based on actual community needs and usage patterns, such as addressing underutilized bike lanes?
Street Infrastructure & Neighborhood Safety	How does inadequate street infrastructure, such as lighting, sidewalk or road design, affect pedestrian safety, traffic safety, recreational access, and perceptions of safety in marginalized or disinvested neighborhoods? What community-driven improvements can ensure safer, more accessible streets and public spaces? How are trade-offs such as removing on-street parking for bus lanes evaluated and communicated to communities, and how are the impacts addressed?
Local Business vs. Developer Incentives	What disparities exist in public support between big developers and local small businesses? What policies would better support neighborhood entrepreneurs and businesses?
Spatial Inequities, Placemaking & Community-Led Design	How can community members be meaningfully involved in designing parks, plazas, streetscapes, tree covers, bike paths, and other neighborhood amenities to ensure inclusive, accessible, and culturally relevant public spaces? How do differences in spatial equity affect mobility, safety, and liability? What insights can community perspectives offer for addressing these inequities?

Research Areas	Summary of Community Research Questions
Transit Planning & Cultural Sensitivity and Respect	How can transit infrastructure be improved while respecting Indigenous lands and sacred sites, and how are cultural concerns incorporated into transit planning?
Economic Development in Underserved Areas	What strategies can bring investment, jobs, and services to underinvested neighborhoods while avoiding displacement and gentrification? How can policies for underutilized spaces such as vacant frontage, food trucks, and street vendors support community livability, walkability, and economic vitality? How can residents be better supported with information and protections to ensure development benefits local communities?
Public finance and funding	How do community members understand and experience the funding and implementation of environmental and climate infrastructure projects in their neighborhoods? What input do they have on how investments should be prioritized and evaluated? How can funding structures more equitably support grassroots environmental justice leadership, including tribal leaders, rural communities, and small farmers?

How Researchers Should Show up and Proposed STCD Actions

The following table summarizes recommendations for how researchers should engage with and show up for research communities in future STCD research projects. Specific actions are identified for potential STCD implementation of the recommendations. While all of the proposed actions may not necessarily fall within the scope of STCD's mission and powers, an important principle of community engaged research is to fully share community recommendations.

The order of recommendations is not based upon a hierarchy.

In addition, to show alignment with CARB's latest Community Engagement Model (CEM), we reference places in the CEM that include similar recommendations. However, the CEM is intended as internal guidance for CARB's staff who work in multi-faceted different divisions. The recommendations here are for researchers that CARB would be externally funding. The references to the CEM draw parallels to similar sentiments.

Summary Recommendations for Community Engaged Researcher Qualifications

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
Trust & Relationship-Building	Researchers should build trust through long-term, authentic relationships rather than one-time interactions. They should avoid extractive practices, be transparent about goals and funding, and show commitment by engaging and partnering directly with residents and trusted local community based organizations. Trust is strengthened when communication is empathetic, follow-up is consistent, and research leads to tangible benefits for the community.	See CARB CEM, Step 2.3 Page 73
Cultural Competence & Representation	Researchers should reflect community diversity through hiring staff who share the lived experiences of research participants. They should use culturally sensitive, multilingual, and jargon-free communication, while practicing humility and respect for community knowledge. Work with Indigenous and Tribal communities should be led through culturally grounded,	See CARB CEM, Step 2.2 Page 72

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
	sovereignty-based processes that honor their distinct relationships to land and decision-making authority.	
Transparency and Changes in Research Governance	Researchers should clearly communicate goals, funding sources, team background, roles, timelines, and decision-making structures. Communities must know how data will be used, how privacy will be protected, and what outcomes to expect. Transparency also requires regular updates, designated points of contact, and the presence of decision-makers to ensure accountability and follow-through. Researchers should also advocate for structural changes in research protocols, funding, access issues that prevent community partnerships and equity in research.	See CARB CEM, Goals of the Community Engagement Model Page 11
Research Design & Process	Researchers should co-create research questions, methods, and tools with communities from the beginning. The focus is on how research is conducted: defining roles, responsibilities, and timelines together, and ensuring lived experience shapes design, data collection, analysis, and reporting. Engagement should use multiple formats, and capacity-building should empower and compensate residents to take part in the research process.	
Community Power & Co-Governance	Communities should share decision-making over research priorities, findings, and how results are used. Co-create and apply Partnership Agreements with defined roles and documented checkpoints where community advisors review interim findings, validate interpretations, and shape next steps; establish agreed upon success indicators; and how to resolve inevitable	

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
	conflicts and misunderstandings. The focus is on ownership and accountability: residents and community based organizations should review and approve conclusions before release, co-author publications, co-present results, and take part in governance structures. This ensures research is not only participatory in process but also community-led in its decision-making power.	
Communication & Knowledge Translation	Research findings and processes should be communicated in plain, jargon-free language with clear visuals, infographics, and storytelling tools. Materials must be multilingual and tailored to community needs, using multiple platforms such as flyers, social media, schools, and trusted local institutions. Provide continuous updates and ADA accessible formats including co-presentations and creative media—ensure residents can engage fully and use research as a tool for advocacy and action.	See CARB CEM, Step 2.2 Page 70
Resourcing & Compensation	Community members and community based organizations should be compensated fairly for their time, expertise, and lived experience. Support must include stipends, meals, childcare, transportation, translation, and flexible scheduling to remove barriers to participation. Beyond immediate compensation, resources should also strengthen community capacity, including training, leadership development, and sustained support for trusted organizations and promotoras.⁶	See CARB CEM, Step 1.3 Page 41

⁶ Promotoras are community health workers who serve as trusted bridges between health providers and patients, oftentimes coming from the patient communities. See Migrant Health Promotion. What are Promotores(as)? Available at: http://migranthealth.org/our_programs/who_are_promotora.php.

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
Time & Process Realism	Community engaged research requires realistic timelines and sustained involvement beyond one-off engagements. Roles, expectations, and time commitments should be defined at the outset, with flexibility to adjust for resource limitations or community capacity. Long-term participation should be encouraged even after formal reports are completed, while avoiding over-engagement or duplicative outreach that can create fatigue. Researchers should also recognize when deep engagement is not appropriate—such as during disasters or urgent crises—so as not to reinforce inequities or strain communities.	See CARB CEM, Step 1.7 Page 52
Tangible Wins & Visible Impact	Community engaged research should produce visible, concrete benefits that residents can recognize in their daily lives. Success must be defined with communities and reflected in outcomes such as affordable housing investments, safer and more accessible transportation systems, and inclusive land use policies. Research should generate community-friendly products, like plain-language summaries, videos, and tracked updates, and ensure findings inform systemic change, policy shifts, and long-term neighborhood improvements. Trust is only sustained when research leads to tangible, positive impacts.	
Youth & Multigenerational Engagement	Research should intentionally include youth and elders at every stage, from design to co-authorship and advocacy to build intergenerational leadership and capacity. Engagement strategies should create space for multigenerational dialogue, support caregiving needs (like childcare for families and accessibility for elders), and use communication formats that resonate with younger and older audiences. Co-presenting and co-writing findings with youth, parents, and elders ensures lived experience and future leadership are	See CARB CEM, Step 2.1 Page 62

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
	embedded in the research process	
Digital & Platform Accessibility	Research engagement should use platforms that communities already rely on such as Facebook, WhatsApp, Nextdoor, or TikTok and ensure tools are mobile-friendly, text-based, and video-accessible. Participation should be possible across varying levels of digital literacy, with options for both in-person and virtual engagement. Online surveys, text messaging, short videos, and digital storytelling tools (like story maps and data portals) can help reach broader audiences, particularly younger residents or those unable to attend in person. Flexibility in platform choice ensures equitable participation across age groups, languages, and technology access levels.	See CARB CEM, Step 2.2 Page 67-68
Safe & Familiar Engagement Spaces	Community engagement should be hosted in trusted, accessible locations such as schools, clinics, libraries, parks, and food distribution sites where residents already feel comfortable. Researchers should “meet people where they are,” including at transit hubs or housing sites, and provide food, childcare, translation, and transportation to remove participation barriers. Engagement must also account for timing, with sessions scheduled after work hours or on weekends, and should include flexible, familiar formats like town halls, pop-ups, or community-led gatherings. The location and time of engagement should also take into account local issues regarding law enforcement and community realities of safety.	See CARB CEM, Step 2.4 Page 77

Themes for Community Engaged Researchers	Specific Recommendations	CARB Community Engagement Model Reference
Education & Capacity-Building	Researchers should create accessible opportunities for communities to learn about research concepts, methods, and potential outcomes in ways that build long-term capacity and confidence. This includes developing workshops, trainings, and easy-to-understand materials such as flyers, infographics, and multilingual resources that demystify technical terms and processes. Engagement should emphasize co-learning, where researchers share knowledge and also listen to and value community expertise. Building local leadership pipelines and offering stipends or certifications for participants can help sustain engagement and empower residents to play ongoing roles in research and decision-making.	
Historic Harm & Collective Healing	To build trust with communities that have experienced extractive and exploitative academic research practices requires researchers to understand each community's history, acknowledge the historic harm, and commit to best practices of cultural humility and community engaged research.	

Summary of Proposed STCD Implementation Actions

The main recommendations are organized around the following four potential action areas for STCD: 1) organizational programs; 2) process in designing research solicitations; 3) solicitation requirements; and 4) funding opportunities. We also offer training and other resources for STCD's implementation of these recommendations.

1. Organizational programs

- a. Train STCD contract staff on key components of successful community engaged principles and practices: environmental justice history and operating principles; community engaged research operational principles and adaptive project management practices, such as utilizing this study's materials; community governance models co-led by frontline leaders; trauma informed practices; cultural humility; community based participatory action research; love ethics; healthy conflict mediation; and community

science. See list of training resources below.

- b. Starting with this project's CERAC members, create an ongoing list of frontline leaders who have previously worked on STCD projects and who are interested in serving on research advisory roles—a Community Research Advisors bench.
- c. Track and report on a regular basis indicators tied to equity outcomes and impact including: funding levels for community engaged research compared to non-community engaged projects; and geographic service areas and topics.
- d. Track and report the tangible and concrete outcomes of funded research projects, including previous projects if possible.
- e. Require STCD contract staff to attend project meetings with community advisors. As demonstrated in this project, STCD staff presence at CERAC meetings fostered trust, shared learning and mutual understanding, and increased alignment between community priorities and agency goals.
- f. Improve current online platform of CARB funded research projects, including information about community benefiting outcomes from the research projects, links to full reports, relevant community engagement research frameworks and toolkits for CARB staff, researchers, and frontline community members.

2. Process in designing research solicitations

- a. Fund and engage Tribal and Indigenous scholars to co-create participatory research that incorporates Indigenous governance principles and teachings on stewardship and reciprocity.
- b. In designing new community engaged research projects, solicit pre-proposal anonymous feedback from experienced community engaged researchers on viability of SOW activities and deliverables compared to proposed budget, timeline, and other resources.
- c. Foster community engagement and innovation in designing new research solicitations. Here are a few examples from the literature review to spark STCD's creative thinking:
 - Provide short-term mini-grant projects to support community engaged researchers and community partners to co-convene and generate proposed research ideas, questions, and metrics for STCD (beyond this project's generated research priorities).
 - Pilot ideas of collective and cooperative models for addressing STCD priorities, such as testing the use of collective land stewardship, shared mobility, and community-owned energy or transportation infrastructure.
- d. Provide community engaged research projects with the option of at least 3 years given the time needed for community engaged projects, including 6-12 months for community trust-building, development of Partnership Agreements, university subaward processes, co-defining project details, clarifying key information. In addition, about 6-12 months is needed to verify preliminary findings, co-design final research products, and disseminate research findings.
- e. Require project timelines to include post-report dissemination including to research participants and engage in community education on research findings.
- f. Require researchers to document how community participants have shaped the research project, including specific changes and benefits.
- g. Establish or support fellowships and mini-grant opportunities for emerging community scholars and early career academic researchers.
- h. Require all funded research teams to integrate technology equity into their projects, with a technology access checklist including data governance, device access, free connectivity at meeting locations, meeting materials in accessible formats for all ages, predominant community languages, and disabilities.

3. STCD solicitation requirements

- a. On all solicitations, encourage applicants to identify the use of the IAP2 Spectrum, specify the level of public involvement expected, and specific public involvement activities.
- b. In community engaged research projects, establish community data use agreements and ownership agreements as a standard requirement.
- c. On community engaged research projects, evaluate researchers based on the following elements: 1) the inclusion of a grassroots EJ leader on the core research team; 2) demonstrated track record of community partnerships, the provision of community references, and work with longstanding community organizations; 3) the inclusion of community governance and power sharing structures and partners including the use of Partnership Agreements; and 5) training and significant proven experience in core aspects of community engaged research including trauma informed research, cultural humility, community participatory action research, and conflict mediation.
- d. For all solicitations, require respondents to provide a Community Impact Statement summarizing their engagement methods, data-sharing plans, and expected benefits. For projects not proposing any community engagement, require justification information.
- e. Require research SOWs to conduct trust building activities with community participants as part of research design and activities.
- f. As part of evaluating project outcomes, include participation surveys and interviews of sampled community participants on community equity indicators such as 1) relationships with researchers using trust, transparency, reciprocity, healthy conflict resolution indicators; 2) specific benefits to community and environmental well-being; and 3) enhancing community power indicators such as community ownership of research assets, community capacity building milestones, and evidence of community governance.

4. Funding Opportunities

- a. Ensure equitable allocation of funding for community engaged research projects, including for added expenses of community scholars; community participants; community meetings including transportation, community space rental, and community co-facilitators expenses; translation and interpretation; travel for in person meetings; producing community accessible documents; and staffing for coordination and communication.
- b. Ensure that community partners have sufficient funding allocated to conduct community engagement activities to support the research work.
- c. Allocate funds to accommodate a community and public-facing dissemination plan once the final report has been produced, co-designed with community participants.
- d. Before a contract is executed, work with the contractor and contractor partners to get a better understanding of time and funding needs based on the level of participation sought and project context. Encourage contractors to engage in participatory budgeting with future community participants and set aside funds, such as for community engagement activities. For statewide projects, prioritize and adequately fund the inclusion of geographic, cultural, and linguistic diversity in statewide projects, including encouraging research teams with researchers from multiple universities.

Recommended Learning & Training Resources for STCD

We offer the following resources to support STCD's implementation of the above recommendations. The following list are some of the resources that the research team members have utilized.

- **California Environmental Justice Alliance:** offers an EJ learning hub. <https://ceja.org/environmental-justice/>
- **California Environmental Justice Coalition:** offers regular conferences and training workshops on EJ. <https://cejcoalition.org>
- **Capitol Collaborative on Race & Equity (CCORE):** Cohort-based racial equity capacity-building for California state employees hosted by the Strategic Growth Council and supported by Race Forward and GARE. 40+ state entities and 400+ staff participating so far. A program of the Public Health Institute. <https://stateofequity.phi.org/ccore>. The program page also links out to the Strategic Growth Council's Racial Equity Resource Hub: <https://sgc.ca.gov/tools/racial-equity/>
- **Evolve Equity:** offers training and coaching on indigenous knowledge systems, trauma informed care, conflict management, organizational change. <https://www.evolveequity.org/>
- **Facilitating Power:** offers trainings on popular education, community governance, supporting community power building. <https://www.facilitatingpower.com>
- **Health Equity Leadership Institute (HELI):** offers a weeklong research and leadership immersion program focused on increasing the number of investigators, particularly underrepresented racial/ethnic investigators, engaged in health disparities research. <https://uwheli.com/>
- **Highlander Center:** offers trainings on participatory research, popular education, cultural organizing, social justice and racial justice movement history (trained civil rights leaders like Dr. Martin Luther King Jr. and Rosa Parks). <https://highlandercenter.org/about-us/>
- **Institute on Trauma and Trauma Informed Care, University of Buffalo:** offers materials and trainings on trauma informed work, including online self-training. <https://socialwork.buffalo.edu/social-research/institutes-centers/institute-on-trauma-and-trauma-informed-care.html>
- **Moving Forward Network:** offers regular conferences and a resource library on citizen science. <https://www.movingforwardnetwork.com>
- **National Coalition Building Institute (NCBI) – Leadership Institute:** offers an intensive 3-day institute that builds inclusive leadership, coalition-building, and conflict-bridging skills for teams across sectors; participants earn a certificate and leave with practical tools to facilitate difficult dialogues and strengthen cross-group collaboration. <https://ncbi.org/>
- **Race Counts:** offers presentations on their racial disparity data analysis and reports and racial equity data hub. <https://www.racecounts.org/>
- **Region V Public Health Training Center:** offers an online, peer-reviewed self-paced course on community-based participatory research from the Detroit Urban Research Center for researchers, health and human service practitioners, and members of

community-based organizations. Anyone can participate in this course for free while continuing education credits are available for \$45.

<https://www.mittrainingcenter.org/courses/cbprs0625ce>

- **The Thrivance Project:** offers regular Dignity Institute trainings on dignity based community engagement for planners. <https://thrivancegroup.com/dignity-institute>
- **Trauma Transformed:** offers online resources on trauma informed systems tools and resources and potential training. <https://traumatransformed.org/>
- **University of New Mexico, Community Based Participatory Research Institute for Health - Indigenous and Critical Methodologies:** offers an intensive co-learning institute to explore how CBPR intersects with indigenous and critical methodologies, including the challenges for academics and community members to co-construct knowledge for improved health. <https://hsc.unm.edu/cnah/cbpr-institute/>
- Coming in 2027: **The Ms. Margaret Gordon EJ Leadership Academy** (with seed funding from CARB): will offer training program for cohorts of EJ activists and government staff to learn core principles and skills needed to effectively work together to advance EJ, including: EJ history and principles, collaborative problem solving, co-creating governance structures, co-development of partnership agreements, cultural humility, community based participatory action research, structural roots of EJ disparities, and healthy conflict mediation principles and practices.

Conclusion

On October 22, 2020 the CARB Board passed an extraordinary resolution that recognized CARB's duty to "also function as an agent of responsible social change, especially when it is clear that injustices persist that perpetuate institutional and structural racism."⁷ As part of specific commitments made, the Board directed the continuation of "identifying and implementing best practices for community engagement, especially in communities suffering environmental injustice and racial discrimination, and to apply these practices throughout all of CARB's activities."

This project demonstrates that the work of changing structures and systems, including in government funded academic research, that have historically excluded the voices, needs, and priorities of low income communities is neither easy, smooth, nor conflict free. Fundamentally, this project also demonstrates that the work of transformative and community engaged research results in substantial improvements for serving communities suffering environmental injustice and racial discrimination through ensuring that their voices and leadership are centered throughout the research process.

We offer the STCRCEP as a collective labor of love and commitment to advance the essential mission of CARB and STCD as an agent of responsible social change. In the words of CERAC member Jazmarie LaTour, poet laureate of Stockton, who wrote the below special poem about her experiences serving on the CERAC,

"The world as we see it can be made tangible, so long as our voices and ideas are vitally seen as valuable. True justice must include the communities that have been harmed and burdened."

⁷ CARB Board Resolution 20-33, A Commitment to Racial Equity and Social Justice, October 22, 2020.

Chapter 2: How to Guide

Chapter Purpose & Roadmap

In addition to producing final deliverables to help guide STCD's future research funding,⁸ STCD also commissioned the creation of a "How to Guide" to conduct community engaged research. We operated this project as a demonstration project, where we practiced the principles of community engaged research, documented the process, and developed lessons learned for future projects.

In practicing best practice principles of community engaged research, through multiple meetings, the CERAC members co-identified major principles for operating community engaged research as practiced in this project. They also co-developed recommendations for CARB STCD, researchers, and community leaders for how to operate and prepare for future research projects. In addition, CERAC members have reviewed and blessed the final information contained in this chapter.

As described in the Literature Review Chapter, it is also vitally important for community participants to participate in decisions about how final products should look. Here, members of the project's Community Engagement Research Advisory Committee (CERAC) unanimously wanted community artwork to be integrated throughout the Sustainable Transportation and Communities Research Community Engagement Plan (STCRCEP). They wanted to reach readers through the medium that profound, beautiful, and meaningful artwork inspires. The fact that the artwork came from several CERAC members themselves is testament to their level of engagement, connection to, and belief in this project.

As guided by best practice literature and practice review principles, the information included has been reviewed and approved by the CERAC members. Chapter sections include the following:

- **CERAC Poem and Artwork:** throughout this chapter.
- **What is Community Engaged Research:** a brief description.
- **The Community Engagement Research Advisory Committee:** a summary of how the CERAC was formed.
- **7 Main How to Principles:** based upon actual strategies utilized in this project. These are the following:
 - #1: Incorporate Community Engaged Research into State Contracts
 - #2: Be Inclusive of California's Diversity on Statewide Projects
 - #3: Recruit & Retain Very Busy Frontline Community Leaders
 - #4: Build Trust Amongst Strangers (on Zoom!)
 - #5: Develop Community Participants to Co-Lead Research
 - #6: Address Historic and Current Injustice and Trauma
 - #7: Adapt, Pivot, and Keep Moving
- **Accompanying Short, Mid, Long Term Recommendations:** for applying each Principle for:

⁸ See Chapter 1 Recommendations.

- CARB STCD staff
- Academic Researchers
- Community Leaders
- **CERAC Profiles:** first person information from most of the CERAC members.

Helpful materials created for work with the CERAC are organized in a Toolkit, Chapter 5.

We share below a special collaborative art that was co-created by three CERAC members that embody the purpose of this Chapter and entire project. Jazmarie LaTour, the poet laureate of Stockton, wrote a poem, *The World as We See It*, about her experiences on the CERAC and her hopes and dreams for the outcomes from this project. These include the vital outcomes of STCD's work done well—"of fresh air, affordable bus fare, green parks, local art, clean streets, large trees, groceries, no more than a few blocks away." Two other CERAC members, Yee Thao and Jacquelayne Espejo-Vera, designed the visual graphics to accompany Jazmarie's profound poem.

The World As We See It

By Jazmarie LaTour, Poet Laureate of Stockton, CA, and CERAC member

Take a moment to imagine...
The World as we want to see it has
Fresh air
Affordable bus fare
Green parks
Local art
Clean streets
Large trees
Groceries,
No more than a few blocks away
And community gardens that cut the cost we have to pay
Your health and that of your family
Is holistically considered based on our realities
The needs we have and burdens we face
Are more than any one of us can address or erase
Imagine, now, that you have a say in keeping your community safe
That your voice and vision are listened to
That your community is invited into the room
That decisions that impact us are made with us in mind
Not simply extracting data but intentionally taking the time
The world as we see it can be made tangible,
So long as our voices and ideas are vitally seen as valuable
True justice must include the communities that have been harmed
and burdened



Figure 4. The World As We See It, Jazmarie LaTour, Poet Laureate of Stockton and CERAC Member

What is Community Engaged Research

The CARB Community Engagement Model identifies a wide spectrum of community engagement in public participation that ranges from “informing” to “empowering” communities to be decision-makers (CARB Community Engagement Model, at 48). In citing the below spectrum from the International Association for Public Participation (IAP2), CARB’s goal is to “align engagement efforts to the spectrum and, when possible, move further towards collaborating with communities” (Id. at 49).

INCREASING IMPACT ON THE DECISION 				
INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

There are inherent challenges to achieving the “empower” state for public agencies that have legal constraints dictating who holds what powers and authorities. However, community advisory bodies can be created with significant influence over governmental decisions.

Figure 5. IAP2’s Spectrum of Public Participation

Gwen Colman’s below spectrum applies the IAP2 model to community engagement in research and adds the element of “shared leadership” which requires joint decision making on research questions and methods.⁹

Outreach	Consult	Involve	Collaborate	Shared Leadership	Community Led
<i>Minimal Community Involvement</i> Communication flows from one to the other, to inform	<i>More Community Involvement</i> Communication flows to the community and then back to researchers on specific issues	<i>Better Community Involvement</i> Participatory form of communication. Involves more participation with community in many aspects of the research	<i>Significant Community Involvement</i> Communication flow is bidirectional. Community provides input on each aspect of research	<i>Strong Bidirectional Relationship</i> Joint decision making on research question and methods. Entities have formed strong partnership structures	<i>Community leads the research, chooses the research question and methods. Final decision making is at community level</i>

Figure 6. Gwen Colman’s Spectrum of Community Research

We acknowledge the inherent limitations of State research contracts that predetermine the research scope and methods. However, wherever possible, the research team with support

⁹Collman GW. Community-based approaches to environmental health research around the globe. Rev Environ Health. 2014;29(1-2):125-8. doi: 10.1515/reveh-2014-0030. PMID: 24646789.

from CARB STCD created the space for “shared leadership” where CERAC members made joint decisions on specific research questions and other important decisions.

The Community Engagement Research Advisory Committee (CERAC)

The PIs formed and operated the CERAC, with STCD support, in order to both demonstrate how to conduct community engaged research through project activities and also to have community leaders engaged in the production of all research deliverables. These include the STCRCEP, recommendations on future STCD research projects and researcher qualifications, the literature review, and the practice review.

The formation of the CERAC, with its nine (9) members, involved recommendations from grassroots EJ leaders, including from the Allies in Reducing Emissions (AIRE) Collaborative, a collaborative of environmental justice organizations across California that have decades of experience monitoring and reducing emissions in communities disproportionately impacted by air pollution. In addition, STCD staff provided other recommendations of EJ organizations. The following criteria were utilized in landscape mapping for outreach to EJ organizations.

- Racial and ethnic diversity
- Geographic location diversity, including Northern, Bay Area, Central Valley, and Southern regions
- California Indigenous tribes
- Community type diversity—urban, rural, and suburban

The research team conducted outreach to 49 EJ organizations across the State. However, confirming participation in the CERAC was challenging because of the following factors.

- Time commitment of at least one year for very busy people
- Limited capacity of grassroots organizations with overwhelming community service demands and insufficient resources
- Relative lower priority of research to organizational missions
- The PIs’ prior relationships with all of the organizations given the diversity of California
- Potential conflicts with their other roles for CARB, such as serving on the CARB Environmental Justice Advisory Committee

The later inclusion of grassroots EJ leader, Marisol Cantú, as a Community Scholar was instrumental in successful recruitment for the CERAC. Marisol had relationships with many EJ organizations across the State and also could translate the importance of this research project in ways that resonated better with very busy EJ leaders. The following is a summary of the CERAC members and their organizations and locations. The individual profiles for most of the CERAC members can be found in the CERAC Profiles section.

CERAC members were selected based upon the following criteria:

- Interest in helping to inform STCD's research priorities and advance community engaged research
- Time capacity in attending both CERAC meetings and organizing their own focus group
- Ensuring diverse perspectives

The following map, utilizing the CalEnviroScreen map of environmental justice disparities in different parts of California, was created by CERAC members Yee Thao and Jacquelyne Espejo-Vera to represent the geographic locations of the CERAC members.

CERAC Members Locations, CalEnviroScreen Map

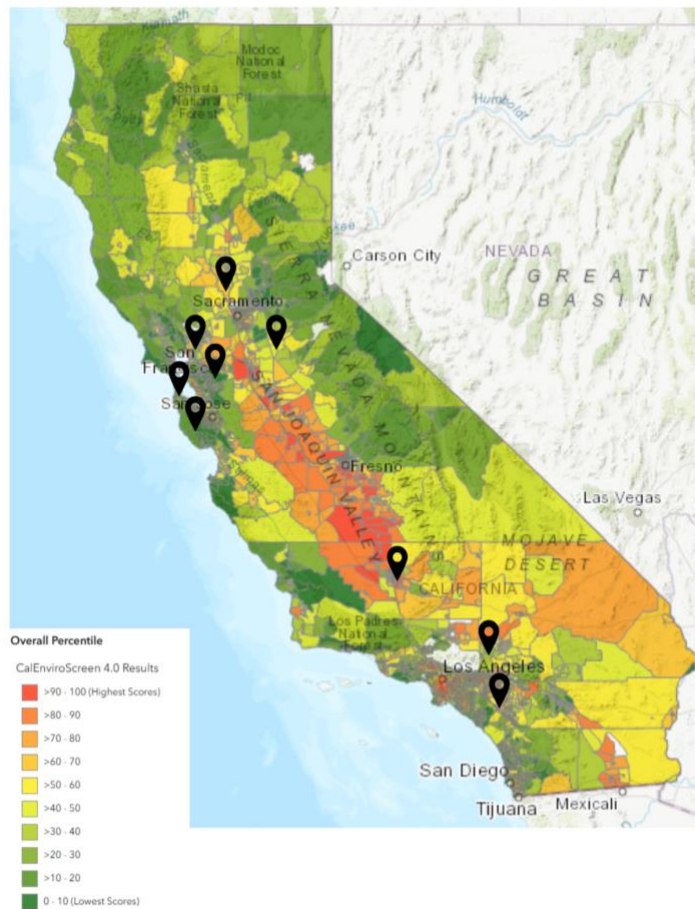


Figure 7. CERAC Members Location, Yee Thao & Jacquelyne Espejo-Vera

Over fourteen (14) months, the CERAC members met monthly together on Zoom in official meetings, organized their own focus groups with their local networks to inform the project, had one-on-one meetings with the Community Scholar Marisol Cantú to deepen their understanding of meeting topics or provide individualized feedback, and built community during times of personal, organizational, and/or national hardships.

The research team provided training, logistical support, and materials to support the CERAC members to successfully organize and co-facilitate their own focus groups for a total of 92 participants. Guiding principles for the CERAC meetings and processes focused on community engagement best practices from both literature and practice review, as well as the expertise of the research team members. These included the seven (7) key principles and operational strategies that are in the **How To** section.

There is an old adage that the “proof is in the pudding.” Our proof for the community engaged model that we have co-created together includes the following results.

- Despite meeting on Zoom on Friday afternoons, we consistently had 90 to 100% attendance and active participation of CERAC members.
- Despite personal or organizational unexpected challenges that arose during the project period, all CERAC members either continued their involvement until after their focus group was completed, returned to organize their focus group, or had another team member take their place to organize their focus group.
- CERAC members were deeply invested in crafting the final details for this STCRCEP and provided not just ideas for improving the STCRCEP, but also took creative actions to execute their ideas. These actions included creating a special poem about their experiences on the CERAC (Jazmarie LaTour), identifying community artwork that represented the community issues and lives at stake (Jazmarie LaTour, Senor Jose Rea, Jacquelyne Espero Vera, Yee Thao), and creating preliminary summary infographics for community audiences to be shared after the report has been finalized (Jacquelyne Espero Vera, Yee Thao).

As CERAC members shared during our last gathering, we met as strangers on Zoom and left as friends and colleagues invested in advancing a collective agenda of a more just and sustainable future together.

HOW TO #1: Incorporate Community Engaged Research into State Contracts

Key Challenges We Faced:

1. Competitive research solicitations rarely provide sufficient time for teams to recruit community participants to help design the scope of work (SOW) by the submission deadline. How do we build in flexibility in the SOW for authentic future community participation?
2. State funded research projects may only allow for contract terms of two years, while community engaged research, with the need for relationship building with many people and moving at the speed of trust and understanding, takes more time. As evidenced by this demonstration project, three years is a more viable time period for community engaged research with people who do not have prior relationships with one another.
3. Community engaged research tends to be under-funded and may receive less funding than traditional research.¹⁰
4. State and university processes take time to process contracts, which detracts from the time to focus on the research project. In addition, university processes are lengthy and involved, even for processing gift cards for participants, which can be a participation barrier for community members.

Project Strategies We Practiced:

1. **Spirit of collective learning and partnership:** CARB STCD staff and the PIs at the onset of the contract established a value system of collective learning and problem solving together. This spirit enabled everyone involved with the project to learn from one another and make modifications along the way. For example, after the research team was selected and the PIs identified that additional funding would be needed for the community based elements that STCD also prioritized, STCD was able to increase the project budget.
2. **Contract language for potential future improvements:** To address the reality that community participants were not part of designing the SOW response and needing to account for future flexibility, the PIs cited Community Based Participatory Action Research (CBPAR) methodology in the SOW and noted potential refinements to activities once the community participants were selected.¹¹ This strategy supported important modifications such as conducting focus groups rather than surveys that were originally contemplated.
3. **Project timeline extension:** While not a recommended strategy, we requested a no cost extension to give us three years (rather than the original two) to accommodate the realities of:
 - a. Government & university contracting AND IRB¹² timelines
 - b. Time to recruit, develop relationships, and train community participants

¹⁰ Israel BA, Krieger J, Vlahov D, Ciske S, Foley M, Fortin P, etc. Challenges and facilitating factors in sustaining community-based participatory research partnerships. J Urban Health. 2006 Nov;83(6):1022-40. For example, a CARB study found that non-equity research projects funded by the Research Division received 40% more than equity projects, including community engaged research projects. McCullough, S, Equity Evaluation of the CARB Research Program (Feb 14, 2024). Contract number 21RD023

¹¹ See Literature Review, Chapter 3.

¹² IRB stands for Institutional Review Board, a committee which must sign off on most human subjects research. See <https://cphs.berkeley.edu/>

4. **Requested additional funding:** The original project budget was insufficient to meet the needs of project staffing, community stipends, and other programming costs. The PIs were willing to advocate for project needs and requested additional funding. STCD staff were also willing to advocate for increasing the original budget and STCD approved additional funds.
5. **Community partner:** The PIs subcontracted with a community based organization, Just Cities, that could pay for community expenses while awaiting State and university contracting and reimbursement activities.
6. **Community Scholar:** After receiving constructive feedback from EJ leader Ms. Margaret Gordon, the PIs added the role of Community Scholar to the core team and recruited EJ leader Marisol Cantú. This required amendments to the SOW and budget. Unfortunately, given State research requirements mandating that at least 50% of the budget be allocated for university budget line items, the Community Scholar position ended up as a university expense. This resulted in triggering a \$750 university vendor insurance cost, which the PIs paid for through other available funds. However, this resulted in impacts to the Community Scholar from university invoicing and payment timelines and delays.

#1 ACTION Recommendations: How to Incorporate Community Engaged Research into State Contracts

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Solicitations: Be open to feedback from potential applicants that the project budget and timeline are inadequate to perform the proposed scope of work. Work with experienced community engaged researchers to modify the scope of work to accommodate current STCD budget and time realities.	Time: Provide at least 3 years for community research Fund: Provide more funding to community research. Working with people is time and labor intensive and requires dedicated staffing. Compensating community scholar(s) and participants at equitable rates requires more funding than current CARB equity research budgets. Solicitations: Provide extra points in Solicitations for community engaged research teams and methods	Solicitations: Encourage the embedding of community engaged research in research solicitation requirements, including through the addition of Community Scholars on research teams
Researchers	Ask: If already conducting community engaged research, don't be afraid to notify research funders that budgets and timelines are inadequate for scope. Train: Seek training programs on how to partner with grassroots activists utilizing best practices (see Literature and Practice reviews).	Team: Develop authentic relationships with activists in your field and invite them to serve on your research team as a Community Scholar Partner: Develop an authentic partnership with a community based organization and jointly pursue research applications	Train: Community researchers to serve as Co-Principal Investigators on research projects
Community Leaders	Engage: Participate in university activities such as seminars or conferences to meet like-minded university researchers	Partner: Convince your organization of the importance of partnering with academic researchers and co-develop research proposals with like-minded researchers. Seek organizational support to serve as a Community Scholar.	Serve: As a sub awardee/community partner on academic research projects

HOW TO #2: Be Inclusive of California's Diversity on Statewide Projects

Key Challenges We Faced:

1. Given the great racial/ethnic and geographic diversity of California, it's challenging to create representative diversity on projects within funding and time constraints.
2. Research teams may not have connections to community leaders in different communities.
3. Some communities have fewer organized institutions, such as AAPI or urban indigenous, and those groups are already overly stretched thin and unable to participate.

California **#1** Most Diverse State¹³

– Ethnicity
– Language
– Cultural
– Socioeconomic

Project Strategies We Practiced:

1. **EJ Landscape Analysis:** Since project funding was limited and could only support 9 CERAC members, we started with a statewide landscape analysis of 49 environmental justice (EJ) organizations and networks across California. We identified priorities in regional and demographic representation and conducted intentional outreach to ensure:
 - a. Geographic diversity (urban, rural, coastal, inland, suburban)
 - b. Ethnic and racial representation, including underrepresented communities such as AAPI, Indigenous, and migrant groups
 - c. Sectoral diversity, such as youth-led groups, tribal organizations, tenant rights organizers, and mobility justice advocates
2. **Community Scholar:** We addressed the challenge of outreach to grassroots EJ organizations and helping people understand the importance of the project to their self-interest by including a grassroots EJ leader on the research team, serving the role of Community Scholar. The project budget was administratively amended to accommodate this role and budget items for in-person convenings, and travel were eliminated. See How To #1 for additional details.

¹³ <https://wallethub.com/edu/most-least-diverse-states-in-america/38262>

#2 ACTION Recommendations: How to be inclusive of California's diversity on statewide projects

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Solicitations: Prioritize community engaged research in Solicitations and specify inclusion of geographic, cultural, and linguistic diversity. Prioritize Populations: Specify in solicitations STCD's priority populations, understanding that given California's geographic and people diversity, one project team is unlikely to have the capacity for statewide reach. Public Process: Make research, scoping opportunities, and public hearings more visible and accessible to community groups through translated materials including plain language, direct outreach to EJ networks,¹⁴ and plain-language announcements via social media and trusted messengers.	Community Advisors Bench: Create an ongoing list of representative frontline community leaders who have worked on different STCD projects and are interested in serving as research community advisors. This list can be provided to STCD research teams. Resources: Continue to build on the CEM's learning community and resource library focused on best practices in community engagement, equity-centered research, and power-sharing approaches.	Commitment: Continue resources to implement STCD's community engagement priorities. CARB bodies: Work with CARB-wide advisory bodies and internal leadership to embed community engagement and equity criteria into research funding, review processes, and implementation tracking. Community Governance: Where possible, advocate for agency-wide structures that formalize community co-governance in shaping research project priorities.
Researchers	Landscape Analysis: Conduct and document a landscape scan before project launch to identify community leaders. Outreach: Use multiple languages, outreach methods, and account for funding for translation needs to ensure inclusive recruitment. Budget: Ensure adequate budget for community compensation at every stage of the project, including vetting final reports.	Network: Build relationships with grassroots organizations across California during non-project cycles to enable faster, authentic recruitment when funding becomes available. Team: Include a Community Scholar on your research team. See below for more details.	Partner: Co-develop long-term partnerships with community based organizations to serve as research collaborators, not just advisors, in shaping future state research portfolios.

¹⁴ Examples of statewide EJ networks include: [California Environmental Justice Alliance](#), [California Environmental Justice Coalition](#).

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
Community Leaders	Engage: Connect with CARB (STCD) during public comment periods or research scoping sessions such as SCTD's annual solicitation for research ideas¹⁵ and offer feedback on community needs and how to improve participation. Engage: Reach out to researchers involved in publicly funded projects to explore collaboration or share concerns.	Network: Join statewide or regional networks¹⁶ and that connect frontline organizations with academic institutions and state agencies. Organization: Establish organization policies for research participation and compensation. Partner: Work with trusted academic researchers to respond to solicitations together.	Train: Help design and co-lead training programs for researchers and agencies on inclusive, community-rooted research practice. Organize: Advocate for EJ coalitions to push for community-governed approaches to research planning, funding, and implementation.

¹⁵To subscribe to CARB's listserv: https://public.govdelivery.com/accounts/CARB/subscriber/new?topic_id=listserv

¹⁶See Practice Review for list of participating organizations.

HOW TO #3: Recruit & Retain Very Busy Frontline Community Leaders

Key Challenges We Faced:

1. Frontline leaders are stretched across urgent, high-stakes local struggles, leaving limited time for new projects. Given previous experience with extractive research, it is hard for busy frontline leaders to believe that state funded academic research benefits their communities in the short term.
2. If engagement is not well-compensated or budgeted for or logistically supported (e.g., tech access, translation), it adds to the burden of unpaid labor.
3. Grassroots organizational leaders frequently shift roles or exit due to systemic underfunding and overwork.

Project Strategies We Practiced:

1. **Relational and Trauma-Informed Recruitment:** We built in time for one-on-one conversations with each potential CERAC member, led by our Community Scholar and other team members, to explain the project, answer questions, surface concerns, and establish mutual trust.
2. **Streamlined and Respectful Onboarding:** We included brief introductory meetings, a concise application focused on lived experience and organizational mission, and flexible interview scheduling.
3. **Compensation and Scheduling Flexibility:** CERAC members were compensated based on input from community partners and models from other state-funded, community engaged projects. Despite budget constraints, we aimed to align compensation with equitable participation principles. We accommodated varied access needs and time constraints with flexible meeting formats (Zoom, phone, text), asynchronous review options, and adjusted timelines where needed.
4. **Ongoing Relationship Building Beyond Formal Meetings:** We embedded opportunities for ongoing check-ins and co-learning throughout the project. CERAC members were invited to provide input on drafts, participate in team reflections, and help shape dissemination.
5. **Scoped Participation:** We provided clear scopes of work and protected activists' time by avoiding vague or expanding expectations. Tasks were time-bound, and roles stuck to those outlined in initial agreements.
6. **Flexible Participation:** We accommodated the changing needs of CERAC members. When one member, because of work issues, could not make the monthly meetings, that person was still given the opportunity to organize a focus group. When another member took a leave of absence from their organization, we worked with another organizational representative to host a focus group that was important to organizational priorities.
7. **Transparency on Decision-Making Powers:** As noted in the literature and practice reviews, having open and honest conversations about the details of decision-making roles is very important to relationship building and retention of community participants. In this project, the research team and CARB staff were fully transparent with the CERAC members about decision-making powers and why which groups had specific responsibilities. For example, we wanted the CERAC members to help define the focus group questions. For transparency, it was important for the CERAC members to know that the research team needed to also review the focus group questions for academic research integrity and that CARB staff had the final

review responsibility. The process flow that enabled everyone to play their roles effectively included the following steps and actors.

- Research team & STCD: Prior to the formation of the CERAC, the research team had drafted focus group questions as a starting point for IRB approval purposes. STCD program officers reviewed the draft questions.
- CERAC: The CERAC members reviewed and modified the questions, including reducing the number of questions being asked, the wording, and prioritization.
- STCD: The program officers also reviewed and commented on the questions at the same time as the CERAC members.
- Research team: The research team then revised the questions and vetted the next version by the CERAC members.
- CERAC: The CERAC members reviewed the revised questions and confirmed that their information was incorporated into the changes.
- STCD: STCD program officers also reviewed the “final” version of the questions.

#3 ACTION Recommendations: How to recruit and retain very busy frontline community leaders

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Solicitations: Require clear scopes of work that include and specific role definitions for community participants. Budget: Require community compensation at equitable hourly rates.	Community Bench: Create an ongoing list of community frontline leaders from across the state who have participated in STCD projects as a community bench for research teams.¹⁷ Time and Funding: Include and fund relationship building in project timelines, including project onboarding in-person retreats with community participants. This may require 3 year research project funding (rather than 2 years).	Solicitations: Institutionalize support for community co-leads in research and implementation projects, with budgeting templates and staff training on equitable collaboration.
Researchers	Strategic Outreach: Reach out to individuals or organizations who have worked on aligned issues. Value Time: Keep asks focused and accessible. Provide prompt, transparent compensation. Budget: Account for additional time and compensation for all meetings (kick off and closeout) as well as translation and transportation/logistics. Flexibility: Center the community participant and be flexible in providing accommodations as their situation changes.	Authentic Relationship: Build long-term relationships through regular check-ins and updates, not only when funding is available. Research Priority: Ask community frontline leaders what you should be prioritizing for future research.	Shared Leadership: Shift from extractive advisory roles to shared leadership with community leaders and activists in designing, implementing, and co-authoring research and planning projects.
Community Leaders	Ask: for clear roles, scopes, and timelines before committing to projects. Name: your priorities early to shape agendas.	Collaborate: with aligned researchers and agency staff. Advocate: for inclusive participation standards.	Organization: Build organizational capacity to engage in long-term research partnerships (e.g., set up internal leads, templates for Memorandum of Understanding (MOUs), or a shared community advisory pool.)

¹⁷ This idea is included in a future and different proposed STCD research contract with this project's PIs to support the implementation of STCD's Racial Equity Plan.

HOW TO #4: Build Trust Amongst Strangers (on Zoom!)

Key Challenges We Faced:

1. **Strangers on Zoom:** Most people on the project, including CARB staff, research team members, and CERAC members, were all strangers when the project began. Project logistics of time constraints and Zoom meetings are not conducive to relationship building.
2. **Friday Zoom Meetings:** Availability of CERAC members resulted in monthly Friday afternoon meetings, when everyone was tired. In addition, being in a two-hour Zoom meeting on late Friday afternoon was not optimal for participation.
3. **Lack of Shared Understanding:** As with any project amongst strangers, understanding of roles, responsibilities, authorities, and accountabilities were unclear. In addition, the project was the first time that some people worked on community engaged research or on a State research project.

Project Strategies We Practiced:

1. **Intentional Design of Community:** For each meeting, we designed community building activities. For example, in regular research team meetings with CARB staff, we started with a “get to know one another” check-in. Each CERAC meeting included a community building exercise that was directly related to that day’s topic, with sufficient time for meaningful sharing. Creating these foundational structures resulted in CERAC members feeling more comfortable communicating when they were confused, facing challenges, or disagreed with the research team or CARB.
2. **Partnership Agreement:** Time was spent in multiple CERAC meetings, as well as the formation of a CERAC working group, to develop clear and specific roles, responsibilities, and accountability terms reflected in a Partnership Agreement that the CERAC members and research team members signed.¹⁸
3. **10 Minute Grounded Knowledge Sharing & Interactive Break-Outs:** We experimented with different learning modalities and landed on bite size and interactive information sharing. We provided 10 minutes of informational slides with time for clarifying questions; then 10-20 minutes of small break out discussions that enabled people to connect the information to their own situations and active sharing; and ended with about 30 minutes of large group share-out.

¹⁸ The West Oakland Environmental Indicators Project had innovated a Partnership Agreement model in their historic relationship with the US EPA. See the Literature Review for more information.

#4 ACTION Recommendations: How to build trust among strangers, on Zoom

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Solicitations: For community engaged research projects, include trust building activities with community participants in the scope of work. Solicitations: Provide extra points for applications with Community Scholar on the core research team.	Community Bench: Create an ongoing list of community frontline leaders from across the state who have participated in STCD projects as a community bench for research teams.	Budget: Increase project budgets for projects with Community Scholars. Budget: Increase community engaged research project budgets to accommodate in person meetings and travel, at least a project onboarding retreat.
Researchers	Team: Include community scholar(s) skilled in trust building strategies on research team. Train: Participate in trainings on trust building strategies. Meeting Agenda: Incorporate a “humanity check in” item at the beginning of each meeting with CARB staff, research team, and community participants.	Budget: Include adequate time for Community Scholar to hold office hours with community participants.	Mentor & Grow: Mentor first generation students interested in research to pursue research careers. Team: Collaborate with academic researchers who have lived experiences to serve on core research team.
Community Leaders	Ask: For community building activities as part of research process. Connect: Reach out to other community participants to deepen relationships outside of meetings.	Collaborate with aligned researchers and agency staff. Advocate: for better participation standards.	Organization: Build organizational capacity to engage in long-term research partnerships (e.g., set up internal leads, templates for MOUs, or a shared community advisory pool.)

HOW TO #5: Develop Community Participants to Co-Lead Research

Key Challenges We Faced:

1. State research contract constraints make it challenging to engage in community led or shared leadership, such as predetermined scopes and prime contractor eligibility only for UC or CSU researchers.
2. Academic research requirements, including Principal Investigator (lead researcher) status standards limit who has access to research power.
3. Academic indoctrination of researchers as the “experts” makes it challenging to share power over knowledge and decision-making.

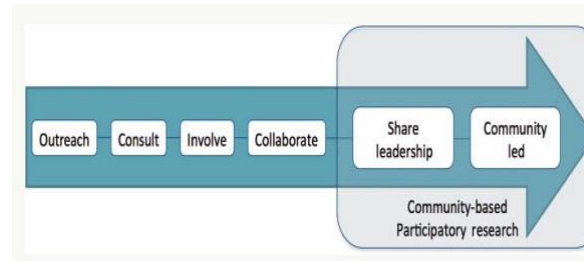


Figure 8. Gwen Colman, Spectrum of Community Research

Project Strategies We Practiced:

1. **Scope of Work for Shared Leadership:** We embedded the CERAC model in our response to STCD’s competitive Solicitations and during contract negotiations modified the methodologies that advanced shared leadership such as CERAC members to organize focus groups with their existing networks (rather than surveys) and helping to define the focus group questions; a 3 part CBPAR training program to train the CERAC members to conduct research activities; and literature and practice reviews that advanced equity. We then had to stay open to hearing what the CERAC members wanted and needed, and make adjustments such as changing research activities timelines or providing one-on-one Office Hour support with the Community Scholar.
2. **Budget for Shared Leadership:** We included in the SOW and budget equitable rates as well as anticipated hours for CERAC members to read documents and prepare for monthly meetings as well as organize their own focus group. Funding equitably for the CERAC members was also very important for CARB STCD.
3. **Renegotiated Scope and Budget for Community Scholar:** While not an ideal situation given the amendment process, since the Community Scholar position was not originally part of the SOW or budget, with support from STCD, we amended the SOW and budget to accommodate this very important role.
4. **Move at the Speed of Understanding:** It took about 4 meetings for us to be able to translate the kind of projects that CARB STCD funds in ways that both the research team and CERAC members could then explain to their focus group participants. Government and academic speak is not accessible to most people. See “How to Toolkit” Chapter 3 for more information.
5. **Training:** We provided 3 trainings on CBPAR for the CERAC and included background materials that were community accessible. In addition, the Community Scholar held office hours for people who needed more support. In the CERAC meeting to reflect on people’s experiences, many CERAC members highlighted the CBPAR trainings as an important part of their experience. See Chapter 5 Toolkit for the CBPAR Training slides.
6. **Logistical Support:** The community based partner, Just Cities, staff members provided a great deal of one-on-one logistical support for the CERAC members in their work to organize focus

groups, including a focus group organizing matrix that laid out the different steps and a focus group guide for facilitating the focus group. Given project budget limitations, funding for this level of staffing support was provided by Just Cities through a separate funding source. See Toolkit Chapter.

#5 ACTION Recommendations: How to develop community participants to co-lead research

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Center Community Understanding: Be willing to meet community where they are and engage in the work and time needed for community members to truly understand public agency information. Train: Attend CBPAR trainings co-led by community frontline leaders.	Separately Fund Translation & Interpretation: Given budget constraints of equity projects, be willing to use separate agency funds for translation and interpretation needs.	Solicitations: Institutionalize community engaged research, especially CBPAR in contracts.
Researchers	Train: Attend CBPAR trainings co-led by community frontline leaders.	Solicitations: Build in time, processes and budget for community building, training community as shared leaders and translation and interpretation services. Team: Develop authentic relationships with activists in your field and invite them to serve on your research team as a Community Scholar. Partner: Develop an authentic partnership with a community based organization and jointly pursue research applications.	Advocate for revised academic standards that enable Community Scholars to hold university Co-PI status.
Community Leaders	Advocate: When asked to participate in research, advocate for training and support of community leaders to co-lead research. Train: Engage in CBPAR training sessions.	Prepare: Complete requirements to conduct research, such as CITI training and certification.	Organization: Consider institutional steps to conduct community based research, including IRB 3rd party processes, and a university guide/mentor.

HOW TO #6: Address Historic and Current Injustice and Trauma**Key Challenges We Faced:**

1. Historic and current mistrust: Low-income communities of color have a long history of experiencing extractive and exploitative government and academic actions. This makes it challenging to engage many residents in government-funded research projects, including participating in the CERAC focus groups.
2. Current political targeting of undocumented immigrants: This project occurred during a political time when the federal government under the current administration is actively targeting people perceived

as undocumented residents. This creates an enormous chilling effect for many people, including immigrants, to be engaged in any government-funded projects.

3. State constraints on funding food: Most public funding cannot be used to pay for food for meetings, which is a critical ingredient for community participation, especially during evening times when most working people are available to attend a community meeting.
4. Academic research requirements: How academic researchers are trained to ask questions and logistical requirements of research, such as university consent forms can be off-putting to community members.

Project Strategies We Practiced:

1. **Acknowledged realities:** Meetings with CERAC members created space for people to honestly share how they were doing, including the impacts of targeted attacks on immigrant communities.
2. **Supported the leadership of CERAC members to engage their community:** We asked the CERAC members what they needed from the research team in order for them to recruit and facilitate focus groups. The research team members then functioned as support staff for the CERAC members, shifting the traditional power dynamics. CERAC identified support needs included:
 - a. M, CERAC leaders co-designed focus group questions with the research team, including through piloting how they would respond to specific questions, that were then approved by STCD.
 - b. One-on-one or small group information sessions, as needed, to help organize the focus groups.
 - c. A mini-workshop for CERAC members on the rights of research participants that was then incorporated into the Focus Group Guide. See Toolkit Chapter.
 - d. More community accessible written consent form.
 - e. Option to provide written or verbal consent for the focus group.
 - f. Translated materials including outreach flyer, consent form, registration forms, and focus group slides.
 - g. Option to leave camera off on Zoom meetings.
 - h. Option for no recording of focus group meetings.
3. **CERAC leaders co-facilitated the focus group** with prior trainings and day of support from the research team members.
4. **Community partner (Just Cities) paid for food and transportation of key meetings:** Recognizing the importance of providing food for the community focus groups, Just Cities utilized separate funding to pay for food expenses. Similarly, Just Cities utilized separate funding to pay for transportation costs for research team members to attend in-person meetings with focus group participants who had concerns about participating in government funded academic research.

#6 ACTION Recommendations: How to address historic and current injustice and trauma

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Solicitations: Provide additional points for researchers skilled in trauma informed research	Budget: Fund in person onboarding retreats that also include community participants.	Required Training: In addition to cultural humility training requirements, also encourage and fund trauma-informed and research justice training for researchers who interact with low income communities.
Researchers	Train: Participate in training on trauma informed research models and activities.	Team: Include people with lived experiences on research team. Integrate: Trauma-informed practices into team protocols and project design.	Ongoing Presence: Commit to long-term presence in communities beyond project timelines to build trust and accountability. Advocate for institutions to fund trauma-informed and community engaged research training programs.
Community Leaders	Train: Participate in Know Your Rights research training. Critique: Provide input on research materials for cultural sensitivity and accessibility.	Train: Participate in trainings to facilitate peer-led research activities, including on CBPAR and trauma informed meeting facilitation.	Partnership: Partner with specific trusted researchers or agencies to serve as long-term stewards of community safety, healing, and data sovereignty in future research projects.

HOW TO #7: Adapt, Pivot, and Keep Moving

Key Challenges We Faced:

1. Political impacts: During this project, national political changes occurred that created undue stress and challenges for many CERAC members who are on the frontlines of serving low-income communities, especially immigrants.
2. Budgeting: Managing expenses for food, travel, and translation is challenging, even with a structure that reserved 10 percent for staff discretion and 90 percent for planned expenditures. As discussed in #6, community focus groups are often in the evening and it is important to provide food for participants, especially to guarantee attendance. However, CARB project funds cannot pay for food.
3. Need for in-person connection: There was a deep need for in-person engagement with the CERAC. Without dedicated convenings, the process risked feeling extractive rather than transformative and relationship-oriented. However, the original budget allocated for an in-person meeting was reallocated to fund the new Community Scholar position.
4. People transitions: There were multiple people transitions during the project period including changes in CARB STCD and Just Cities staff, as well as a few CERAC members. Bringing new staff and community partners on board requires additional time and resources, which creates delays and uneven integration.
5. Trust-building with participants: Sometimes community meetings and focus groups need to be rescheduled until trust was established, which slows progress but is necessary for authentic participation.
6. Time limitations in virtual discussions: The online format restricted the ability to explore research questions in depth, and many participants were not able to fully address all topics within the scheduled time.

Project Strategies We Practiced:

1. **Eyes on the Prize problem solving:** The PIs are experienced at managing complex community based research and planning projects—they are skilled at addressing the inevitable messiness that comes from human dynamics. They centered the ultimate vision of the project while addressing major challenges when they arose and adapted/pivoted when needed. STCD staff were very supportive and accommodating whenever possible. CERAC members were patient and understanding and welcoming of new members.
2. **Built flexibility into project design:** We allocated extra time and established backup plans to accommodate rescheduling and logistical pivots.
3. **Developed onboarding tools:** We created streamlined resources that allowed new staff and community partners to integrate quickly and effectively into the project, such as a project orientation memo.
4. **Prioritized trust over timelines:** We ensured that focus groups were rescheduled as needed so participants feel comfortable and respected, even if this delays data collection.
5. **Expanded scheduling options:** We offered multiple session times or extended focus groups to two-hour sessions. Alternatively, we hosted smaller groups across multiple days so participants have sufficient time to answer all research questions.

6. **Provided community education resources:** We shared accessible information about CARB/STCD and its role in residents' lives so community members could feel better informed and prepared to participate in the research process.

#7 ACTION Recommendations: How to adapt, pivot, and keep moving

Partner	Immediate Action (within 1 year)	Mid-Term Action (1-4 years)	Long-Term Action (5+ years)
CARB STCD	Budget: Ensure that research contractors know about 10% discretionary changes to accommodate changing community priorities. Timeline: See above recommendation to inform research contractors about no cost extension.	Budget: See above recommendations on increasing budget amounts for community engaged research. Alternatively, create a separate fund for in-person gatherings including travel and accommodations for community engaged research projects. Timeline: See above recommendations for at least 3 years for community engaged research. Train: STCD program officers on community engaged research and adaptive project management practices.	Solicitations: Encourage the embedding of adaptive project management practice requirements in all research solicitations.
Researchers	Team: Include a Community Scholar with prior relationship and established trust on the research team. Budget: Build contingency plans for travel, translation, and staffing into budget. Raise separate discretionary funds to accommodate state budget constraints. Budget for in-person gatherings including travel and accommodations for community engaged research projects. Train: Ensure that PIs and research managers are trained on adaptive problem solving strategies.	Onboarding: Develop onboarding protocols and documentation for new team members and community collaborators.	Institutionalize: Normalize flexibility and iterative planning as part of ethical research design and evaluation.
Community Leaders	Notify: Communicate clearly with research team members when something's not going well for you, and recommend alternative strategies.	Collaborate: Work with researchers on creating onboarding materials and co-lead training for new participants.	Institutionalize: Establish community based infrastructure and networks that can sustain research partnerships over time.

CERAC - People & Communities

Note: The following profiles are CERAC members who wished to be profiled and do not include all of the CERAC members.

Adriana Pinedo (She/her) | CERAC Member Profile

Introduction



About Me

I'm a community engagement specialist focusing on the CalFresh Healthy Living project at Active SGV. Though my role is primarily administrative, my heart is in community interaction. I'm a Pomona native and have been a community organizer for many years, working with youth to become civically engaged and reimagine their city. I've created and implemented policies and programming that support healthier, safer, and more livable communities. Recently, my partner and I had our first baby, who experienced lifelong brain damage before birth. This new experience has made me acutely aware of the challenges and roadblocks parents and people living with

disabilities face daily, reinforcing my dedication to ensuring quality of life for all.

Why I Joined CERAC

Joining CERAC provided an excellent opportunity to collaborate and learn alongside activists, organizers, and researchers from across California. The co-learning experience has given me valuable insights into viewing community work through an academic and research-informed perspective. CERAC's focus aligns closely with Active SGV's mission for sustainable, livable communities, making it an ideal fit.

About My Community

The San Gabriel Valley (SGV) is incredibly diverse, home to people from various cultural backgrounds who continuously strive for a better future. Active SGV has been instrumental over the past 15 years in fostering community-driven positive change, demonstrating the resilience and determination of SGV residents.

Focus Group

Focus Group Participants

Cyclists, local organizers, advocates, and neighborhood residents without formal policy or planning training but deeply knowledgeable about their communities.

Main Findings

- Importance of authentic, trust-based relationships between researchers and residents
 - Necessity of inclusive engagement, recognizing residents as neighborhood experts
 - Effective research requires mutual learning and collaboration
-

Recommendations

Recommendations for Future Activists

- Be open to mutual learning; activism and research are two-way processes.
- Step out of your comfort zone and embrace new experiences.

Recommendations for Future Researchers

- Prioritize building genuine relationships and trust with community members.
- See residents as valuable partners and collaborators, not just research subjects.

Recommendations for CARB STCD

Thank you for your dedication and intentional collaboration throughout this process. This experience has deepened my appreciation for CARB STCD's multifaceted work and its genuine effort to partner authentically with communities.

Jacqueleyne Espejo-Vera (She/her) | CERAC Member Profile

Introduction



About Me

Jacky has a degree in Environmental Studies with a minor in Sustainability Studies from U.C. Santa Cruz. While at UCSC, she worked at the Sustainability Office and at the Arboretum. She started a coalition called the West Contra Costa Alcohol Policy Coalition to address underage substance abuse in her community of Richmond, California. She also has a background in community organizing, policy work, and education.

Why I Joined CERAC

I joined CERAC because an issue that motivates me is transportation in the Bay Area. I am part of the Transbay Coalition. The coalition works to keep public transportation accessible for everyone in the Bay! At Acterra: Action for a Healthy Planet I am their Community Engagement Specialist and I work to educate the community on sustainable transportation. I advocate for people to use more public transportation, or adopt an EV or E-bike.

About My Community

I am originally from San Diego, but I have lived in Richmond for the last 8 years. Richmond is a small city, but our community is very passionate about environmental and social justice issues. It has been a privilege to work in the city of Richmond and in all the 9 counties of the Bay Area.

Focus Group

Focus Group Participants

I helped organize members of the Transbay Coalition and 1 Acterra staff to attend my focus group.

Main Findings

- People want more transparency when it comes to research being conducted in their community.
- People want to see more housing and shops around Bart stations

- We all know public transportation is not the most reliable because of bus delays and cancellations.
-

Recommendations

Recommendations for Future Activists

- Be part of the community they are working with and in. Attend city council meetings and community events. Make sure you are transparent about your work and incorporate the community's voice.

Recommendations for Future Researchers

- I want them to hold space for the community's feedback and opinions!

Recommendations for CARB STCD

I want CARB to know that every city and community is important and they deserve to have their voices heard. I also want them to ensure that this information is easily accessible to all community members. I want this research to be easy to understand and in multiple languages.

Jazmarie LaTour (She/Her) | CERAC Member Profile

Introduction



About Me

I am a committed community health advocate focused on improving health outcomes and reducing disparities in underserved communities. My experience spans program management, community engagement, and cross-sector collaboration, with a strong emphasis on culturally responsive, data-driven solutions. I am passionate about health equity, environmental health, and chronic disease prevention, particularly in asthma and mental health. My work is guided by compassion, integrity, and a belief in community-led solutions. I strive to bridge gaps between healthcare systems and the people they serve, empowering individuals to take an active role in their health while fostering long-term, sustainable change.

Why I Joined CERAC

I joined the advisory committee to ensure research in our area is respectful, community-centered, and beneficial. My goal is to bridge communication between researchers and residents, fostering trust, cultural understanding, and meaningful partnerships that produce results aligned with community needs and priorities.

About My Community

South Stockton is a resilient community with a long history of perseverance in the face of systemic challenges, including the lasting impacts of redlining. We are fighting for our right to live healthy lives through advocacy, environmental justice work, and community-driven health initiatives. Our neighborhoods are filled with families, creatives, business owners, and caring neighbors who look out for one another. While we often face a negative reputation in Stockton, the truth is we are home to some of the most talented, resourceful, and generous people you could ever meet.

Focus Group

Focus Group Participants

Our focus group brought together a diverse group of long-time Stockton residents, all people of color, ranging in age from their 30s to 60s. This multi-generational group includes educators, non-profit professionals, and grassroots change-makers who have lived in Stockton for many years and can speak firsthand to the city's changes. Their voices and

perspectives are essential to understanding our community's history, challenges, and opportunities.

Main Findings

- Residents shared creative land use ideas, from parks and art spaces to food sovereignty projects, but noted few accessible forums to voice them.
- Public transit must better serve low-income workers, students, and youth with safe, reliable, and accessible options.
- Air quality issues, especially near industrial zones and the Stockton Port, remain a high priority.
- Participants are willing to engage in research only if it is transparent, non-extractive, and delivers tangible benefits. They want ongoing communication and clear reporting of results
- Research should provide funding for local organizations supporting the research for participant stipends, and resources like childcare, transportation, and translation to ensure full access to participation.
- Residents want input on research design, data interpretation, and recommendations. Community expertise must be treated as equal to academic expertise.

Recommendations

Recommendations for Future Activists

Remember that your lived experience *is* expertise. Your perspective is invaluable in shaping solutions. Don't let imposter syndrome silence you; your voice is just as powerful as any credential.

Recommendations for Future Researchers

- Approach communities as equal partners, valuing lived experience as expertise, and ensure your work leaves a lasting, positive impact beyond the data collected.

Recommendations for CARB STCD

Prioritize authentic, community-led engagement by ensuring that residents' lived experiences are recognized as expertise deserving of equitable partnerships. Commit to transparent, actionable research that directly benefits historically underserved communities beyond the data that is extracted from them.

Jesus Alonso (He, Him, His) | CERAC Member Profile

Introduction

About Me

Jesus Alonso is a long-time community organizer, who is studying to earn his degree in Environmental Science. He has successfully organized and advocated for community improvements and access to resources up and down various vulnerable communities. Currently, Jesus is working in Kern communities with residents. Here he is conducting training in leadership development and working with residents to take advocacy and power back into their hands. They are taking the reins over water quality improvement and air emission reduction.

Why I Joined CERAC

I joined CERAC because I saw this as a unique opportunity for residents to share their experience working with state agencies. This was an opportunity for agencies to get the community perspective and to gain a new tool to better engage impacted communities in a more meaningful way.

About My Community

My communities are low-income communities of color who work mostly in agriculture. Our communities are kind, hard working people who care for their family and communities. They have done a great job coming together to gain more resources and a better way of life for their community.

Focus Group

Focus Group Participants

For the study group I gathered people who have been working in the community for several years. They are active community participants that have worked with local and state agencies.

Main Findings

- People want to stay informed and stay in communication with studies
- They want to see a timeline with an understanding of what and when to expect results.
- Establishing a relationship with the community is key to improving the collaboration and finding. The best way to begin those relationships is through already established entities like local non profits, churches and schools.

Recommendations

Recommendations for Future Researchers

- Acknowledge that the community are the experts of their experiences

Recommendations for CARB STCD

I appreciate CARB STCD for conducting this study and taking steps to better improve how they interact with communities. I hope this develops into a tool all agencies use to better serve the communities they are working with.

Jose J. Rea (He, him, El) | CERAC Member Profile

Introduction



About Me

I am a Mexican immigrant who has lived in California most of my adult life, calling Mexican barrios in San Francisco, Los Angeles, and Santa Ana home. The injustices I have witnessed in these communities shaped my path and motivated me to become a voice for positive change. Fear, discrimination, and lack of opportunity remain common challenges, but through education, advocacy, persistence, and leadership, I strive to amplify voices and empower my community.

Why I Joined CERAC

CERAC creates space for communities across California to exchange experiences and strategies. Southeast Santa Ana, like many disadvantaged communities, has proven its ability to organize and partner meaningfully in research and policy. I joined CERAC to learn, share, and strengthen collaborations that bring together local organizations, research institutions, and regulatory agencies to create lasting improvements.

About My Community

I live in Madison Park, part of Southeast Santa Ana, where more than half of the adults are foreign-born and many families are multigenerational with mixed legal statuses. Residents are primarily working-class and often juggle multiple jobs to cover high rents.

The community faces overlapping environmental and infrastructural burdens: polluting industries and distribution centers, train lines, freeways, and flight paths all cut through the area. Parking shortages and overcrowding add daily stress. Despite these challenges, residents remain resilient, organizing to advocate for a safer, healthier, and more sustainable neighborhood.

Focus Group

Focus Group Participant

I organized a focus group of women, mothers, and grandmothers who are recognized leaders in their neighborhoods. Trained as *promotoras* during COVID-19, they fought misinformation and became trusted messengers, helping to reduce disproportionate deaths and infections. Today, they continue bridging residents, organizations, and researchers through community projects.

Main Findings

- Traffic congestion, heavy trucks pose serious health and safety risks, while new bike lanes and roadway changes often do not reflect actual community needs.
- Rising rents, displacement pressures, and exploitative landlord practices create instability, overcrowding, and financial strain for low-income families.
- Research should build trust by partnering with schools, churches, and promotoras, and be accessible through language support, childcare, and flexible meetings.
- Residents want to co-design surveys, review and approve findings, and see research lead to visible improvements in safety, housing, and quality of life..

Recommendations

Recommendations for Future Activists

- Always secure informed consent and signed agreements to protect residents from exploitation.
- Demand transparency and accountability in writing.
- Recognize that coordinating community and project timelines is often challenging but necessary.

Recommendations for Future Researchers

- Build long-term, trust-based relationships with community organizations.
- Involve communities from the earliest stages of research planning.
- Treat residents and organizations as equal partners, not just research subjects.

Recommendations for CARB STCD

- Outreach reports contain valuable information that should be shared beyond the STCD division to CARB governing boards and state agencies.
- Ensure reports have a visible impact, guiding outreach and policy for disadvantaged communities.
- Continue leading by example in funding direct partnerships with communities, strengthening CARB's role as a model for authentic engagement.

Maria Perez (She/her) | CERAC Member Profile

Introduction



About Me

I am a founding member and the Community Outreach Manager at Regeneración-Pajaro Valley Climate Action. I hold a Bachelor of Science in Conservation and Resource Studies from the University of California Berkeley. I serve on the Santa Cruz County Commission for the Environment, the Transportation Equity Work Group with the Santa Cruz County Regional Transportation Commission, the Climate Action Committee (CAC), and other committees focused on community voice, equity, transportation, and climate.

Why I Joined CERAC

I joined CERAC for the opportunity to elevate my community's research priorities and learn more about community based participatory action research. I believe research should go beyond being extractive and instead center the lived realities and insights community members already have about addressing their daily challenges.

About My Community

The Pajaro Valley is an agricultural and resilient community, encompassing Watsonville, Pajaro, Freedom, and other unincorporated areas. Our community faces challenges such as high housing costs, insufficient public transportation, limited access to green spaces and parks, unsafe streets for pedestrians and cyclists, flooding, extreme heat, and air quality impacts from fires and pesticides. Despite these adversities, the people of Pajaro Valley remain resilient and caring.

Focus Group

Focus Group Participants

Community members from Monterey and Santa Cruz counties, especially representatives from Watsonville and Pajaro, participated. Participants included bilingual speakers (Spanish/English and Mixteco/Spanish).

Main Findings

- Prioritize housing affordability (rent and ownership, mixed-use developments).
 - Enhance transportation safety and accessibility to open spaces (ocean, parks, trails).
 - Improve sidewalks.
 - Explore creative solutions for urban greening.
-

Recommendations

Recommendations for Future Activists

- Always consult community members directly for practical and relevant solutions.

Recommendations for Future Researchers

- Foster communities' trust by partnering with local organizations and individuals already actively involved.

Recommendations for CARB STCD

I encourage CARB to ensure that research projects lead directly to tangible, sustainable community improvements and investments derived from research findings.

Yee Thao (she/her/hers) | CERAC Member Profile

Introduction



About Me

I am a first-generation Hmong American womxn born and raised on indigenous Nisenan Land (Sacramento, CA). I have a B.A. in Anthropology (Culture, Language, Society) and Ethnic Studies (Asian American Studies) from CSU Sacramento, and an M.A. in Asian American Studies from UCLA. I continue to organize alongside BIPOC and AANAPISI communities to challenge race, class, and gender-based systems of oppression impacting those with collective histories of displacement and forced migration. Currently, I organize with Hmong Innovating Politics (HIP), Sacramento for Palestine, Asian Pacific Environmental Network (APEN), and broader statewide

coalitions.

Why I Joined CERAC

I joined CERAC as both a community advocate and an individual directly impacted by climate change, housing insecurity, and health challenges. After moving from Sacramento to Los Angeles in 2023, I developed severe body eczema, and my dermatologists linked it to LA's polluted air and water. My body was actively rejecting the new space. A great (and often tenacious) tendency of mine is to transform pain into action, so I started organizing with the Asian Pacific Environmental Network in LA. I wasn't as starkly confronted with environmental justice issues in my prior organizing with NorCal community efforts. I experienced how closely environmental disparities are shaped by capitalism and corporate harm, leading to the exacerbation of community health concerns. CERAC gave me a community rooted in love, recognition of historical harm with a commitment to change, and a space to reimagine our green landscapes.

About My Community

Sacramento holds a vast and diverse array of neighborhoods with 8 City Council districts and 5 supervisorial districts within the county—some districts are undergoing increased gentrification, some districts struggle to maintain sustainable food systems, and others experience concentrated amounts of homelessness, poverty, and violence. All of these issues fall under the realm of pushing for environmental change and equitable land use, transportation, and housing. While our focus group raises important concerns, it still represents a small portion of narratives that can further address disparities informed by race and class.

Focus Group

Focus Group Participants

- I organized with Hmong Innovating Politics (HIP), a grassroots organization housed in Sacramento and Fresno, primarily serving Hmong and Southeast Asian community members. Half of the participants were Asian-identifying, and the other half were divided into Caribbean Islander, Native American/Indigenous, Hispanic/Latino, and Native Hawaiian/Pacific Islander. The majority of participants were young adults (25 years of age and younger), and others were in the age range of 30-45.

Main Findings

- Interrogate housing displacement (due to multiple property ownership, gentrification, sports development, clearing of unhoused encampments, etc.)
- Redesign public spaces to include safer transportation and equitable access to natural preserves
- Relations between private land use, agriculture, and access to waterways
- Address the imbalance between income and housing costs, especially among youth and young adults

Recommendations

Recommendations for Future Activists

- I urge us all to remain bold—name your needs, push the boundaries of the research project if you have to, and hold your community's priorities at the center of the project. Lean into your voice and organizing as a testament to everyone who has rooted love, care, and abundance into this work, and hold it as a responsibility to help rewrite change. Our involvement in a research project is an homage to those who dare to believe in our political convictions, who lean into our shared humanity, and who sow the seeds of a movement where resilience is not born solely from surviving oppressive systems, but from the shared power of belonging and collective imagination. We continue to carry the stories of those who came before us and build new ones as we go!

Recommendations for Future Researchers

- Reflect and build on this project's data and main findings to ask new questions. After reading this project's main takeaways, you will find that community members value relational organizing. It is important to maintain the relationship building between community members/organizations and remain transparent about your intended outcomes throughout the process!

Recommendations for CARB STCD

I think CARB STCD holds the primary responsibility for reviewing the feedback and pushing for policy implementation, so I urge CARB to provide updates about sustainable progress either seasonally or annually.

Chapter 3: Literature Review

Chapter Purpose & Roadmap

A Note on Language: Academic research tends to use language that may not be accessible to most people outside of the academic community. We have attempted to translate academic jargon into plain language as much as possible, without risking the loss of the authors' voices.

This Literature Review builds on over 150 scholarly and practice-based sources to inform actionable recommendations for STCD as found in the Final Recommendations in Chapter 1.

The chapter is organized around four guiding questions that reflect STCD's commitment to advancing research equity, co-governance, and authentic community partnership within its research portfolio. Each section integrates theoretical insights, empirical findings, and implementation guidance relevant to STCD's mission and research operations.

Question 1: What are effective approaches to community-driven research? Synthesizes the continuum of community-driven research approaches, justice-centered research frameworks and participation implementation and co-governance frameworks for public agencies, identifying common principles and their implications for designing equitable research processes.

Question 2: How have state and local agencies integrated these approaches into practice? Examines implementation examples from across the United States and California, analyzing how public agencies have operationalized participatory and justice-centered frameworks in governance, program design, and evaluation.

Question 3: What lessons emerge from California-based case studies and existing STCD-funded projects? Draws on prior STCD and UC research led by the PIs, highlighting lessons for aligning community-driven research with statutory constraints and policy authority.

Question 4: How can STCD institutionalize community-driven research across its research portfolio? Responses to this question are incorporated as the theoretical framework for the overall recommendations in the Final Report, Chapter 1, as well as in the How to Guide, Chapter 2. Research on land use, housing, and transportation has too often reproduced inequities by privileging institutional data over lived experience. *Community-driven research (CDR)* offers a corrective by redistributing power in how questions are set, evidence is produced, and results are interpreted and acted upon. We anchor CDR in well-established traditions, including Community-Based Participatory Research (CBPR/CBPAR), Participatory Action Research (PAR), Community-engaged Research (CEnR), Research Justice, Indigenous and decolonial methodologies, and collaborative governance. Together they provide a robust evidence base on partnership practices, metrics, and outcomes (e.g., power-sharing, trust, capacity, and policy or health impacts).

The Engage for Equity study (Wallerstein & Oetzel, 2020) synthesized more than a decade of longitudinal data across multiple CBPR partnerships, demonstrating how structural features such as shared leadership, co-learning, and equitable funding arrangements improve community and policy outcomes. Complementing this, Ortiz et al. (2020) offer a meta-review of community-engaged scholarship that delineates the continuum from consultative engagement to shared governance, while London et al. (2020) emphasize contextual alignment of participatory methods within California's environmental-justice landscape. Together these works help situate Research Justice (Jolivet, 2015)

as the “north star” for reparative, justice-oriented knowledge production—one that centers community governance of the entire research cycle.

This review follows the methodological conventions established in previous systematic reviews conducted by Acey and colleagues (Siegener, Sowerwine, & Acey, 2018; Lambrou et al., 2023), integrating structured evidence mapping with qualitative synthesis. In doing so, it identifies practical lessons for the Sustainable Transportation and Communities Division (STCD) as STCD implements its Community Engagement Model (STCD, 2024) and related Racial Equity Lens.

The review is structured around four guiding questions that together examine (1) effective frameworks for community-driven research, (2) the impacts of such research on planning and policy outcomes, (3) documented examples of community-driven and participatory research methods, and (4) strategies for integrating these approaches into STCD’s programs and funding structures. These questions collectively assess both the evidence base and its relevance to STCD’s evolving research and engagement framework. The companion practice review builds on these findings through interviews, our CERAC insights, and findings from CERAC-led focus groups, addressing two additional questions concerning implementation lessons and existing research gaps.

We then situate these questions within the framework of Research Justice (Jolivet 2015), which emphasizes redistributing power in the research process so that communities most affected by structural inequities become co-creators of knowledge and action. *Research Justice* builds on earlier participatory traditions, including Community-Based Participatory Research (CBPR/CBPAR) and Participatory Action Research (PAR), and converges with STCD’s Community Engagement Model (STCD, 2024), which institutionalizes equitable engagement practices agency-wide. Within this framework, researchers are called to center the lived expertise of frontline communities as partners, drivers, and producers of research, rather than as subjects, and to ensure that findings yield actionable, equity-oriented change.

While not all community engaged approaches adhere fully to the tenets of *Research Justice*, they exist along a broader continuum of community-driven research, from consultative engagement to shared governance. The studies reviewed here span this continuum to identify lessons and approaches most applicable to STCD’s mission and authority.

Expanding the evidence base for community-driven research

The methodologies examined in this review, which include CBPAR, PAR, Research Justice, and Racial Equity Impact Assessment, advance scientific rigor by acknowledging researcher positionality and integrating lived expertise alongside institutional data (Harding, 1991; Jasanoff, 2004). The literature highlights popular education, love ethics, and cultural humility as foundational principles for ethical collaboration (hooks, 2000; Tervalon & Murray-García, 1998; Wallerstein & Oetzel, 2020). Case studies from the research team, including the East Oakland AB 617 Community Emissions Reduction Plan, the Richmond AB 686 Housing Element, and UC ITS-funded mobility-justice research demonstrate that sustained engagement can improve the relevance and durability of policy decisions. This review illustrates how participatory frameworks generate actionable insights that complement rather than conflict with regulatory mandates.

CARB’s Community Engagement Model (CEM) provides an institutional framework for translating the core principles of Research Justice and CBPAR into agency practice. The callout box below on Implementation Realism for STCD applies this approach to identify concrete strategies through which STCD can maintain scientific integrity while deepening participatory equity and co-governance in research design, data management, and policy evaluation.

Methodology

Guiding Questions

The literature review's four guiding questions were derived from Research Justice principles (Jolivet, 2015) and from scoping-review protocols used in prior peer-reviewed syntheses co-authored by members of the research team (Siegener, Sowerine, & Acey, 2018; Lambrou et al., 2023). Together they provide an analytical structure for evaluating the continuum of community participation—from consultative engagement to shared leadership—highlighted in the longitudinal Engage for Equity study (Wallerstein & Oetzel, 2020) and the meta-review by Ortiz et al. (2020). These guiding questions align with the broader objectives of this research: to identify and rectify biases in research, analyze gaps in current funding structures, center community leadership in research processes, and develop a model for STCD to engage in equitable, community-driven research. By embedding participatory and justice-oriented methodologies, this review provides a foundation for shifting STCD's research framework toward one that prioritizes impacted communities as co-creators of knowledge and policy solutions.

Review Approach

Consistent with scoping-review methods (Arksey & O'Malley, 2005; Levac et al., 2010) and the approach used in previous systematic syntheses by Acey and colleagues (Siegener et al., 2018; Lambrou et al., 2020), we conducted an interdisciplinary review of community-engaged and community-driven research relevant to land use, housing, and transportation. Searches were performed in Web of Science, Scopus, and Google Scholar for publications from 2000 through 2025 using combinations of keywords such as community-based participatory research, participatory action research, research justice, collaborative governance, transportation equity, housing justice, and environmental justice planning. Grey literature was identified through targeted searches of the California Air Resources Board, CalEPA, EPA Region 9, and leading nonprofit repositories (e.g., PolicyLink, Urban Sustainability Directors Network).

Inclusion criteria required that sources: (1) explicitly describe methods for community engagement or power-sharing in research design or implementation; (2) report outcomes or evaluation metrics related to procedural, distributive, or recognition justice; and (3) address environmental, transportation, housing, or land-use contexts in California or comparable places. Studies limited to general stakeholder consultation without evidence of co-governance or shared analysis were excluded.

All references were charted in an evidence matrix capturing framework, sector, community role (inform/consult/involve/collaborate/empower), data types, equity dimensions, outcomes, and California relevance. Following guidance from Engage for Equity (Wallerstein & Oetzel, 2020) and Luger et al. (2020), qualitative thematic synthesis was then used to identify cross-cutting enablers and barriers to authentic partnership. Insights from semi-structured interviews and focus groups (reported in the Practice Review chapter) informed interpretation but were not used as data for inclusion or exclusion.

Scope and Terminology

In this review, research refers to studies that STCD funds, designs, and uses for program and policy (e.g., regulatory analysis; evaluation), whereas planning/engagement refers to program design and implementation processes (e.g., rulemaking engagement; funding-program outreach). We retain both

because community-driven research and engagement are mutually reinforcing; however, each recommendation in the review is explicitly tagged as Research, Planning/Engagement, or Both to avoid any conflation. This separation clarifies where community co-governance fits without displacing statutory decision authority.

The Practice Review in Chapter 4 builds on this foundation by incorporating qualitative feedback from the focus groups convened by CERAC members, and interviews with community organizers, academics, and government officials. As discussed earlier, both the Literature and Practice Reviews helped inform the operation of this demonstration project, especially in the formation and implementation of the CERAC. These Reviews helped to shape the recommendations offered in the How to Guide (Chapter 2), as well as serve as the overall framework for the final recommendations in the Final Report (Chapter 1).

By bridging theory and practice, it is our hope that these reviews continue to support the institutionalization of a paradigm shift in research funding and policy development that has already begun at CARB. This project builds directly on CARB and STCD's ongoing efforts to institutionalize equitable, community-centered practice through the CEM and companion Racial Equity Lens (REL). Adopted pursuant to Board Resolution 20-33 (October 2020), these frameworks operationalize CARB's commitment to address institutional and structural racism across all programs and actions. The CEM was co-developed through sustained partnerships with community organizations statewide and provides a consistent approach for building trust, sharing decision-making power, and ensuring equitable outcomes in every stage of CARB's work. The REL functions as a data-driven analytical tool that helps staff embed racial-equity analysis in planning, implementation, and evaluation. Together, these frameworks have begun to reshape agency culture and inform a new generation of CARB and STCD-funded projects that prioritize community partnership and accountability. This literature review and practice review contribute to that same institutional learning process by identifying evidence-based strategies and lessons from community-driven research to further strengthen the implementation of the Community Engagement Model within STCD.

Question 1: What are effective approaches to community driven research?

To address this question where we focused primarily on California and other US examples, we divide this section into five interrelated components that trace a continuum from principles to practice:

- **Defining Effectiveness in Community-Driven Research:** Outlines why traditional research models fall short and defines effectiveness as the intersection of rigor, reciprocity, and impact.
- **The Continuum of Community-Driven Research:** Introduces a three-tier framework (foundational, justice-centered, and governance) and summarizes key approaches in Table 1.
- **Foundational Research Methodologies:** Details five core participatory traditions (PAR, CBPR, Community-Based and Community-Engaged Research (CenR), Community Academic Partnerships, and CBPAR).
- **Justice-Centered Frameworks:** Describes frameworks that explicitly connect research to structural transformation and racial, environmental, and epistemic justice.
- **Governance and Implementation Frameworks:** Examines how participatory and justice-oriented methods translate into sustained co-governance with agencies such as STCD.

A. Defining Effectiveness in Community-Driven Research

Research has long served as both a source of knowledge and a mechanism for power.. Traditional research models , especially those rooted in positivist traditions, often adopt a deficit model, framing marginalized communities as subjects of study who lack expertise, rather than as co-producers of

knowledge and policy solutions. A deficit model assumes that problems stem primarily from community deficiencies rather than from systemic inequities (Fine et al., 2003). This framing tends to produce narrow, technocratic interventions that overlook root causes, resulting in incomplete or ineffective policy outcomes (Israel et al., 2017).

In contrast, effective community-driven research is defined not solely by methodological innovation, but by the extent to which research processes redistribute power, produce actionable and contextually valid knowledge, and build long-term capacity among impacted communities. “Effectiveness,” in this context, therefore refers to both epistemic rigor and social impact, ensuring that research advances environmental and transportation justice goals while remaining credible and actionable for policy implementation (Minkler & Wallerstein, 2008; Banks et al., 2013). Community-driven research in land use, housing, and transportation planning requires a fundamental change in practice from extractive, hierarchical models to those based on reciprocity, humility, and shared power. Traditional approaches often positioned researchers as authoritative figures who “extract” data, reinforcing a false standard of objectivity that has historically justified exclusionary practices and inequitable development. A growing body of scholarship across planning, public health, and Science and Technology Studies (STS) has shown that such claims of neutrality mask underlying biases, as all research is shaped by the positionality of its authors and the contexts in which knowledge is produced (Harding, 1991; Jasanoff, 2004).

By acknowledging these dynamics, community-driven research reframes rigor as a function of transparency, reflexivity, and mutual accountability rather than detachment. This approach aligns with evolving standards in multiple fields from anthropology and feminist geography to STS, where researchers explicitly locate themselves within the research process to reduce hidden bias and enhance interpretive validity (England, 1994; Rose, 1997).

Building from this foundation, scholars such as Paulo Freire (1970) and bell hooks (2000), and practitioners across environmental justice, planning, and public health emphasize that research designed for community benefit is inherently relational and value-based. Frameworks such as Community-Based Participatory Action Research (CBPAR), Participatory Action Research (PAR), and Research Justice (RJ) extend these principles by coupling participatory design with structural analysis and collective decision-making.

These approaches share several defining features:

1. **Power-sharing** across all stages of research design, data collection, and dissemination.
2. **Epistemic inclusion**, recognizing lived and experiential knowledge as essential to validity.
3. **Action orientation**, ensuring findings inform tangible policy or programmatic change.
4. **Ethical reflexivity**, where researchers acknowledge their own positionality and potential influence on outcomes.

Through this lens, community-driven research transforms not only what knowledge is produced, but who controls it and to what end. This shift directly responds to STCD’s goals of improving environmental health outcomes in overburdened communities by enhancing both scientific legitimacy and community trust.

These models differ in scope and intensity of participation but share a commitment to co-production, justice, and structural transformation. The next section defines and compares these approaches, illustrating providing a unifying framework for STCD’s Sustainable Transportation and Communities Division (STCD) to embed ethical, equity-centered, and actionable research practices across its portfolio.

B. The Continuum of Community-Driven Research

Community-driven research is best understood as a continuum that links how research is conducted, why it is conducted, and how it shapes governance and implementation. To reduce conceptual overlap among dozens of frameworks in the literature, this review organizes them into a three-tier model: 1) **Foundational Methodologies**. Core participatory and community-engaged traditions that define the research process itself. 2) **Justice-Centered Frameworks**. Approaches that foreground ethics, healing, and structural transformation.

3) **Governance and Implementation Frameworks**. Models that operationalize power-sharing and accountability within institutions.

Each tier builds on the previous one: **Tier 1** defines *methods*, **Tier 2** defines *values and purpose*, and **Tier 3** defines *institutional practice*. Table 1 below summarizes representative frameworks within this continuum and indicates how they can be applied within STCD.

Table 1 — Frameworks within the Continuum of Community-Driven Research

Tier	Representative Frameworks	Primary Focus / Key Principles	Key Scholars / Sources	Application to STCD Context
1 Foundational Research Methodologies	Participatory Action Research (PAR); Community-Based Participatory Research (CBPR); Community-Based Participatory Action Research (CBPAR); Community-Based & Community-Engaged Research; Community-Academic Partnerships (CAPs)	Co-production of knowledge; shared decision-making; action-orientation toward social change	Freire (1970); Israel et al. (1998, 2017); Minkler & Wallerstein (2008); Jagosh et al. (2012)	Design of participatory studies, co-analysis with residents, and translation of research to policy action
2 Justice-Centered Frameworks	Research Justice; Popular Education; Love Ethics / Loving Attachment; Cultural Humility & Cultural Safety; Trauma & Resilience-Informed Research (TRIRPP); Transformative Community Planning; Reparative Planning; Co-City Planning; Seven-Generation / Sacred Civics Planning	Structural change; healing; reciprocity; decolonial and intersectional justice	Assil et al. (2015); hooks (2000); Schlosberg (2007); Whyte (2013); Banks et al. (2013)	Guides ethical framework for research design and evaluation; links science and justice outcomes
3 Governance & Implementation Frameworks	IAP2 and community-derived variants; Co-Governance and City-as-Commons models	Power-sharing between agencies and communities; institutional accountability mechanisms	IAP2 (2018); Foster & Iaione (2016); Ansell & Torfing (2021)	Operationalize shared authority in transportation planning, air-quality policy, and climate investment programs

Note on Table 1: Several frameworks span more than one tier (e.g., CBPAR bridges Tiers 1 and 2; Co-City bridges Tiers 2 and 3). This structure illustrates how participatory methods, justice-oriented values, and collaborative governance operate along a shared continuum.

C. Foundational Research Methodologies: The Continuum in Practice

The following five traditions form the methodological foundation (Tier 1) of the community-driven research continuum introduced above. Each subsection elaborates on core principles, applications in environmental and transportation contexts, and evidence of effectiveness, drawing on recent systematic reviews and STCD-relevant studies.

1. Participatory Action Research (PAR)

Participatory Action Research (PAR) is a research approach that actively involves community members in all stages of research, from designing research questions to interpreting findings, with an explicit goal of social change. The concept of action research originates with Lewin (1946), who described iterative cycles of inquiry and action aimed at resolving real-world social problems through collective learning. Later, Freire (1970) expanded this approach through *Pedagogy of the Oppressed*, emphasizing dialogue, critical reflection, and community empowerment as vehicles for transformation. Originating in social movements and popular education traditions, PAR seeks to challenge power imbalances and create knowledge that leads to direct action.. It disrupts traditional top-down knowledge production by engaging impacted communities as co-creators and critical analysts of the social conditions they aim to transform.

Building on these theoretical roots, participatory action research has been applied across U.S. environmental justice contexts to link community knowledge with institutional change. In California, seminal studies such as Arnold's (1998) *Planning Milagros*, along with later research by Wier et al. (2009) and Minkler et al. (2010), demonstrate participatory action research's (PAR) ability to confront inequitable land use, traffic exposure, and zoning policies through community-led inquiry and advocacy. The Southern California Environmental Justice Collaborative (Petersen et al. 2006) likewise exemplifies how participatory research coalitions have translated community-generated knowledge into concrete air-quality and land-use policy reforms. In the context of land use, housing, and transportation, PAR has been used to document local environmental hazards, contest discriminatory planning practices, mobilize advocacy efforts, and co-develop policy proposals; its effectiveness lies in linking empirical evidence to collective action grounded in community priorities.

A comprehensive interpretive synthesis by Davis and Ramírez-Andreotta (2021) confirms that PAR remains a critical framework for addressing structural causes of environmental health inequities. Their review finds that while CBPR, citizen science, and community-engaged research share participatory roots, PAR uniquely centers community-driven problem definition and action targeting systemic determinants such as zoning, freight corridors, and environmental policy enforcement. Collectively, these studies illustrate how PAR not only generates locally grounded data but also builds the organizing and analytical capacity required for sustained policy engagement, foundations later institutionalized in CBPR and CBPAR frameworks (Davis & Ramírez-Andreotta 2021; Wallerstein et al. 2018).

2. Community-Based Participatory Research (CBPR)

Community-Based Participatory Research (CBPR) extends PAR's participatory principles into structured academic–community partnerships, with a primary emphasis on collaborative knowledge production rather than direct-action (Israel et al., 1998). CBPR is widely applied in environmental health, air quality monitoring, and housing equity research across California (Petersen et al., 2006; Minkler et al., 2010).

Systematic reviews and meta-analyses demonstrate that CBPR can improve research quality and outcomes. For example, de Las Nueces et al. (2012) and O'Mara-Eves et al. (2015) find that community-engaged studies show stronger recruitment and retention of marginalized populations, more valid measures, and greater relevance of findings for policy and practice. Effective CBPR practice requires explicit attention to race, ethnicity, and power, integrating principles of cultural humility to ensure that partnerships confront rather than reproduce systemic inequities (Wallerstein & Duran 2017). Wallerstein and Duran (2017) also document how robust CBPR partnerships contribute to concrete changes such as improved health services, environmental remediation efforts, and strengthened local capacity. Similarly, CBPR has been shown to shape environmental health policy by blending scientific data with local, experiential knowledge to co-produce solutions for public health problems in urban communities,

especially those facing environmental racism and regulatory neglect (Corburn 2005). Jagosh et al. (2012) demonstrate that mature CBPR partnerships generate “ripple effects” beyond immediate project goals, fostering durable community capacity and institutional learning. Wallerstein et al. (2017) note that capacity-building in CBPR occurs at multiple levels—from individual skill development to structural shifts in decision-making power—emphasizing that only the latter advances equity within agency–community collaborations.

For STCD and STCD, CBPR offers a framework that is compatible with statutory responsibilities: while final authority remains with the Board and Executive Officer, research questions, indicators, and interpretation can be developed collaboratively with communities most affected by air pollution and transportation inequities. However, without a structured plan for action, CBPR can sometimes result in extractive relationships if findings are not meaningfully translated into policy changes that benefit the community. Researchers associated with environmental justice initiatives, including Balazs and Morello-Frosch (2013), have emphasized “community-driven” approaches that extend beyond consultation toward shared agenda-setting and policy advocacy—principles consistent with CBPR’s evolution in environmental justice research.

3. Community-Based Approaches and Community-Engaged Research (CEnR)

Community-Based and community-engaged research models include projects where communities are consulted, involved in specific phases, or collaborate on certain components, even if they do not share full decision-making power. These approaches can range from one-time listening sessions to ongoing partnerships. They often map onto the “Inform–Consult–Involve” levels of the IAP2 Spectrum and can generate valuable insights, particularly when agencies face legal or procedural constraints that limit full co-governance. However, without attention to power dynamics, such approaches risk reinforcing existing inequities if communities are asked to provide input without influence over decisions (Arnstein, 1969; Cooke & Kothari, 2001). Empirical studies continue to show the limits of procedural participation when power is not shared; for example, King (2020) identifies institutional and procedural barriers that restrict meaningful community involvement in land-use decision-making, even when engagement is formally encouraged. .

4. Community-Academic Partnerships (CAPs)

Community–Academic Partnerships (CAPs) are structured collaborations between universities and community organizations to co-design and conduct research. CAPs can leverage academic resources (e.g., technical expertise, laboratory capacity) in support of community-defined goals. Evidence from multiple fields shows that well-resourced CAPs have improved environmental monitoring, informed regulatory processes, and expanded community science capacity (Drahota et al., 2016; Balazs & Morello-Frosch, 2013). For example, air quality monitoring programs blending institutional research with community knowledge illustrate how CAPs strengthen community science (Costa et al 2002; Drahota et al., 2016). However, CAPs can face challenges related to institutional barriers, funding constraints, and differing priorities between researchers and community members. To be effective, CAPs must prioritize trust-building, ensure equitable distribution of research resources, and establish clear agreements on data ownership and use.

5. Community-Based Participatory Action Research (CBPAR)

Community-Based Participatory Action Research (CBPAR) combines the collaborative strengths of CBPR with the explicit action orientation of PAR. CBPAR emphasizes that research must both deepen understanding and contribute to structural change, such as shifts in policies, budgets, institutional practices, or legal protections. It is especially relevant for transportation, land use, and climate equity, where communities seek not only to document disproportionate burdens but also to

shape investments and regulatory decisions. CBPAR ensures that research not only identifies community challenges but also works toward solutions by embedding advocacy and policy transformation into the research process. This model is especially critical for addressing structural inequities in transportation, housing, and environmental justice, as it ensures that communities are not just study subjects but active participants in shaping their futures. CBPAR is particularly aligned with the “Collaborate” and “Empower” levels of the IAP2 Spectrum, ensuring that research leads to co-governance and structural change.

These five foundational methodologies define how equitable research is conducted through co-production, reciprocity, and accountability. The next set of Justice-Centered Frameworks build on these traditions by explicitly addressing the cultural, emotional, and structural dimensions of research, centering healing, self-determination, and shared authority.

D. Justice-Centered Frameworks that Challenge Structural Inequities and Uplift the Agency of Black, Brown, and Indigenous Communities

Justice-centered frameworks articulate why community-driven research is conducted and toward what ends. Aligned with Tier 2 of the continuum (Table 1), they are united by three commitments: centering those most harmed by structural inequities as knowledge producers; linking research to healing, self-determination, and community power-building; and embedding reflexivity and accountability within institutions. The literature identifies eight principal frameworks, discussed below in four thematic groupings: (1) Research Justice and Popular Education, (2) Love Ethics, Cultural Humility, and Trauma-Informed Practice, (3) Transformative, Reparative, and Seven-Generation Planning, and (4) a synthesis of cross-cutting principles. Together they bridge critical race studies, feminist and decolonial epistemologies, and environmental justice praxis to redefine rigor as both scientific and relational integrity (Fricker 2007; Schlosberg 2007; Whyte 2013; Assil et al. 2015; hooks 2000). These frameworks operationalize Research Justice (Assil et al., 2015; Jolivet, 2015) as a unifying scaffold, calling for co-created research agendas, shared analytic authority, and tangible outcomes that repair historic harms.

In addition, these approaches collectively challenge the false neutrality of “objective” research by foregrounding positionality and lived experience—an orientation long established in disciplines such as anthropology and science-and-technology studies, where researcher reflexivity is considered integral to rigor (Haraway 1988; Harding 1992). In this sense, ethical clarity enhances rather than diminishes scientific quality, ensuring that methods are transparent, contextualized, and reproducible across diverse social settings.

1. Research Justice

Research Justice, a framework advanced by the DataCenter¹⁹ and collaborators in the late 2000s, challenges traditional research hierarchies by centering the expertise and lived experiences of structurally marginalized communities (Assil et al., 2015). Rooted in participatory research, popular education, and social justice movements, Research Justice recognizes that communities possess deep knowledge about the conditions they face and the solutions they need.

Disrupting research hierarchies. Traditional academic research privileges institutional knowledge while devaluing experiential, cultural, and community-based knowledge. Research Justice asserts community members as experts in their lived realities whose knowledge must guide inquiry and action (Assil et al., 2015). Supporting organizing and power building. Participatory research is understood as part of a broader ecosystem of base-building, leadership development, and campaign strategy that builds power and facilitates transformation (Assil et al 2015).

¹⁹ While DataCenter no longer exists, their materials remain online under creative commons

Using participatory and community-based methods.: Community mapping, oral histories, surveys, and collective data analysis are used to ensure residents shape how problems are defined, what data are collected, and how findings are interpreted. Power-sharing and decision-making. Impacted communities are expected to set research agendas, co-govern data, and determine how findings are used, rather than serving as data sources for externally defined projects.

Research Justice reframes “valid” knowledge as comprising multiple, interdependent systems: 1) Community Knowledge – Traditional ecological knowledge, oral histories, cultural practices and movement histories. 2) Experiential Knowledge – Lived experiences of environmental racism, displacement, and policy harm. 3) Institutional Knowledge – Data and analysis produced by academic institutions, agencies, and technical experts. By placing these forms of knowledge in relationship, instead of hierarchy, Research Justice challenges the dominance of Western academic frameworks and produces more grounded, actionable recommendations for structural change.

Research Justice has been used to advance campaigns for equitable transit access, environmental health protections, and cultural preservation. For example, the DataCenter-supported partnerships contributed to youth transit justice organizing in the Bay Area and to efforts to document and protect Indigenous sacred sites (Assil et al., 2015). These cases illustrate how research conducted under community leadership can shift resource allocation and regulatory practice. As Jolivet (2015) argues, treats knowledge-making as a healing and reparative practice, particularly for Indigenous, Black, and frontline communities historically excluded from research and policymaking. For STCD, adopting Research Justice principles offers a concrete pathway to institutionalize research equity while remaining fully compliant with statutory decision-making structures.

2. Popular Education

Popular Education, grounded in the work of Paulo Freire (1970), is a justice-centered framework that treats learning as a collective, political process in which communities analyze their lived conditions, name structures of oppression, and co-develop strategies for change. Rather than framing residents as “targets” of outreach or information campaigns, Popular Education positions them as theorists of their own experience whose analysis should guide research and policy agendas. In the context of land use, housing, and transportation, Popular Education has been widely used by environmental justice, tenants’ rights, and mobility justice organizations to:

- Co-define problems (e.g., displacement, truck traffic, lack of safe transit);
- Interpret technical data (e.g., emissions inventories, zoning maps, traffic studies) in accessible, dialogic formats; and
- Link findings to collective action, such as campaigns for bus passes, truck re-routing, anti-displacement protections, or community benefits agreements.

As a justice framework within the community-driven research continuum, Popular Education contributes three key commitments:

- Collective critical consciousness. Through facilitated dialogues, mapping, story circles, and workshops, communities connect individual experiences of pollution, policing, or displacement to broader political-economic structures. This process aligns with Research Justice and CBPAR by ensuring that research questions emerge from community-defined analyses rather than external assumptions (Freire, 1970; Assil et al., 2015).
- Co-learning between agencies and communities. Popular Education insists that government staff, researchers, and community members learn together. Technical expertise is not abandoned, but it is decentered and made accountable to lived experience. For agencies such as STCD’s STCD, this means designing engagements where residents interrogate data, propose alternative indicators, and assess whether proposed policies align with their priorities.

- Integration of research, organizing, and policy change. Popular Education rejects models where participation ends at consultation. Instead, it links knowledge production to base-building, leadership development, and advocacy, so that communities have the capacity to use research in regulatory proceedings, planning processes, and budget decisions (Wallerstein & Duran, 2017).

Within Tier 2 of this framework, Popular Education functions as a practice that makes participatory methods meaningful rather than procedural. It ensures that PAR, CBPR, and CBPAR are not only methodologically participatory, but also oriented toward structural transformation—an orientation that is essential if STCD-funded research is to support communities in shaping air quality, land use, and transportation decisions that affect their lives.

3. Love Ethics and Loving Attachment

Traditional planning and social science research models often prioritize quantifiable data and objectivity, limiting meaningful engagement with communities and reinforcing racialized power structures in land use, housing, and transportation planning. Community-driven researchers challenge this positivist approach, arguing that it renders communities static objects of study and fails to capture the lived realities, emotions, and relationships that shape community life (Porter et al, 2012).

The framework of Love Ethics, advanced by bell hooks (2000, 2003) and others in Black feminist and decolonial traditions, reclaims love as a practice of justice, a disciplined commitment to care, accountability, and community well-being. In research and planning, Love Ethics challenges extractive or technocratic approaches by foregrounding empathy, reciprocity, and the moral responsibility to repair harm. “Loving attachment” extends this concept to the relationships that sustain collective action and long-term collaboration between communities, researchers, and institutions. Porter et al, (2012), It acknowledges the role of trust, historical ties, and human connection, encouraging researchers and planners to form deep, ethical relationships with communities,.

In environmental justice and community planning, Love Ethics offers a corrective to the historical alienation between affected communities and public agencies. It reframes professional neutrality as ethical engagement, requiring researchers and planners to recognize their positionality and act in solidarity with those most burdened by structural inequity. Building on the foundational work of planning scholars (Kondo, 2012; Porter et al., 2012; Umemoto, 2012), Love Ethics acknowledges that relational commitments in planning are not optional, but essential to overcoming historical distrust, bureaucratic detachment, and extractive research practices.

As a justice-centered framework within the community-driven research continuum, Love Ethics emphasizes three commitments:

- Care as method. Building from hooks (2000) and Watson (2020), Love Ethics asserts that care and compassion are not oppositional to rigor but integral to it. Research designed with care ensures informed consent, transparency, and ongoing dialogue, particularly when engaging communities with histories of environmental harm or displacement. In the STCD context, Love Ethics in practice is demonstrated when staff are consistently present in community meetings, respectful of differing opinions, transparent about decision timelines, and accountable for follow-through on commitments made during engagement processes.
- Reciprocity and repair. Love Ethics insists that data and stories shared by communities carry moral obligations. Findings must return tangible value—through capacity-building, accessible communication of results, or actions that mitigate harm.
- Sustained relationships over project cycles. “Loving attachment” requires continuity beyond grant timelines, recognizing that trust, like data, is cumulative. Sustained engagement transforms transactional partnerships into long-term alliances for structural change.

In practice, relational approaches grounded in trust, reciprocity, and care have strengthened data quality, participation, and long-term collaboration in environmental and public-health partnerships (Wallerstein & Duran, 2017; Oetzel et al., 2022). In California, participatory initiatives such as the Southern California Environmental Justice Collaborative (Petersen et al., 2006) and the *Sí Se Puede* project in San Diego (Minkler et al., 2010) demonstrate that sustained relationships and shared data ownership produce measurable policy outcomes. Planning scholars further confirm that engagement practices grounded in care can transform adversarial agency–community relationships (Kondo, 2012; Porter et al., 2012; Corburn, 2005; Davoudi, 2025).

In professional urban planning contexts, Kondo (2012), Porter et al. (2012), and Umemoto (2012) document that engagement practices grounded in love, attachment, and care can transform historically adversarial relationships between agencies and communities, resulting in more durable policy agreements, enhanced stewardship of shared spaces, and reduced conflict over time. Corburn (2005) likewise shows that co-produced “street science,” built on mutual respect and sustained relationships, where lay knowledge is actively sought rather than *allowed*, informed EPA remediation decisions and increased regulatory responsiveness to frontline communities. Collectively, these studies demonstrate that centering care and relational ethics in research and planning not only fulfills ethical obligations but also yields measurable institutional and policy outcomes—strengthening the evidence base for STCD to integrate Love Ethics principles into state-funded research and practice. As Davoudi (2025) emphasizes, “care-full” planning is not sentimental but a disciplined professional ethic of attention and interdependence; when enacted through inclusive and reflective processes, such care-based engagement enhances the legitimacy, durability, and justice of policy outcomes (Carrick, 2023).

For STCD, Love Ethics offers an ethical foundation for implementing participatory frameworks such as CBPAR or Research Justice. Integrating Love Ethics means embedding relational accountability—consistent follow-up, transparent communication about data use, and respect for community time and expertise—into every phase of project design and evaluation. By doing so, STCD can advance equity not only through what research produces but through how it is conducted and how relationships endure after projects conclude.

4. Cultural humility and cultural safety vs cultural competence—cross-cutting

Cultural Humility and Cultural Safety require both individual reflection and institutional accountability—shifting state agencies like STCD from expert-driven engagement toward relational, power-sharing practices that build trust, legitimacy, and lasting equity in planning and research. Building on the ethic of care and relational accountability articulated through Love Ethics, Cultural Humility and Cultural Safety extend these commitments from interpersonal relationships to institutional practice. Together they require both individual reflection and systemic change—moving from care as relationship to care as governance.

Cultural humility challenges the Eurocentric models that have long shaped urban planning and research—models that privilege Western expertise, modernity, and objectivity while marginalizing Indigenous, non-Western, and community-based ways of knowing. It rejects the notion that professionals can ever “master” cultural competence. Instead, it calls for continuous self-reflection, recognition of positionality, and a willingness to redistribute power in decision-making (Sweet 2018). For STCD staff and research partners, cultural humility means acknowledging how agency structures, funding mechanisms, and research norms may inadvertently reproduce inequities, and committing to co-learning with communities rather than treating engagement as a one-time event.

Key practices that operationalize cultural humility in state-funded research and planning include:

- **Ongoing self-reflection:** Critically examine how privilege, disciplinary norms, or institutional routines shape which voices are valued in project design and data interpretation (Sweet, 2018).

- **Centering lived experience:** Elevate community narratives and experiential evidence as legitimate forms of expertise alongside technical data (Corburn, 2005).
- **Facilitation over direction:** Recognize that communities already possess critical knowledge and capacity; the agency role is to resource, not to dictate (Sweet, 2018).
- **Shared evaluation:** Use tools such as *What?/So What?/Now What?* and *Locating Oneself* to assess the real impact of engagement on participants and decision processes (Sweet, 2018; Ross, 2010).

Cultural safety deepens these commitments by shifting responsibility for equity from individuals to institutions. Developed within Aotearoa (New Zealand) nursing field, the framework requires organizations to examine and change the systems that reproduce inequity. In the STCD context, this means evaluating how policies, contracting practices, and performance metrics either reinforce or dismantle barriers to participation for historically marginalized communities.

As Carlson and Redvers (2023) note, cultural safety involves four interconnected commitments that translate directly to agency operations:

- **Power:** Acknowledge and change the institutionalized power relationships that continue to marginalize Indigenous peoples and communities of color.
- **Reflexivity:** Move beyond reflection to active critique of how agency norms and procedures maintain inequity; commit to structural change.
- **Space:** Create protected and resourced space for non-Western and community knowledge systems to inform policy and research priorities.
- **Process:** Treat equity and cultural responsiveness as ongoing processes, not checklists—embedding accountability in continuous learning cycles.

For STCD, embedding cultural safety requires a candid assessment of its own role in shaping planning frameworks and research agendas across California. Decolonizing these systems does not mean discarding technical expertise; it means expanding what counts as evidence, redistributing authority, and recognizing the sovereignty and self-determination of frontline and Indigenous communities as foundational to sustainable and just futures.

By integrating cultural humility and safety into project scoping, partnership agreements, and evaluation design, STCD can strengthen both the legitimacy and effectiveness of its programs. These frameworks demonstrate that equity and efficiency are not competing goals: agencies that practice humility, reflexivity, and structural accountability achieve more durable policies, improved trust, and better outcomes for the communities they serve.

5. Trauma and Resilience -Informed Research Principles and Practice (TRIRPP)

As a justice-centered framework within the community-driven research continuum, Trauma- and Resilience-Informed Research Principles and Practice (TRIRPP) recognizes how trauma from historic and ongoing harms, ranging from environmental racism to forced displacement—shape how communities engage with public agencies and researchers.. (Alessi & Kahn, 2022). For STCD's Sustainable Transportation and Communities Division (STCD), this framework provides concrete guidance for designing, funding, and evaluating projects that promote safety, trust, and healing rather than retraumatization.

Trauma-informed approaches, first articulated in public-health frameworks (Harris & Fallot, 2001; SAMHSA, 2014), are now being applied to environmental justice, housing, and transportation research where communities have faced cumulative exposure to harm. In these contexts, engagement is not neutral: agency or researcher interactions can trigger mistrust or distress rooted in past experiences of neglect or exclusion.

Key principles

- **Safety:** Ensure physical, emotional, and cultural safety in all stages of engagement. This includes transparent communication about goals, risks, and data use, and creating spaces where community members feel respected and secure.
- **Trust and Transparency:** Build predictable processes—clarifying decision timelines, roles, and how input will be used—to reduce uncertainty and rebuild trust (Harris & Fallot, 2001).
- **Collaboration and Mutuality:** Share power with communities by recognizing their expertise in defining both harms and solutions. This principle aligns with CBPAR’s emphasis on co-production of knowledge (Wallerstein & Duran, 2017).
- **Empowerment and Choice:** Provide communities with meaningful agency to decide how they participate and what outcomes matter most to them, particularly in long-term resilience planning (SAMHSA, 2014; Pinderhughes, Davis & Williams, 2015).
- **Cultural and Historical Awareness:** Situate planning and research within the broader context of systemic inequities and intergenerational trauma affecting BIPOC and low-income communities (Pinderhughes et al., 2015).

A trauma-informed approach therefore challenges conventional methodologies that privilege institutional convenience over participant safety and empowerment. Alessi & Kahn further warn that “intervention-generated inequality” can arise when studies favor *tame populations*—those easiest to recruit or retain—thereby excluding those facing housing insecurity, trauma, or systemic racism (p. 67).

6. Transformative community planning

While healing-centered approaches emphasize the repair of relationships and restoration of trust between communities and institutions, Transformative Community Planning extends this work into the structural domain of policy, land use, and governance. It connects emotional and relational healing to material change—linking processes of care and restoration to the redistribution of power and resources. For STCD, this means ensuring that the systems and policies guiding transportation, housing, and climate investments are themselves transformed by the communities most impacted by inequities.

As a justice-centered framework within the community-driven research continuum, Transformative Community Planning (TCP) redefines planning as a process of collective empowerment and structural change rather than a technical exercise in design or consultation. Originating in the radical and advocacy planning traditions of the 1960s and 1970s, TCP emerged from struggles for racial, economic, and environmental justice that demanded redistribution of power over land, housing, and urban development (Angotti, 2017; Friedmann, 1987). It continues to evolve through movements for self-determination and anti-displacement in communities historically excluded from decision-making (Kennedy, 1997, 2009; Martí et al., 2012).

TCP offers a practical roadmap for advancing equity and justice through planning and research that build community power, redistribute decision-making authority, and sustain transformation beyond project timelines. It challenges extractive engagement by centering collaboration, shared ownership, and collective learning between agencies and communities.

Key Principles

- **Structural transformation, not consultation:** Transformative planning moves beyond participatory input toward fundamental shifts in institutional power, knowledge production, and control over resources (Kennedy, 1997, 2009). Rather than treating communities as data sources, planners and researchers become facilitators of locally defined agendas and stewards of shared accountability (Song, 2015).
- **Coalitional and community-driven:** As Martí et al. (2012) document in San Francisco’s Mission District, coalition-based organizing

across diverse groups can transform land use and housing outcomes when residents collectively shape the terms of development. TCP recognizes these coalitions as legitimate planning actors rather than “stakeholders” to be consulted.

- **Racial and social consciousness:**

Song (2015) emphasizes that transformative practice must grapple directly with race and structural inequality. Drawing from W.E.B. Du Bois’s concept of *double consciousness*, she argues that marginalized groups possess critical insight into urban systems’ inequities and can guide more just and reflexive policy design.

- **Collective learning and sustained action:**

Zapata (2013) shows that transformative learning during participatory planning must be supported by institutions if it is to lead to durable behavioral and policy change. For STCD, this implies that funding structures and partnerships must include mechanisms for continuing support, capacity-building, and evaluation beyond the engagement period.

- **Indigenous sovereignty and self-determination:**

Lane and Hibbard (2005) demonstrate how Indigenous communities use transformative planning to reclaim land governance and shape resource management on their own terms. These cases illustrate the necessity of planning approaches that center sovereignty, autonomy, and cultural continuity rather than compliance with state-led frameworks.

- **Resistance to co-optation:**

As Huq (2020) warns, the transformative and insurgent spirit of planning is often neutralized through bureaucratic appropriation. Agencies must recognize and support the insurgent origins of grassroots planning, not assimilate them into tokenistic “community engagement” practices.

7. Reparative planning

Urban planning in the United States has long operated within a framework of racial capitalism, white supremacy, shaping land use, housing, and transportation systems in ways that have entrenched racialized hierarchies (Hariss 1993, Rothstein 2017, Trounstein 2018). While equity and inclusion have become common policy goals, conventional planning has rarely confronted the discipline’s complicity in producing racialized space and dispossession (Williams, 2024). Critical environmental justice scholars have made similar arguments about the failure in scholarship and practice to interrogate the role of the state as an apparatus of racial subjugation and cumulative environmental harm (Pellow 2016, 2017). The dominant paradigm of professional planning practice shaping land use, housing and transportation decisions has been shaped by a rationalist discourse that presents decision-making as an objective and neutral process, masking its deeply political and racialized nature. As Williams argues, racial planning, the deliberate or negligent structuring of racialized space through public action, private action, and public inaction, remains an enduring feature of U.S. spatial governance.

Reparative planning is an emerging framework that calls on planners, policymakers, and researchers to move beyond recognition of inequity toward acts of repair. It positions planning institutions as obligated agents of redress, tasked with acknowledging and rectifying historical harm through material, procedural, and relational transformation (Williams, 2024; Knapp, Poe, & Forester, 2022). In this sense, reparative planning builds on the corrective-justice tradition by integrating three interdependent commitments: recognition, redistribution, and spatial transformation.

Land-use, zoning, and transportation systems have historically functioned as tools of racial control rather than neutral instruments of public management. Rationalist models that framed planning as objective and technical have, in practice, masked power relations that enabled racial exclusion, segregation, and environmental harm (Williams, 2024; Yiftachel, 1998).

Reparative planning begins with recognition—a clear accounting of how public agencies participated in dispossession through urban renewal, freeway construction, exclusionary zoning, and disinvestment. Pfau (2024) demonstrates how archival documentation of urban-renewal displacement can be mobilized to design reparative housing policies and community-ownership initiatives. Similarly,

Thurber, Bates, and Halverson (2024) show that reparative housing efforts must include affected communities in defining what “repair” means, rather than imposing pre-determined compensation schemes.

Recognition alone is insufficient without redistribution—the transfer or restoration of resources and power to communities historically harmed by planning. This may take the form of land return, community-controlled housing trusts, reparative investment zones, or restructuring decision-making authority.

Knapp et al. (2022) describe such processes as acts of “repair and healing,” emphasizing that redistribution is not merely fiscal but relational—requiring long-term institutional commitment to rebuilding trust, sharing governance, and addressing trauma rooted in past planning practices. So (2024) extends this logic to public infrastructure, arguing that “reparative urban science” must transform not only where investments flow but *how* state agencies conceive expertise and accountability.

Spatial transformation requires planning institutions to remake material and procedural landscapes that sustain racial inequity. Transformative examples include the Mission Anti-Displacement Coalition in San Francisco, which operationalized reparative principles through community-based zoning and anti-speculation measures (Marti et al., 2012), and Indigenous self-determined land-management planning that reasserts sovereignty over spatial governance (Lane & Hibbard, 2005). These cases demonstrate that reparative planning is not only about restoring what was lost but creating new, self-determined spatial futures.

8. Seven-Generations and Sacred Civics

The principle of *Seven-Generation Planning* originates in Haudenosaunee (Iroquois) teachings that urge decision-makers to “consider seven generations into the future” in every deliberation, recognizing that present actions shape both descendants and ancestors (Kaagegaabaw, 2023; Warner, 2015). This philosophy reflects an Indigenous worldview of reciprocity and balance—understanding that social, ecological, and spiritual well-being are inseparable. Across many Indigenous nations, including Anishinaabe, Lakota, and Cree peoples, this ethic embodies a sacred responsibility to sustain life systems so that future generations may thrive (Clarkson, Morrisette, & Régallet, 1992).

Sacred Civics builds upon these intergenerational principles, calling for a re-orientation of urban governance, land use, housing, and transportation planning that recognizes people, land, and nature as sacred (Engle, Agyeman, & Chung-Tiam-Fook, 2022). It integrates spiritual, ecological, and relational dimensions into city design and governance, challenging exploitative development models that separate human progress from ecological and community well-being. Whereas Seven-Generation philosophy offers the ethical foundation, *Sacred Civics* operationalizes those teachings through participatory and decolonial governance structures suited to contemporary urban contexts.

Seven-Generation ethics emphasize stewardship and relational accountability: each generation must act as caretaker of Mother Earth and one another to ensure the survival and dignity of those yet to come (Clarkson et al., 1992). *Sacred Civics* extends this ethic into urban practice, positioning cities as living systems rather than extractive economies, and aligning with the Seven Sacred Teachings—love, truth, bravery, humility, honesty, respect, and wisdom—as guiding principles for planning (Engle et al., 2022). Both frameworks reject the notion of neutrality in planning, asserting that moral and ecological responsibility must guide urban decision-making.

Sacred Civics challenges three dominant assumptions of modern urbanism: absolute private property rights, corporate-driven development, and rigid sovereignty structures that exclude community and ecological voices (Engle et al., 2022). It advocates for commons-based and cooperative governance models, community land trusts, and participatory planning that link material redistribution to moral and

ecological accountability. The framework advances a holistic, relational mode of governance—one that measures success by collective well-being and ecological regeneration rather than short-term economic growth.

Intergenerational justice in Seven-Generation and Sacred Civics frameworks requires decision-making that sustains not only environmental resources but cultural continuity and community sovereignty. Decolonial practice involves centering Indigenous knowledge systems in urban planning and transportation research—acknowledging that ecological sustainability and cultural survival are co-constitutive. Through participatory “futuring,” Sacred Civics envisions *seven-generation cities* that embed reciprocity, care, and justice within infrastructure, land governance, and housing systems (Engle et al., 2022).

The preceding justice-centered frameworks illustrate a range of approaches that redefine how equity, participation, and accountability are conceptualized in research and planning. Taken together, they provide the ethical and conceptual foundation for implementation—showing why equity must be pursued through love, repair, and relational governance. The next section turns to frameworks that operationalize these commitments within institutional and collaborative practice.

This is especially crucial in the fields of land use planning, housing, and transportation research, where systemic inequities are often deeply entrenched. Equitable research design challenges the top-down practices that have historically perpetuated displacement, segregation, and environmental degradation. It calls for co-creating solutions with frontline communities — those most impacted by unjust planning decisions — to envision sustainable, inclusive futures.

In the context of California and the broader U.S., where histories of settler-colonialism intertwine with racial, environmental, and economic injustice and continue to shape urban and regional dynamics, these approaches offer pathways for research to serve as a tool for transformation rather than exploitation. By intertwining principles of cultural humility, intergenerational accountability, and collective care, equitable research design becomes not only a technical practice but a deeply ethical and political commitment to building more just and sustainable futures — from securing affordable housing to designing accessible transportation systems and reclaiming community control over land use decisions.

Together, these insights set the stage for Governance and Implementation Frameworks, where attention shifts from ethical orientation to applied practice. The following sections—the International Association for Public Participation (IAP2) Spectrum and Co-City Planning—demonstrate concrete mechanisms through which agencies like STCD can embed these justice-centered principles in research funding, program design, and collaborative governance.

E. Governance and Implementation Frameworks

The community-driven research continuum and justice-centered frameworks described in the previous sections emphasize that authentic participation cannot be achieved through checklists or symbolic engagement. Governance frameworks translate those ethical commitments such as care, relational accountability, and reflexivity into practical institutional arrangements. When adopted intentionally, these models allow public agencies such as STCD to share power, build durable partnerships, and embed justice in both process and outcome.

The two governance tools below—the IAP2 Spectrum and the Co-City Governance model—are widely used reference points. They offer complementary tools for moving from participatory rhetoric to structural co-governance. Together, they illustrate how equitable research and planning can be institutionalized through shared authority, transparent decision processes, and long-term stewardship. We present them critically: as scaffolds that can help STCD align roles and authority, while avoiding

the pitfalls of “performative participation” and ensuring evaluation tracks whether community guidance is genuinely incorporated into decisions.

1. International Association for Public Participation (IAP2) Spectrum of Public Participation

The IAP2 Spectrum defines five levels of increasing public influence in decision-making and establishes transparent promises between agencies and communities about how community input will be used (IAP2, 2018). The U.S. EPA, USDOT, and many state and local agencies use it to set expectations and evaluate engagement (EPA, 2023; U.S. DOT, 2022). CARB’s Community Engagement Model explicitly references the Spectrum (p. 48) and identifies a goal of moving further toward collaboration with communities (CARB, 2024).

Scholars and practitioners warn that standardized “levels” can encourage a checklist mentality, legitimizing participation without interrogating who controls the process, whose knowledge counts, and what outcomes change (Barry, 2022; Legacy et al., 2023). McCallum (2015) argues the Spectrum can center the decision-maker’s power and implies that agencies grant empowerment, overlooking the power communities already hold. Organizing Engagement’s review situates IAP2 alongside Arnstein’s Ladder of Public Participation and similar typologies, documenting how broken promises can erode trust and fuel inauthentic participation (Organizing Engagement, n.d.).

In research contexts, Collman’s Spectrum of Community Research adds Shared Leadership between “Collaborate” and “Community-Led,” foregrounding joint decision-making on research questions and methods. This can serve as a useful bridge for state research contracts and statutory roles that constrain full “Empower” (Collman, 2014.).

Empirical and agency studies link higher-level engagement to stronger outcomes including trust, alignment, fewer delays, and clearer incorporation of community input (Griffin et al., 2018; U.S. DOT, 2022). Broader U.S. research also finds participation correlates with stronger organizational performance (Neshkova & Guo, 2012).

For STCD, the Spectrum supports movement along a continuum from technical consultation toward shared governance, clarifying when and how communities can define research questions, co-analyze data, and shape policy recommendations.

a. Core Principles and Levels of Participation

Each level specifies the degree of public influence and the institutional promise associated with it (IAP2, 2018):

- **Inform:** Provide objective, balanced information to help the public understand issues and options.
- **Consult:** Obtain feedback on analyses, alternatives, or decisions.
- **Involve:** Work directly with the public to ensure concerns and aspirations are reflected in decisions.
- **Collaborate:** Partner with the public throughout each stage to identify preferred solutions.
- **Empower:** Place final decision-making authority in the hands of the public.

b. How IAP2 shows up in U.S. practice

In practice, the Spectrum informs engagement design across agencies. Seattle’s Equitable Development Initiative funds CBOs to set priorities approaching Collaborate/Empower levels (City of Seattle OPCD, 2022). Portland Metro’s 2023 Regional Transportation Plan awarded community partner grants to co-design priorities, moving toward Empower (Metro, 2023). Similar approaches

appear in LA County's Parks Needs Assessment (Involve/Collaborate) and Colorado's Central 70 Project (Collaborate) (LA County Parks & Rec, 2022; CDOT & FHWA, 2018).

2. Co-City Planning (polycentric co-governance of urban commons)

The Co-City framework treats the city as collaborative infrastructure where public institutions, communities, researchers, and private actors co-govern shared resources—land, housing, public space, and digital infrastructure—drawing on polycentric governance theory (Foster & Iaione, 2016, 2022; Ostrom, 1998). It advances five guiding principles: Co-Governance, Enabling State, Pooling Economies, Urban Experimentalism, and Tech Justice (Foster & Iaione, 2022). This approach reframes the city not as a top-down system but as a network of shared stewardship, where democratic, community-based governance is essential to both social and ecological resilience.

Evidence shows that such approaches foster new decision centers, collaboration agreements, and shared stewardship, though quantified impacts are still emerging, especially in U.S. contexts (Boamah, 2018; Meerkerk, 2024; Foster & Iaione, 2022). For STCD, the Co-City framework is most relevant at the intersection of land use, mobility, and air quality—such as siting EV and heavy-duty charging infrastructure, mitigating displacement in transit corridors, and supporting community broadband or air-quality monitoring networks.^a U.S.-relevant illustrations of Co-City principles.

U.S.-Relevant Illustrations of Co-City Principles

Co-Governance & Pooling Economies: Multi-stakeholder management of public assets and collective investment of resources.

Example: The Philadelphia Land Bank and local community land trusts share management of land for permanently affordable housing (City of Philadelphia Department of Planning & Development, 2021; Reinvestment Fund, 2020).

<https://www.phila.gov/departments/philadelphia-land-bank/> | <https://www.reinvestment.com/research-publications/community-land-trusts-in-philadelphia/>

Enabling State: Government as facilitator and capacity-builder.

Example: The City of Boulder's Community Connectors Program provides stipends and support for community members co-creating climate and mobility policy (City of Boulder Office of Equity & Engagement, 2021).

<https://bouldercolorado.gov/services/community-connectors-program>

Urban Experimentalism: Adaptive pilot projects that embed feedback loops and learning.

Example: New York City's Parks Without Borders initiative co-designed public spaces with residents to improve access and inclusion (NYC Department of Parks & Recreation, 2020).

<https://www.nycgovparks.org/planning-and-building/capital-project-tracker>

Tech Justice: Equitable access to digital infrastructure.

Example: The Detroit Community Technology Project's Equitable Internet Initiative enables residents to co-build and maintain community broadband networks (Detroit Community Technology Project, 2021).

<https://detroitcommunitytech.org/>

The Co-City model is not a one-size-fits-all template but a protocol for context-specific co-governance (Foster & Iaione, 2022; Meerkerk, 2024). Its adoption by STCD should focus on programs where community co-management of assets is feasible and impactful; elsewhere, Shared Leadership can be embedded within IAP2-aligned processes.

Across both frameworks, a shared principle emerges: participation becomes transformative only when agencies share power and sustain relationships beyond project timelines. For STCD, embedding IAP2 and Co-City principles into program design can transform community-based research from a compliance activity into a vehicle for long-term justice and co-governance—advancing California’s goals for equitable climate resilience, mobility, and community well-being.

Question 2: How can community-driven research improve land use planning, housing, and transportation research while dismantling structures that perpetuate racial inequality?

Building from Question 1, which situated authentic participation within relational ethics of care, accountability, and reflexivity, this section examines how those same principles become actionable in community-driven research and planning. These frameworks treat knowledge co-production as both a technical and moral practice: planners and researchers engage as partners, not extractors. Embedding reflexive and relational approaches transforms planning from a compliance exercise into a process of mutual capacity building that repairs trust and produces implementable, justice-centered outcomes.

Community engagement and community-led research are critical in improving land use planning, housing, and transportation research while dismantling structures that perpetuate racial inequality. These approaches center lived experiences, shift power dynamics, challenge systemic injustices, and promote more just and sustainable development. Evidence from the literature and case studies illustrates how these methodologies create more equitable, community-driven planning processes that rectify historical harms and lead to lasting change.

For STCD these insights apply primarily to the design and oversight of community-based research and grant programs. While statutory decision-making authority remains with CARB and the Legislature, STCD can institutionalize shared leadership within research and pilot design—co-developing priorities, funding criteria, and evaluation methods with community partners. This distinction between policy-level authority and research-level co-governance is critical for ensuring that participatory commitments are both authentic and legally feasible. (See also CARB 2024 CEM, pp. 48-49.)

A. By challenging the “expert” model of hierarchical, racialized system of knowledge production to center lived experience and local knowledge.

Traditional planning models have long prioritized technical expertise over community knowledge, often reinforcing environmental injustice and displacement. Community-led research challenges this dynamic by elevating the lived experiences of historically marginalized communities as valid and necessary sources of data (Porter et al., 2012; Sweet, 2018).

For example, the University of Pittsburgh’s Early Head Start (EHS) project used community engaged and driven research to examine child development and family health outcomes in low-income communities (Shalowitz et al., 2009, p. 352). Researchers worked with local parents and community organizations to co-design research questions, data collection strategies, and policy

recommendations, ensuring that their work addressed real community concerns. This collaborative model produced measurable community outcomes. For instance, the EHS research partnership informed city-level early childhood policy and contributed to new local funding for family support centers in low-income neighborhoods (Shalowitz et al., 2009). Translating this approach to planning, community-driven environmental health studies—such as those conducted under California’s AB 617 program, have similarly influenced policy priorities by co-producing air-quality data and mitigation strategies with residents (Balazs & Morello-Frosch, 2013).

In land use and housing, a similar approach can be seen in community-driven environmental impact assessments (EIAs), where community-driven research methodologies ensure that disadvantaged communities—often burdened by environmental hazards—have a meaningful role in shaping development decisions (Smith et al., 2022). In practice, community-driven environmental impact assessments (EIA) in land use and housing can be seen in cases such as San Francisco’s integration of Health Impact Assessments (HIAs) into city planning decisions. For instance, Bhatia (2007) documents how the San Francisco Department of Public Health collaborated with residents to incorporate neighborhood health concerns—such as traffic safety, air quality, and housing conditions—into EIA procedures for new development projects. This approach expanded traditional environmental review to include social determinants of health, ensuring that planning outcomes reflected community priorities. Similarly, Corburn (2007) demonstrates how community input was used to assess hazardous air toxics exposure at the neighborhood scale in urban land-use planning. By combining local knowledge with GIS-based spatial modeling, communities had tools to visualize and advocate for environmental justice in zoning and redevelopment decisions. Together, these examples illustrate how participatory and health-focused EIAs can empower residents to shape environmental decision-making processes, aligning with community-based participatory research (CBPR) and participatory action research (PAR) principles.

Indigenous planning frameworks, such as the Seven Sacred Teachings, further emphasize the importance of relational, place-based knowledge that extends beyond conventional Western planning paradigms (Engle et al., 2022).

In transportation planning, participatory research has been instrumental in identifying barriers to mobility for marginalized groups.

For instance, trauma-informed research methodologies have revealed how traditional research tactics kept women with substance use disorders from engaging with researchers out of fear of judgement. By changing tactics in outreach and service provision, researchers were able to engage with them on a deeper level (Alessi & Kahn, 2022).

Engaging in a process of co-learning, community members gain agency to transform their own communities, working in partnership with researchers, thereby identifying on-the-ground data that results in uncovering the root cause of transportation, housing, and planning dilemmas, while building institutional capacity to solve those dilemmas.

Each of these cases employs methods consistent with participatory action research (PAR) and community-based participatory research (CBPR) frameworks: iterative cycles of co-learning, collective data validation, and joint reflection that ensure findings directly inform local decisions. Explicitly naming these methods clarifies that “community-driven research” is not a vague engagement label but a defined, evidence-based practice with measurable equity outcomes. (Jagosh et al., 2012; Wallerstein et al., 2018.)

Together, these examples demonstrate how centering lived experience and shared methodology can recalibrate institutional learning. The next section turns to power-sharing and accountability, examining how agencies move from inclusion to genuine co-governance, ensuring community expertise shapes both program design and resource allocation.

B. By rebalancing power and increasing accountability

One of the core functions of community engagement is shifting decision-making power away from centralized agencies and toward affected communities (Foster & Iaione, 2022). The Plank Road Master Plan in Baton Rouge exemplifies how community-driven planning processes can counteract historical disinvestment and racist urban renewal policies. The plan emerged from a four month long, extensive visioning session with residents, ensuring that redevelopment priorities—such as affordable housing, accessible green space, and economic opportunity—reflected community needs rather than private developer interests (Foster & Iaione, 2022).

By embedding community members into the research process, researchers gain access to localized knowledge that reveals the underlying causes of transportation, housing, and planning challenges. The CACHE project in Illinois exemplifies this approach through its Community Advisory Committee (CAC), which played a pivotal role in shaping research priorities while fostering transparency, shared governance, and accountability between community members and researchers (Shalowitz et al., 2009). By institutionalizing power-sharing structures, such models ensure that research remains participatory rather than extractive, shifting policy development toward equitable, community-driven outcomes.

C. By supporting research that supports challenging structural racism in policy and planning

Integrating community engagement into land use, housing, and transportation research not only exposes these structural injustices but also informs policy solutions that prioritize equitable development and reparative justice (Ross & Leigh, 2000; Schmitt & Weck, 2024). By centering the experiences of historically marginalized communities, research methodologies can identify patterns of exclusion, assess the long-term impacts of past policies, and develop community-driven alternatives that prevent displacement and promote sustainable urban development.

For example, community land trusts (CLTs) provide an effective model for preventing displacement by ensuring permanent affordability and local control over land. The Dudley Neighbors Inc. land trust, created through the Dudley Street Neighborhood Initiative (DSNI) in Boston, successfully preserved housing affordability, and prevented speculative development that leads to gentrification and displacement (Kennedy, 2009). Similarly, in Brazil's informal settlements, community-driven land tenure reforms have protected residents from forced evictions by establishing legal recognition of their land rights (Foster & Iaione, 2022).

Community-driven research methodologies also improve data collection practices that have historically misrepresented marginalized groups. In the Community Assessment of Community Health Equity (CACHE) project in Illinois, recruitment was conducted by trusted community members, and research oversight committees ensured that findings were accessible and actionable for participants (Shalowitz et al., 2009). The project exemplifies participatory research that redistributes decision-making power. CACHE established Community Advisory Committees (CACs) that co-defined research questions and oversaw data collection on housing and health inequities. Recruitment was conducted by trusted community members, and oversight committees ensured that findings were accessible and actionable for participants (Shalowitz et al., 2009). These models counteract the legacy

of extractive research by ensuring that data is co-owned, co-analyzed, and co-interpreted by the community, while also providing researchers with more robust, pertinent data. These examples illustrate research approaches that challenge structural racism by transforming how evidence and data are produced. In contrast, planning frameworks such as community land trusts or environmental impact assessments operate at the level of implementation and regulation—yet can integrate community-driven research principles when designed collaboratively. Recognizing this distinction helps clarify where STCD's STCD can most directly influence research design versus where it can incentivize equitable planning practice through program criteria or funding mechanisms.

In transportation research, longstanding racial disparities in mobility access, environmental burdens, and infrastructure investments highlight the need for community-driven decision-making frameworks. Traditional Environmental Impact Reviews (EIRs) have often been weaponized by affluent communities to exclude transit projects and affordable housing, reinforcing patterns of racial and economic segregation (Smith et al., 2022). A community-driven environmental justice approach—which integrates cumulative impact assessments and health equity considerations can reform EIR processes and prioritize historically overburdened communities in infrastructure planning (Smith et al., 2022). By incorporating community-led research methods, planners and policymakers can develop more equitable mobility solutions, ensuring that transportation investments support the needs of those who have historically been excluded from decision-making. This discussion is an illustration of how environmental review processes under CEQA can incorporate community-led methodologies. By embedding participatory research early in scoping and data analysis, agencies can ensure that equity considerations shape decisions within existing statutory frameworks (Smith et al., 2022).

D. By building long-term community capacity and self-determination to promote sustainable and just development

In this context, transformative action goes beyond consultation or participation to involve structural change in decision-making authority. Whereas traditional research impact assessments (RIA) often focus on evaluating project outcomes, transformative action integrates co-governance and power redistribution into the process itself—making communities equal partners in defining priorities, evaluating progress, and shaping implementation.

Ultimately, the goal of community engagement and community-led research is not just to influence individual policies but to cultivate sustained community power (Foster & Iaione, 2022). Popular education methods, skill-building initiatives, and long-term funding for community-led organizations ensure that advocacy efforts extend beyond short-term planning cycles (Kennedy, 2009). The Boston Workers Alliance, for instance, emerged from participatory economic justice research and continues to advocate for labor rights and housing justice today (Kennedy, 2009).

Cole et al. (2023) offer a useful typology of community engagement in climate action, identifying four categories—quasi-participation, capacity-building, inclusion, and transformative action—which reflect different degrees of community agency and power-sharing.

Transformative action involves both building community agency and redistributing power, allowing communities to act as subjects of change rather than objects of planning. This approach aligns with trauma-informed and justice-oriented frameworks by enabling community-defined priorities and sustained involvement in governance. Transformative action is defined as a long-term, iterative process involving coalition-building, community education, and restructuring institutional power arrangements to share decision-making authority (Cole et al., 2023). For instance, the Oakland Climate Action Coalition exemplifies an attempt at transformative action by not only advocating for the inclusion of marginalized groups on city advisory committees, but also by securing agreements with public agencies for shared governance structures that elevate community voices in climate policy

decisions (Cole et al., 2023). Their model includes sustained training programs to build knowledge and leadership skills among community members, thereby strengthening the durability and effectiveness of this power shift. These efforts demonstrate that self-determination is both a process and a structural reorientation—one that must be nurtured over time to ensure lasting equity. Evaluations of these approaches in cities like Oakland, Chicago, and New York demonstrate measurable impacts on both decision durability and distributional equity. For instance, participatory climate planning processes have been shown to produce more resilient and widely supported policy outcomes, with funding allocations better aligned to community-identified priorities (Cole et al., 2023; Méndez & Zúñiga, 2023). These outcomes suggest that embedding community leadership throughout the planning and implementation cycle not only improves legitimacy but strengthens the persistence of equity commitments over time.

The City of Los Angeles’s Climate Emergency Mobilization Office (CEMO) is another example of transformative action. Established in 2021, CEMO has made interdepartmental policy recommendations in partnership with grassroots environmental justice organizations. Its focus on climate change, land use, and disaster preparedness intentionally centers the lived experiences and health of communities most impacted by climate risk (Méndez & Zúñiga, 2023).

Overall, sustainable and just development requires parallel commitments in both research and practice. Research interventions strengthen knowledge equity and data accountability, while planning frameworks can operationalize those principles through institutional arrangements, budgeting, and implementation. Both are necessary for enduring shifts toward community agency, dismantling institutional barriers, and redistributing decision-making power.

Long-term capacity-building also requires uplifting youth voices. Youth have long been excluded from planning due to assumptions about their cognitive development and decision-making capacity, yet including them is both a Research Justice imperative and a practical strategy for more responsive policy (Botchwey et al., 2019). Building on Arnstein’s (1969) Ladder, Botchwey et al. introduce three additional rungs: consent, advocacy, and incorporation, that capture the nuanced ways youth engage in participatory planning. Scholars have long established that meaningful youth inclusion develops civic competencies, fosters intergenerational solidarity, and strengthens democracy (Checkoway, 2011; Frank, 2006; Hart, 1992), and Botchwey et al. (2019) demonstrate that such participation, when designed with care, can expand civic capacity and catalyze structural change. Projects such as Y-PLAN (McKoy & Vincent, 2007; McKoy, Buss, & Eppley, 2022), YEAH!, and Growing Up Boulder (Derr et al., 2013) illustrate youth moving from consultation margins toward deeper planning roles, though adult-controlled structures still constrain their agency. For STCD, this underscores the need to ensure youth participation is not symbolic, compensate youth for their labor and insights, and integrate youth-driven priorities from agenda-setting to implementation (Assil et al., 2015; Wallerstein & Duran, 2017). As Seven-Generation Planning and Sacred Civics frameworks remind us, decisions made today regarding housing, transit, and land access will shape possibilities for generations to come (Engle et al., 2022; McCoy, 2022).

Question 3: What are examples of Research/Planning Justice methods in land use, housing, and transportation planning?

This section applies the principles of Research Justice to urban planning projects and utilizes the term “Research/Planning” Justice. This section focuses on the application of planning methods and tools of Racial Equity Impact Assessments (REIAs), Community-Engaged Planning, and Collaborative Problem Solving (CPS), in California’s land use, housing, and transportation planning examples. The three case studies discussed in this section were selected based on the Pls’ prior and ongoing research with STCD and the UC Institute of Transportation Studies. The West Oakland Community

Action Plan analysis derives from STCD Contract 21RD009, Opportunities to Address Past Inequities to Build Healthier, More Sustainable Communities (Acey et al., 2023). The East Oakland and Richmond cases build on findings from the UC ITS–funded project Transformative Community Planning as a Tool for Advancing Mobility Justice (<https://ucits.org/projects/applying-racial-health-and-mobility-equity-to-transit-oriented-development-a-case-study-approach-in-east-oakland-and-richmond/>).

These projects were chosen because they examine participatory planning frameworks operating at different scales — state grant, city, and regional — providing comparative insight into how community-driven research and planning advance equity across transportation, housing, and land use.

In addition, these cases also represent different points along the community-driven research continuum—from agency-led engagement (EBBRT) to co-governance and shared implementation (Richmond TCC and West Oakland AB 617). Analyzing them together illustrates how participatory intent can succeed or fail depending on governance design, data-sharing practices, and institutional responsiveness—key issues for STCD as it scales community-led research across programs.

While this review focuses on racial and economic equity, applications of Research Justice should also integrate disability justice and universal design principles. Evidence from urban design research shows that inclusive design practices, such as the curb-cut effect, benefit entire communities, not only those with mobility impairments. Incorporating these perspectives into transportation, housing, and land-use planning expands the reach of community-driven research and ensures that accessibility is treated as a dimension of equity (Imrie & Hall, 2001; Hamraie, 2017).

Through case studies including the Richmond’s Transformative Climate Communities (TCC) projects and West Oakland’s Community Action Plan (WOCAP), we analyze how these approaches have been leveraged to advance racial and environmental justice, strengthen accountability, and promote equitable policy development. These examples highlight the power of participatory planning frameworks in addressing structural inequities, while also identifying the challenges and lessons learned in implementing the Research/Planning Justice framework. Furthermore, this section critiques the failures of top-down planning approaches, like those found in the East Bay Bus Rapid Transit (EBBRT) plan, demonstrating how they have historically exacerbated disparities and emphasizing the need for community-led, equity-driven, research/planning justice practices to drive systemic change.

A. Lessons from East Oakland BRT Project

On a mobility justice research project led by UC Berkeley PIs Acey and Lin, funded by the Institute for Transportation Studies, the research team convened community advisory committees and conducted Racial Equity Impact Assessments (REIAs) for both the East Bay Bus Rapid Transit (EBBRT) and Richmond Transformative Climate Communities (TCC) projects. REIAs are systematic tools used to evaluate how public policies, plans, and projects impact different racial and ethnic groups, aiming to prevent unanticipated negative consequences and advance distributional justice (Race Forward, 2024). REIAs are widely used in cities with Departments of Race and Equity, such as Washington DC, Seattle, Los Angeles, and Oakland, to inform decision-making (Acey et al., 2025, p. 65). Given the history of transportation planning reinforcing racial inequities, REIAs are critical in ensuring equitable outcomes. Typically, a REIA follows five key sections—Overview, Background, Racial Equity Impacts, Further Considerations, and Assessment Limitations—each addressing essential questions (Race Forward, 2024):

- Identifying and engaging impacted racial/ethnic groups
- Assessing whether stakeholders were meaningfully included
- Documenting existing racial inequities and their root causes
- Clarifying whether a policy advances or exacerbates racial disparities

- Weighing potential adverse and equitable impacts
- Exploring alternatives for more just outcomes
- Ensuring long-term sustainability and identifying success indicators

By applying this framework, the UCB research team analyzed the disparate impacts of the top-down EBBRT project versus the community-driven Richmond TCC initiative, highlighting the importance of inclusive, equity-focused transportation planning (Acey et al., 2025).

The EBBRT project, implemented along International Boulevard in East Oakland, serves as a cautionary example of transportation planning that failed to incorporate meaningful community engaged and driven research (Acey et al., 2025, p. 42). While the project aimed to enhance transit accessibility for low-income communities of color, its design and implementation exacerbated racial and economic disparities, displaced long-standing businesses and residents, and neglected critical community concerns. Below we have outlined how this project violated several principles of community-driven research, leading to negative outcomes for community members.

Failure to recognize community as the unit of identity in conjunction with insufficient dissemination of findings and community learning.

The EBBRT project, implemented by AC Transit along International Boulevard, illustrates how top-down planning can disregard community concerns about displacement, business closures, and safety. After EBBRT opened, reported traffic casualties on or near the corridor increased by over 30 percent in an already high-injury network. By 2019, 502 businesses (37 percent) had closed—more than half were legacy businesses—and owners faced barriers to accessing City mitigation funds. The Business Impact Mitigation Fund’s cumbersome reimbursement-based process delayed aid, forcing many to absorb losses or close permanently (Acey et al., 2025). Although AC Transit held meetings and distributed flyers, materials were not consistently translated, and meetings often occurred at inaccessible times for workers and small business owners. Without a governance body that included community representatives with decision-making authority, feedback loops were minimal and critical warnings about economic and social impacts went unaddressed. The project thus reinforced patterns of racialized disinvestment rather than advancing mobility justice). Despite community stakeholders raising concerns about displacement, traffic safety, and business impacts, the planning and implementation of EBBRT did not reflect an equitable partnership between residents and decision-makers. The project’s governance structure lacked mechanisms for sustained community influence, and residents’ warnings about potential harms were largely ignored (Acey et al., 2025, p. 42).

Neglect of locally relevant public health and social justice issues

One of the stated goals of the EBBRT was to improve transportation safety. However, data show that traffic casualties along International Boulevard increased by over 30% after the BRT service began (Acey et al., 2025, p. 27). Additionally, the project did not address broader public health and social justice concerns, such as the rising rates of sex trafficking in adjacent areas due to the EBBRT—an issue exacerbated by displacement and neglected community safety measures (Acey et al., 2025, p. 34).

The project led to the closure of 37% of businesses along International Boulevard between 2014 and 2019, disproportionately impacting minority-owned legacy businesses (Acey et al., 2025, p. 29). While the city established a Business Impact Mitigation Fund (BIM-F), significant barriers—such as a cumbersome application process and reimbursement-based funding—prevented many businesses from accessing the financial support necessary to survive construction-related disruptions (Acey et al., 2025, p. 29). The result was an economic restructuring that favored higher-income newcomers over long-standing community members. EBBRT’s implementation did not include safeguards against displacement, nor did it incorporate long-term commitments to sustaining the communities it aimed to serve. While public investments improved transit infrastructure, they simultaneously contributed to rent increases (53%–71% from 2012 to 2017 in impacted neighborhoods), making it harder for lower-

income residents to remain (Acey et al., 2025, p. 31). The project prioritized transit efficiency over community stability, undermining its ability to create lasting benefits for the people most affected.

B. Richmond as a model of community-engaged planning

Compared to EBBRT's centralized decision-making and limited accountability, Richmond's Transformative Climate Communities (TCC) initiative demonstrates how a collaborative model can build community capacity and prevent harms before they occur. Through its Collaborative Stakeholder Committee and Displacement Avoidance Plan, Richmond Rising used power-sharing and co-learning to shape mobility projects with equitable outcomes. This contrasts with EBBRT, where public investment increased land values and rents without protective measures. Both cases reveal that governance design determines whether transportation investments reinforce or remedy racial inequities in urban development.

Recognizing community as a core identity and fostering collaborative, equitable partnerships to power-share.

In 2018, the city of Richmond was awarded a \$170,000 TCC Planning grant. In collaboration with six community partners and a comprehensive application process, Richmond parlayed this into a \$35 million implementation grant in 2022 (Acey et al., 2025, p. 22). Through a collaboration with community-based organizations (CBOs), the city identified ten projects and five plans to advance environmental justice in the neighborhoods of Iron Triangle, Coronado, and Santa Fe in Richmond (Acey et al., 2025, p. 22). By integrating local voices and expertise, the project reflected the lived realities of Richmond's communities. The implementation of the TCC-funded projects is governed by a Community Stakeholder Committee (CSC) with a diverse composition of members, including low-income residents who live in the targeted neighborhoods (Acey et al., 2025, p. 22). In response to safety concerns raised by residents who actively participated in the CSC meetings and town halls organized for the Neighborhood Complete Streets project, the city took additional measures and applied for an additional grant. This funding will supplement the Richmond Wellness Trail and Neighborhood Complete Streets projects with additional connectivity and safety features for pedestrians, focusing on schools, youth, and other people who cannot drive. The city's responses to the concerns raised by community stakeholders in its planning process demonstrate its commitment to transformative community planning principles (Acey et al., 2025, p. 40).

Confronting race, ethnicity, social class, and racism while upholding cultural humility.

Richmond's project directly addresses racial and environmental justice, acknowledging the city's history of settler-colonial violence, segregation, and environmental racism. Unlike projects that passively reinforce inequities, the Richmond TCC initiative actively works to remedy past injustices by investing in low-income neighborhoods of color while protecting them from displacement. The city's willingness to adapt based on resident feedback and prioritize equitable policies reflects a commitment to cultural humility and justice-driven urban planning.

Supporting long-term commitment & sustainable impact.

Richmond's Displacement Avoidance Plan includes concrete strategies such as renter protections, a community land trust, an ADU toolkit, and business support initiatives. These policies aim to ensure that improvements to mobility, housing, and environmental quality do not lead to the forced removal of the very communities the projects are designed to support. By embedding anti-displacement measures into the planning process, Richmond moves beyond short-term improvements toward structural, long-term change (Acey et al., 2025, p. 36).

Richmond's TCC project stands as a model for community-aligned urban development, showing how equitable, community-driven research and planning can lead to more just and sustainable outcomes.

By prioritizing resident voices, fostering power-sharing, and embedding anti-displacement protections, Richmond's approach starkly contrasts with the East Oakland BRT project, which neglected community input and worsened inequities. If the city continues its commitment to participatory governance and proactive displacement prevention, the Richmond TCC initiative has the potential to create long-lasting, transformative benefits for the communities it serves.

C. Collaborative Problem-Solving Model: West Oakland's AB 617 Process Successes and Lessons

The West Oakland Environmental Indicators Project (WOEIP)'s implementation of Assembly Bill 617 (AB 617) redistributes decision-making power to historically marginalized communities through a Collaborative Problem-Solving model (CPS). Originally emerging from the West Oakland Toxic Reduction Collaborative (WOTRC) in partnership with U.S. EPA Region 9, CPS was designed to clarify power-sharing agreements and ensure meaningful community participation in bureaucratic processes (MacIver et al., 2022). The West Oakland Community Action Plan (WOCAP), titled "Owning Our Air," demonstrates how participatory action can be used to transform governance structures, ensuring community-led environmental decision-making that directly shapes air quality policy. This process aligns with Research Justice principles by centering community expertise, increasing equitable access to information, prioritizing community control over data and decision-making, and building long-term capacity for structural change (MacIver et al., 2022). Under the CPS model, a Community Steering Committee co-led decision processes on air-quality priorities and funding allocations. Government agencies such as STCD and the Bay Area Air Quality Management District served as technical assistants rather than decision-makers, supporting data analysis and policy implementation determined by residents (MacIver et al., 2022). This shift reversed the traditional hierarchy of expertise, placing community knowledge at the center of governance while maintaining regulatory accountability.

Documented outcomes from the West Oakland CPS process include the integration of community air-monitoring data into regulatory decision-making, formal adoption of locally defined emission-reduction priorities by STCD, and sustained funding for resident capacity-building through the AB617 Community Air Grants. These results demonstrate that co-governance can produce measurable institutional change—embedding community knowledge in enforcement and program design rather than treating engagement as a one-time consultation (MacIver et al., 2022).

At its core, WOEIP's Collaborative Problem Solving (CPS) model disrupted traditional power dynamics by shifting air quality planning from a top-down regulatory approach to a co-governance model where the community was a recognized authority in shaping local policies (MacIver et al., 2022). Unlike traditional research processes that have historically excluded frontline communities from environmental governance, this model ensured that resident-led data collection and knowledge production informed policy outcomes. Through community co-leadership, participatory decision-making, and technical assistance from government agencies, WOEIP was able to leverage lived experience alongside institutional research to create a policy framework that directly responded to community needs (MacIver et al., 2022).

At its core, CPS embeds democratic participation into planning structures that traditionally exclude community agency. It operates through resident co-leadership, consensus-based decision-making, neutral facilitation, and formalized partnership agreements that define roles, responsibilities, and expectations for collaboration. By ensuring food, childcare, translation services, and stipends for community members, CPS removes barriers to participation and fosters equitable engagement (MacIver et al., 2022). The model has been recognized and adopted by public agencies, many of which began integrating CPS principles after WOEIP pioneered its use in the early 2000s. The success of West Oakland's AB 617 implementation further demonstrates how CPS can transform

governance structures, ensuring that communities are not just consulted but are positioned as equal partners in shaping environmental, land use, and transportation policies (MacIver et al., 2022).

How WOIEPs implementation of AB 617 represents a shift toward research justice

Recognition of Community as Experts: Historically, air quality management has relied on external technical expertise and institutional data while overlooking resident knowledge and lived experience. AB 617's CSC structure—formed by WOIEP, rather than by state agencies—ensured that community voices were the primary authority in decision-making. By allowing residents and local organizations to co-lead air quality planning efforts, the West Oakland CSC transformed a historically exclusionary governance process into a model for community-led research and policy-making (MacIver et al., 2022). The WOIEP-led process prioritized community education and data accessibility. Unlike traditional environmental impact reports that often remain inaccessible due to technical jargon and bureaucratic barriers, WOIEP developed a community-centered approach to air quality data collection, interpretation, and dissemination. This ensured that local residents had full access to the knowledge necessary to advocate for their health and environmental justice (MacIver et al., 2022).

Community Control Over Information: A critical feature of Research/Planning Justice is ensuring that communities maintain ownership over the knowledge they produce. Unlike conventional air quality research conducted solely by government agencies or academic institutions, WOIEP's work enabled residents to lead data collection efforts, analyze findings, and determine policy solutions based on their lived experiences (MacIver et al., 2022). This was reinforced by securing direct funding for WOIEP as a co-lead organization, rather than relying solely on state agencies to control research and policy development (MacIver et al., 2022). Traditional environmental governance often relies on generalized air quality data that fails to account for the hyperlocal impacts of pollution on frontline communities. By conducting community-led air quality monitoring, WOIEP was able to generate neighborhood-specific data, illustrating how environmental burdens were disproportionately concentrated in West Oakland's residential areas due to historical redlining, industrial zoning, and freight transportation infrastructure (MacIver et al., 2022). This resident-driven knowledge production played a crucial role in shaping the Community Emissions Reduction Plan (CERP) strategies (MacIver et al., 2022).

Capacity to Use Community Knowledge to Advance Structural Change: Research Justice demands that knowledge is not only produced for academic or policy purposes but is also used to drive tangible social change. The West Oakland CERP explicitly linked air pollution mitigation strategies to housing stability and racial equity, recognizing that improved air quality alone could inadvertently trigger gentrification and displacement (MacIver et al., 2022). This intersectional approach to environmental justice ensured that policy solutions were not siloed but embedded within a broader framework of community stability, economic justice, and anti-displacement strategies (MacIver et al., 2022).

Lessons for future research justice applications: addressing gaps in representation and racial equity

While the West Oakland AB 617 process represents a transformative shift in participatory environmental governance and toward Research Justice, it also highlights ongoing challenges that must be addressed to fully realize Research Justice principles (MacIver et al., 2022).

Ensuring Equitable Representation in Decision-Making: Despite efforts to center community leadership, residents made up a smaller proportion of the CSC than government representatives and organizational staff. For example, the composition of the CSC did not fully reflect the diversity of West Oakland's population, notably failing to include sufficient representation from the growing Latinx community (MacIver et al., 2022). In addition, youth participation fell over the course of the process

due to lack of inclusivity. Representation and just participation concerns were also raised as residents on the CSC were not compensated for their work during the planning process. Future initiatives must prioritize greater direct resident participation and compensation for community members engaged in policymaking (MacIver et al., 2022)

Institutionalizing Racial Equity in Policy and Governance: While the CERP acknowledged West Oakland’s racial disparities, it did not fully integrate metrics that track the distribution of benefits and burdens across different racial and ethnic groups. Although state agencies are restricted from using race as a basis for program targeting under Proposition 209, they can and do conduct post-hoc analyses of disparate impacts consistent with Title VI of the Civil Rights Act. For example, the Office of Environmental Health Hazard Assessment’s analysis of CalEnviroScreen 4.0 (2021) demonstrates that people of color—particularly Latino and Black residents—disproportionately live in highly impacted communities. Such race-impact assessments provide an evidence-based way to evaluate equity outcomes without violating state law and should be institutionalized to ensure that policies and investments do not perpetuate inequities (MacIver et al., 2022; OEHHA, 2021).

Sustaining Community-Led Governance Beyond Initial Policy Development: The CPS model successfully shifted power to community stakeholders during the planning phase, but long-term implementation remains uncertain. Public agencies must continue to share power, provide ongoing funding for community leadership, and institutionalize participatory governance structures to ensure lasting Research Justice outcomes (MacIver et al., 2022).

The West Oakland AB 617 process illustrates how Research Justice methods can transform governance structures to prioritize community-led decision-making in land use, housing, and transportation planning. By implementing collaborative governance, resident-led knowledge production, and anti-displacement strategies, WOEIP and the West Oakland CSC successfully demonstrated a model of Research Justice in environmental planning. However, gaps in racial representation and equity metrics must be addressed to ensure that all affected communities benefit from these environmental justice policies. The West Oakland CERP provides critical lessons on how participatory planning can be embedded in state-led environmental justice programs, paving the way for more equitable policymaking and long-term community resilience (MacIver et al., 2022).

For STCD, the central lesson from these cases is that equity outcomes hinge on early, sustained, and well-resourced co-governance. Structuring partnerships through MOUs that specify shared authority, ensuring funding flows to community partners, and integrating post-hoc disparate-impact assessments are practical mechanisms for operationalizing justice-centered research. These models show that agency-community collaboration is not only feasible within regulatory constraints but essential for ensuring that transportation and climate investments produce lasting public benefits.

Question 4: How can STCD integrate community-driven research into its research on land use, housing, and transportation planning?

Our synthesis of the literature review to respond to STCD’s question of how to integrate community-driven research into its land use, housing, and transportation planning and research is incorporated into the overall recommendations in the Final Report, Chapter 1, and also the How to Guide, Chapter 2. The literature review provided the following three main theoretical guidance for these recommendations.

A. Shifting from Research on Communities to Research with Communities

Historically, land-use, housing, and transportation research has prioritized technical expertise over community knowledge, reinforcing inequities in who defines problems and solutions (Wallerstein & Duran, 2017). Community-driven approaches invert this hierarchy by engaging residents and local organizations as co-researchers who help define questions, interpret results, and connect findings to place-specific priorities (Porter et al., 2012). For STCD, this means shifting from outreach-based consultation to co-governance models that redistribute influence over how research priorities are framed, analyzed, and translated into actionable knowledge.

During the development of this literature review, reviewers correctly noted that STCD must also distinguish **research power** from **policy or regulatory authority**. Co-production of research does not transfer decision-making power over laws, regulations, or programs. Those remain with executive and legislative bodies. Rather, it redistributes decision-making within the research process: defining questions, methods, and data interpretation collaboratively with impacted communities. Clarifying this distinction helps STCD maintain compliance with statutory mandates while deepening equity and relevance in its research practices.

CBOs are critical partners in this process. They operate as trusted intermediaries and local governance nodes that steward land trusts, resource distribution, and participatory planning initiatives (Aligica & Tarko, 2012; Foster & Iaione, 2022). Successful partnerships with CBOs demonstrate that equitable outcomes depend on long-term relationships, transparency, and sustained funding, rather than episodic outreach (Carlisle & Gruby, 2017).

B. Embedding Cultural Humility and Trauma-Informed Practice

Trauma-informed and reflexive approaches address historical harms that have undermined trust between marginalized communities and public institutions. Community-driven research begins with acknowledgment of institutional racism and the cumulative trauma caused by exclusionary policies such as redlining and freeway construction (Alessi & Kahn, 2022; Porter et al., 2012). Applying a trauma-informed lens means centering reciprocity—recognizing lived experience as expertise and ensuring shared benefit through funding, authorship, and data access.

Cultural humility reframes expertise as a continual practice of self-reflection and accountability rather than a fixed skill (Tervalon & Murray-García, 1998). Co-training between researchers and community partners, collaborative evaluation of findings, and joint review of research language can reduce bias and increase ethical integrity (Carlson & Redvers, 2023). These principles do not compromise rigor; they enhance it by ensuring indicators and sampling reflect lived realities and by reducing misinterpretation of culturally specific knowledge.

The Roofless Women’s Action Research Mobilization illustrates this approach: women experiencing homelessness co-led data collection on housing and health, conducting surveys and interviews that informed city policy while maintaining control over how findings were used (Kennedy, 2009). STCD could adapt similar models, pairing community-collected data with agency verification to produce results that are both credible and empowering.

A systematic review of community–academic partnerships (CAPs) identified several success factors relevant to STCD (Drahota et al., 2016):

4. Trust and Respect (29.6% of studies).
5. Shared Vision and Goals (25.9%).

6. Frequent and Transparent Communication (24.1%).
7. Well-Structured Decision-Making (18.5%).
8. Clearly Defined Roles (14.8%).
9. Conflict-Resolution Mechanisms (9.3%).

Embedding these principles into STCD's grant language and evaluation criteria would institutionalize trauma-informed, reflexive research practice across future projects.

C. Institutionalizing Community-Driven Research

For community-driven research to be systematic rather than episodic, STCD must embed it in policies, funding structures, timelines, and accountability mechanisms that reflect how equitable partnerships actually form and endure. Research-justice and CBPR literatures show that trust, shared purpose, and "partnership synergy" develop over time and are associated with better science and more durable impacts (Wallerstein & Duran, 2017; Jagosh et al., 2012; Drahota et al., 2016). Sustained integration requires structural change to funding, evaluation, and accountability (Jagosh et al., 2012; Wallerstein & Duran, 2017).

Conclusion

Community-driven research offers STCD a pathway to transform how environmental and transportation studies are conceptualized, conducted, and applied. It enhances the Division's capacity to meet its equity and climate mandates by generating data that are both scientifically rigorous and socially grounded. Embedding co-production, trauma-informed practice, and cultural humility into institutional processes can strengthen community trust, improve data relevance, and create feedback loops between research and policy implementation. The goal is to operationalize equitable collaboration within existing governance structures. By translating these practices into research solicitations, partnership models, and evaluation criteria, STCD can redefine how state-funded research is conceptualized, designed, implemented, and shared, building a durable foundation for equity-centered, community-informed innovation across California's housing, land use, transportation, and climate systems.

Chapter 4: Practice Review

Chapter Purpose & Roadmap

This Practice Review Chapter provides background information about the four major research activities that involved 134 research participants:

- **9 CERAC** members who are community or environmental justice leaders.
- **92 community members** who participated in focus groups organized and led by the CERAC members.
- Individual interviews with **21 practitioners** from community based organizations, academic research, and government agencies.
- A government focus group with an additional **12 current or former government leaders** from state, regional, and local public agencies.

As discussed above, the Practice Review's goal is to supplement the Literature Review with a better understanding of current practices in identifying, participating in, and disseminating research with frontline environmental justice communities. These current practices draw from practitioner experiences with local and state government agencies. However, the goal of the practitioner interviews and focus groups is not to focus on past research projects with CARB STCD. This is not an impact evaluation study of CARB STCD's past efforts.

This Chapter includes a summary of the methodologies used in selecting the participants, conducting the activities, and synthesizing findings. In addition, we provide a summary of the backgrounds of the participants.

Through these interviews and focus groups, several key themes emerged. First, participants consistently emphasized the need to shift power and resources toward community-led structures—advocating for practices like co-governance, compensating community advisory committees, and redefining who counts as an expert. Second, they highlighted the need for structural changes in how public agencies design research solicitations, fund research, and measure impact. Third, participants urged STCD to recognize the historical and emotional contexts that shape communities' relationships with government institutions, for example, naming that past harms committed by CARB inevitably shape how STCD is perceived. These findings mirror core insights from the literature, including critiques of extractive research, calls for cultural humility (Porter et al., 2012), and the need for reparative planning practices (Williams, 2020).

The Practice Review recommendations, integrated into the Final Recommendations in Chapter 1, identify actionable steps to build trust, increase transparency, and ensure that future research initiatives reflect the needs and leadership of the communities most impacted by environmental and transportation inequities.

Methodology & Summary of Activities

This Practice Review was guided by the principles of Research Justice, a framework that prioritizes the lived knowledge of communities most impacted by environmental racism, displacement, and planning harms. Research Justice seeks to redistribute power in knowledge production by centering those historically excluded from research design, funding, authorship, and decision-making. It

challenges extractive research models by treating communities as co-creators of research—not as subjects to be studied. See Literature Review for more information.

This orientation shaped elements of the research design, from interviewee and focus group recruitment and selection, the training of CERAC members to co-conduct the focus groups, to the framing of questions and interpretation of findings. By centering frontline voices, we ensure that insights are grounded in community experience and that recommendations reflect the priorities of those most affected by STCD’s funded research.

Interview and Focus Group Recruitment and Selection

The recruitment and selection of interviewees and focus group participants used a qualitative purposive sampling method (Palinkas, 2015). The purposive sampling approach understands that specific knowledge is held by certain known informants based upon their particular experiences. Researchers intentionally select specific individuals for research participation based upon their unique experiences, knowledge, or characteristics. This approach enables the research study to gain deeper and more robust insights, which enhances the feasibility of actionable recommendations for STCD.

Interviewees

The twenty one (21) interviewees were selected based on their demonstrated leadership in community-driven research and justice-focused policymaking. Criteria included: direct experience conducting or participating in community-engaged research in transportation, housing, land use, or environmental justice; a track record of organizing or advocacy aimed at dismantling structural inequities; and the ability to speak to research gaps and equity concerns relevant to STCD’s mission. Additional attention was given to geographic, racial, gender, and professional diversity, ensuring the inclusion of voices from urban, rural, and tribal regions across California. This approach reflects Research Justice’s core principle that those most impacted by planning and policy decisions must also shape how research is designed and implemented. The team prioritized individuals who had cultivated long-standing relationships of accountability with their communities and who could offer grounded, nuanced reflections on how research practices can become more equitable and reparative.

The following table summarizes the diverse experiences and identities of the twenty interviewees. Based upon the information provided, several interviewees are listed under multiple categories. For example, a few interviewees had worked in both CBOs as well as government. Or a few interviewees had several racial/ethnic identities. To honor the fact that a person is formed by all of their experiences, we have attempted to represent the complete information shared with us in the summary table below.

Summary of the 21 Interviewees

Sector ²⁰	Geography ²¹	Community	Race/Ethnicity ²²	Gender ²³
Community based: 14	Bay Area: 7	Rural: 4	Asian American & Pacific Islander (AAPI): 2	He/Him: 8
Government: 7	Central Valley: 3	Suburban/Urban: 1	Black/African American: 4	She/Hers: 12
Academia: 3	Southern CA: ²⁴ 5	Urban: 12	Indigenous: 3	They/Them: 1
	Statewide: 6	All: 4	Hispanic/Latinx: 9	
			White: 4	

A core group of interviewees was identified through the professional networks of Principal Investigator Margaretta Lin and Ms. Margaret Gordon, a renowned environmental justice leader and co-founder of the West Oakland Environmental Indicators Project. Their longstanding ties to environmental and racial justice movements across California allowed the research team to connect with government leaders who then recommended other community organizers, academics, or government practitioners. Additional interviewees were identified through targeted online searches using key terms such as “CBPAR practitioner,” “community-driven researcher,” and “environmental justice organizer,” and through reviews of organizational websites across academia, public health, government, and advocacy sectors. While CARB STCD staff did review the proposed list of practitioners, they did not provide affirmative recommendations of people to include. Care was taken to include representation across racial, gender, and geographic lines, with attention to elevating rural and tribal perspectives.

Recruitment also required flexibility and trust-building. Some potential participants declined due to scheduling constraints, distrust of public agencies, or due to potential conflict of interests²⁵—a reminder of the importance of setting clear expectations, ensuring fair compensation, and providing multiple points of entry for participation. The team found that allowing for extended timelines, offering honoraria, and maintaining transparency about how insights would be used were essential to securing meaningful engagement. These lessons underscore the importance of investing in relational infrastructure, especially when engaging communities that have been historically harmed or ignored by public institutions. Future STCD research efforts will benefit from incorporating these practices into their standard operating procedures for participant recruitment and engagement. Overall many participants were happy to lend their voice to this process, however, reaching out to those participants

²⁰ Several interviewees have multiple sector experiences, such as having worked in academia and government.

²¹ Geographic areas include: the Bay Area, Central Valley, Inland Empire, Los Angeles County, San Diego,

²² Race and ethnicity information is based upon self-reported public information available about the interview participants and may include multiple identification.

²³ Gender identity information is based upon public information available about the interview participants.

²⁴ Interviewees were from the Inland Empire, Los Angeles, San Gabriel Valley, and San Diego County.

²⁵ For example, people who serve on CARB’s board of directors or advisory committees were concerned about a potential conflict of interest in their participation.

with whom there was no direct connection to was difficult and required additional time to await a response and answer any questions or concerns they had about their participation.

Government Focus Group Recruitment and Selection

We applied the focus group methodology where the object of analysis centers the group interaction and discussion. Focus groups are particularly useful in advancing the understanding of how people with certain characteristics consider experiences, ideas, or events (Freitas, Oliveira, Jenkins, Popjoy, 1998). In this case, twelve (12) government focus group participants were selected based on their demonstrated leadership in community engaged policymaking, especially in the STCD policy areas of land use, transportation, housing, and environmental/climate change. Additional attention was given to geographic, racial, gender, and professional diversity, ensuring the inclusion of voices from urban, rural, and tribal regions across California. Recommendations for focus group participants came from the research team and also some of the interviewees. STCD staff reviewed and approved the recommended list for the government focus group.

The following table summarizes the diverse experiences of the government focus group participants.

Summary of the 12 Government Focus Group Participants

Level	Geography	Community Served
Local Government: 5	Northern CA: 1	Rural: 4
Regional Government: 4	Bay Area: 4	Suburban/Urban: 2
State Government: 3	Central Valley: 1	Urban: 4
	Southern CA: 3	All: 2
	Statewide: 3	

The majority of the participants are currently working in government, with only 2 no longer holding government positions. The state agencies represented included ones that work on land use, climate change, air quality and environmental justice. The regional agencies represented included ones that work on air quality and environmental justice, and metropolitan planning. The local agencies represented planning, housing, or citywide functions.

CERAC Focus Group Recruitment and Selection

The 9 CERAC members organized one focus group for about 10 participants in each group, totalling 92 participants. CERAC members conducted outreach to members of their community or professional networks in their geographic area. Participants were chosen based upon their work on STCD priority areas of land use, transportation, housing, and environmental/climate issues. One of the CERAC members held two focus groups, one in English and the second in Spanish. The research team produced a recruitment flyer for CERAC members, including translated into Spanish per CERAC members request, based upon CERAC and STCD staff feedback.

The following is a summary of the 92 focus group participants by community affiliation, geographic location, and community type.

Summary of the 92 Focus Group Participants²⁶

Community Affiliation	Geographic Location	Community Type
Hispanic/Latinx low income immigrants (38)	Lamont San Jose Santa Ana Watsonville	Agricultural Urban Suburban/Urban Agricultural
Hmong community members (9)	Sacramento	Urban
Community, environmental, and mobility justice activists (27)	Bay Area Fresno San Gabriel Valley	Urban Agricultural Suburban/Urban
Indigenous service providers (9)	Bay Area	Urban
Youth community activists (9)	Richmond	Urban

The focus groups included participants living in agricultural, suburban/urban, and urban communities. Participants ranged in age, including a focus group that prioritized youth activist leaders. The majority of participants were either low income immigrants or people serving these communities, including the Hispanic/Latinx and Hmong communities. About a third of the participants were community, environmental justice, and mobility justice activists. One focus group focused on Indigenous service providers serving the Bay Area Indigenous communities.

Data Collection Methods

Interviews

Each interview consisted of 60 minutes of guided discussion on video with one member of the research team using a questionnaire that was formulated by the research team and reviewed by both CARB STCD and CERAC members. While many of the questions were asked, the interview was flexible in allowing participants to address additional concerns and topics that were not explicitly a part of the interview questionnaire. All participants that were not employed by local or federal governments were offered \$40 compensation for their time. A few participants declined compensation. Interviews were both recorded and had transcription services.

Government Focus Group

There was one focus group on video for the 12 current or former government officials using a questionnaire that was formulated by the research team and reviewed by both CARB STCD and CERAC members. While many of the questions were asked, the focus group was flexible in allowing for the conversation among the participants to flow and for topics that generated group interest to

²⁶ While a demographic survey was provided to individual focus group participants, most people did not fill it out.

receive more time and attention. The focus group was recorded and with transcription services that were used for writing up the focus group summary.

CERAC Focus Groups

The CERAC members received extensive training on the following topics to prepare them to organize their own focus group.

- Purpose of this project and why it would be relevant to CERAC network members.
- What is STCD and how is its work relevant to CERAC network members.
- How to conduct Community Based Participatory Action Research and applying those principles to this project.
- How to develop a focus group questionnaire and how to conduct a focus group under academic research standards.
- How to co-facilitate a focus group and how to handle different situations that may arise, such as needing to clarify questions or responding to anyone upset.

The research team also provided the following additional resources to support the CERAC members' successful co-facilitation of their focus groups:

- Focus group organizing checklist, including with timelines.
- Focus group guide for the day of activities.
- Focus group slides, including translated into Spanish.
- Translated consent forms including using more accessible language.
- Focus group meeting notes template
- Focus group summary template.

Focus groups were held either in person at a community center or on video, depending upon balancing community access needs with logistical issues for participants. Participants were offered compensation of \$75 for a 90 minute focus group.

CERAC members co-facilitated each focus group along with a member of the research team. Focus groups were either recorded for the groups that did not have recording concerns, or handwritten simultaneous notes were taken by a member of the research team for those with recording concerns. After each focus group, focus group summaries were co-developed by a member of the research team and CERAC member. The final summaries were reviewed and verified by each CERAC member.

Qualitative Data Analysis Process

The analysis of interview and focus group data for this Practice Review was grounded in principles of Research Justice and relied on a multi-step qualitative coding process designed to preserve the integrity of participants' narratives while drawing out actionable insights. The process involved four key phases: holistic review, inductive coding, thematic clustering, and synthesis. Each phase contributed to a rigorous yet community-centered understanding of the issues raised by interviewees.

The first phase began with a holistic review of each interview and focus group summary. Rather than fragmenting the data immediately, the research team engaged in full readings of each summary to understand the tone, structure, and key messages expressed by participants. This initial step helped identify emotional resonance, repeated frustrations, and underlying tensions that might otherwise be

missed in a line-by-line analysis. It also allowed the team to begin recognizing potential patterns and contradictions across different voices and roles.

Following this, the team conducted inductive coding, a process in which codes—or labels representing key ideas—are developed from the data itself rather than being pre-determined. This method aligns with Research Justice principles by ensuring that the analytical categories reflect the language and priorities of participants, rather than those of external researchers. Codes were applied to segments of text that described concerns, critiques, strategies, or recommendations related to community engagement, research funding, equity, or institutional behavior. In many cases, *in vivo* coding was used—meaning that specific words or phrases from interviewees were preserved as codes. This was especially important for maintaining the authenticity of community-defined terms and for highlighting recurring language that held cultural or political weight (e.g., “trust was broken,” “no follow-through,” or “we were studied, not included”).

After coding was complete, the team moved to thematic clustering, where related codes were organized into broader thematic categories. This stage allowed the team to identify and refine key themes that emerged consistently across the interviews, such as *Trust and Relationship-Building*, *Research Design and Process*, and *Community Power and Co-Governance*. For example, codes related to inconsistent communication, lack of follow-through, and bureaucratic delays were grouped under *Trust and Relationship-Building*. This process allowed for a more structured understanding of how distinct challenges were interconnected and how participants framed the relationship between past harm and future possibility.

The final phase involved synthesis and meaning-making, during which themes were analyzed in relation to the goals of the Practice Review and the broader STCD engagement strategy. Rather than treating themes as static findings, the team asked critical questions about their implications for institutional change. For example, insights about limited access to solicitation processes were not only coded under *Research Design and Process*, but were also used to reflect on how STCD might redesign its procurement systems to promote inclusion and transparency. Similarly, examples of successful co-governance informed emerging recommendations for participatory research governance models.

Throughout all stages of the analysis, the team remained attentive to issues of power, voice, and representation. Reflexivity—ongoing questioning of how the research team’s positionality influenced interpretation—was a central part of the process. This approach ensured that the analysis did not merely extract themes from participant narratives but worked to honor and amplify the strategic knowledge that community members and justice-focused practitioners have developed through lived experience.

Ethical Considerations

The Practice Review was grounded in an ethical commitment to community-centered, non-extractive research. At the outset of each interview, participants were provided with a clear explanation of the project’s purpose, their role, and how their input would be used. This verbal informed consent process included details about the sponsoring agency (CARB/STCD), the voluntary nature of participation, the option to decline recording, and the assurance that all identifying information would be removed

during transcription. Participants were also compensated for their time, acknowledging the value of their contributions and reducing the burden of participation.

Consistent with the principles of Research Justice, the team prioritized data sovereignty—recognizing that the knowledge shared by community members belongs to them and their communities. Interview and focus group responses were treated as intellectual and cultural contributions, not just data points. Participants were positioned as experts whose insights would directly shape both the analysis and recommendations, ensuring the process remained accountable to their priorities and lived experiences.

The interviews also followed a trauma-informed approach, rooted in deep listening, respect, and care. The interview and focus group script acknowledged the long-standing harm caused by extractive and tokenizing research practices. By creating space for participants to reflect on their own terms—and by emphasizing relational trust over extractive inquiry—the process aimed to avoid re-traumatization and foster a more empowering experience. In this way, ethics were not treated as a procedural step, but as a core practice woven throughout every stage of engagement.

Conclusion

The findings and recommendations from the 134 cross-sectional interviews and focus groups are integrated into the Final Recommendations for STCD in Chapter 1. The people who participated in this study are community organizers, researchers, parents, youth advocates, technicians, and public servants who chose to speak because the stakes are, quite literally, life-and-death. Each story they shared is a reminder that environmental harms rarely travel alone: polluted air walks hand-in-hand with limited economic opportunity, inadequate transit, unsafe streets, and health conditions that shorten lifespans.

What makes the research activities so compelling is the way participants have connected the abstract—policy, land-use, infrastructure—to daily, bodily experience. One interviewee compares slow, invisible poisoning to the shock of police violence, illustrating how gradual harm can slip beneath the public radar while exacting equal, if not greater, tolls on a neighborhood's health and hope. Another recounts the simple dignity restored when a corner store is painted, roofed, and honored with a mural—an act of beautification that, for five straight years, corresponded with a halt in local shootings. Across the board, research participants show that when communities claim ownership over their environment, tangible change follows.

Finally, the research activities reveal the distance—sometimes a chasm—between community knowledge and institutional action. People are acutely aware of truck-choked roads, absent sidewalks, and the fear that personal data shared for “engagement” may someday be used against them. Yet they also describe inventive solutions: tree-planting that cools streets and cuts energy bills, grassroots air-monitoring, and culturally rooted campaigns that redefine public space. Taken together, the findings that follow are less a litany of complaints than a blueprint of lived expertise. They challenge us to recognize the wisdom already at work in frontline neighborhoods and to design policies that match that wisdom with resources, respect, and lasting accountability.

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Glossary of Key Terms

AAPI - Asian American and Pacific Islander

AB 617 - In response to Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017), CARB established the Community Air Protection Program (CAPP or Program). The Program's focus is to reduce exposure in communities most impacted by air pollution.

BIPOC - Black and Indigenous People of Color

CARB - California Air Resources Board

The state government agency that funds the Sustainable Transportation and Communities Research Engaged Project (STCRCEP). CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. CARB is the lead agency for climate change programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards.

CBO - community-based organizations

CBPAR - Community Based Participatory Action Research

Community Based Participatory Action Research (CBPAR) is a collaborative approach to research that involves all stakeholders throughout the research process, from establishing the research question, to developing data collection tools, to analysis and dissemination of findings. It is a research framework that aims to address the practical concerns of people in a community and fundamentally changes the roles of researcher and who is being researched. The CBPAR framework begins with a community's issue, proposed action, or strategy and then supports or enhances this action with research that is community based and engaged.

CERAC - Community Engaged Research Advisory Committee

This Committee is composed of nine environmental justice community leaders throughout California. The purpose of CERAC is to co-design a community engaged research process to identify research priorities across impact communities.

CAG - Community Air Grants

Assembly Bill (AB) 617 authorized the California Air Resources Board (CARB) to establish the Community Air Protection Program (CAPP) to improve air quality in communities affected by a high cumulative exposure burden. Community Air Grants (CAGs) provide funds to California community based nonprofit 501(c)(3) organizations and California Native American Tribes through a competitive process for technical assistance and to support participation in the community air protection process. See more information [here](#).

CAP - Community-Academic Partnerships

CBPR - Community-Based Participatory Research

CEM - Community Engagement Model

The Community Engagement Model intends to equip California Air Resources Board (CARB) staff with the essential knowledge, tools, and confidence to develop and implement effective community engagement plans to incorporate community perspectives during CARB program development.

CEnR - Community-Based Approaches and Community-Engaged Research

Decarb - Decarbonization

CSC - Community Steering Committee

CSCs are the groups of community members selected by local Air Quality Management Districts to provide input into the local implementation of air pollution reduction programs, as required by AB 617.

EJ - Environmental Justice

A national movement that advances the right of all people to live in a clean, healthy, and accessible environment (See California Environmental Justice Alliance for more information).

IAP2 - International Association for Public Participation

International association dedicated to advancing best practices in public participation to serve the public good.

IRB - Institutional Review Board

A research ethics committee that must approve all human subjects research, especially for academic research projects.

IURD - Institute of Urban and Regional Development at UC Berkeley

IURD serves as the research home for this project and the academic research work of Charisma Acey and Margaretta Lin. IURD was founded in 1962 to serve as a multidisciplinary research hub. Ms. Margaret Gordon, the co-founder of West Oakland Environmental Indicators Project, credits IURD graduate students and staff with helping WOEIP with one of its first EJ indicators projects. For more information: <https://ced.berkeley.edu/iurd>

Just Cities

A racial and social justice planning and public policy organization that serves as a community partner to UC Berkeley community-based researchers.

Literature and Practice Review

One set of deliverables of the Community Engaged Research project, a literature review examines key studies and writings about a specific topic. It allows us to understand what came before us. A practice review conducts interviews or focus groups with practitioners of that specific topic to understand the realities people face.

Love Ethics in Planning and Public Policy

A framework advanced by bell hooks and others in Black feminist and decolonial traditions, reclaims love as a practice of justice, a disciplined commitment to care, accountability, and community well-being. In research, love ethics acknowledges the role of trust, historical ties, and human connection,

encouraging researchers to form deep, ethical relationships with communities. See literature review for more information.

MOU - Memorandum of Understanding

PAR - Participatory Action Research PAR

Partnership Agreement

A written document co-created by people working together on a new project that spells out different roles, responsibilities, decision-making powers, expectations, and how to address conflicts when they occur.

PIs - Principal Investigators

Academic research projects have Principal Investigators who are the leaders of different research projects. In academic institutional hierarchy, there is commonly one main Principal Investigator who holds ultimate decision-making and then Co-Principal Investigators. The academic institution also has standards and hoops to jump through to determine who can serve as a Principal Investigator. Charisma and Margaretta work on multiple research projects together and operate together as Co-PIs, even though for bureaucratic purposes, only one person can be listed as the PI. It is their dream for community scholars to someday be able to serve as a PI or Co-PI on academic research projects.

Ramp - Ramp is the online financial management and payment platform that Just Cities uses to pay CERAC members for their project-affiliated work.

Research Justice

A research methodology developed during the 1960s and 70s power movements that seeks self-determination for communities that have experienced structural discrimination and oppression.

SOW - Scope of Work

STCD - Sustainable Transportation and Communities Division

A division of CARB, STCD has three branches: Transportation and Land Use Planning Branch, Building Decarbonization and Innovative Strategies Branch, and Climate Investments Branch. STCD's mission is to use multi-disciplinary teams to integrate research, transportation and land use planning, regulations, and incentives to foster sustainable communities that provide a range of affordable housing and transportation options that drive electrification, reduce vehicle miles traveled (VMT), support carbon sequestration, and meet community needs in a manner that promotes equity, access to opportunity, and community resiliency.

STCD Program Officers

STCD staff assigned to serve as the primary staff members on a specific project.

STCRCEP - Sustainable Transportation and Communities Research Engagement Project

"Sustainable Transportation and Communities Research Engagement Project" is the full name for this project. STCREP aims to ground future statewide research initiatives on community based participatory action research.

Ramp - Ramp is the online financial management and payment platform that Just Cities uses to pay CERAC members for their project-affiliated work.

Research Justice

A research methodology developed during the 1960s and 70s power movements that seeks self-determination for communities that have experienced structural discrimination and oppression.

TRIRPP - Trauma and Resilience -Informed Research Principles and Practice Trauma and Resilience -Informed Research Principles and Practice A research approach that understands the historic and current traumas that certain groups experience as a result of their societal status and/or specific experiences of harm. Researchers are trained in specific skills to not re-traumatize participants.

Appendix

How to Guide Toolkit