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TRACtion: Transformative Transportation

Working Groups Synthesis

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UCLA Sustainable LA Grand Challenge

UCLA Institute of Transportation Studies

TRACtion

Transformative Research and Collaboration

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About the UCLA Sustainable LA Grand Challenge

The Sustainable LA Grand Challenge is an interdisciplinary universitywide initiative aimed at applying UCLA research, expertise and education to help transform Los Angeles into the world’s most sustainable megacity by 2050 — making it the most livable, equitable, resilient, clean and healthy megacity, and an example for the world.

About the UCLA Institute of Transportation Studies

The UCLA Institute of Transportation Studies supports and advances cutting-edge research, the highest-quality education, and meaningful and influential civic engagement on the many pressing transportation issues facing our cities, state, nation and world today. The institute is part of the University of California Institute of Transportation Studies, a four-campus consortium that includes UC Berkeley, UC Davis and UC Irvine.

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Executive Summary

TRACtion: Transformative Research and Collaboration is a new approach to community–researcher collaboration that seeks to match the University's academic expertise with the wisdom and perspectives of community groups and advocacy organizations. It is a partnership between the Sustainable LA Grand Challenge (SLAGC) and UCLA Institute of Transportation Studies (ITS). This Synthesis Report is an interim report that documents the TRACtion research development process to date.

TRACtion aims to create a deeper, shared understanding of transportation sustainability and equity challenges facing Los Angeles and the opportunities to address them. The approach, which values both community and academic knowledge, can be described as "reverse research translation." Rather than simply taking ideas from academia and translating them to make the results relevant to communities and government agencies, *TRACtion* also seeks to identify research ideas that originate with community-based thinkers and develop them into cross-disciplinary, scholarly projects.

TRACtion also recognizes that not every important transportation problem involves a knowledge gap or a lack of translation (in either direction). Rather, in many cases there is a gap between the different political priorities or values of different community members, staff, and/or elected officials. At the same time as developing a research agenda, *TRACtion* therefore explores options for closing knowledge gaps that don't require new research.

TRACtion organizers convened five working groups consisting of UCLA faculty, researchers, and community partners. The working groups were charged with identifying key issues, research gaps and barriers to a "just transition" for transportation, over a series of five meetings. *TRACtion* organizers ceded some control over identification of priorities to the working groups and working group members themselves.

Five cross-cutting themes emerged from the working groups, reflecting different types of barriers to a transition to just and sustainable transportation in Los Angeles:

1. **Decision-Making Processes:** how and why transportation agency staff and elected officials arrive at their decisions
2. **Institutional Effectiveness:** institutions' capacity to implement their intended policies and programs.
3. **Access and Public Space:** the factors that drive inclusion and exclusion from public space.
4. **Determinants of Individual Behavior:** cultural and other factors that influence individual behavior.
5. **Environment and Health:** consequences of the transportation system, particularly its effects on air quality and public health.

The *TRACtion* working groups generated an enormous quantity of research ideas which have only limited overlap with the types of questions commonly addressed in the annals of transportation research publications. The implicit message from the working groups is that in many areas of policy, sufficient credible, technical information already exists for agencies to make informed decisions. The most pertinent questions, then, relate to how and why these decisions are made, particularly when they perpetuate inequities and/or environmental degradation. Often, these questions call for interdisciplinary approaches that draw from public administration and political science.

At the same time, there are still many areas within transportation equity and sustainability research where fundamental knowledge gaps remain. Some are basic engineering questions about undervalued assets — such as inventorying the quality and extent of sidewalks. Others are the domain of psychology, sociology, and economics, such as street racing or gentrification induced by transportation investments.

Many of the priorities identified by working groups have national relevance, but others are more salient to the Los Angeles context. Los Angeles County is the most populous in the United States, the only major city on an active oil field, has 88 cities, and is bordered by three of the remaining 15 most populous counties in the country. Its scale, unique history, balkanization, and position relative to its neighbors makes it challenging to develop a consensus approach to transportation sustainability and equity.

The *TRACtion* working groups discussed, but did not prioritize, several themes often implored in state and federal calls for research proposals, especially traffic congestion, transportation infrastructure, and technology. In general, working group participants emphasized the desirability of use and effects of technology and infrastructure, rather than these subjects for their own sake. This could introduce new terrain for academics, as transportation researchers may have an opportunity to collaborate in more broad and unique ways to focus research more on changing hearts and minds, rather than infrastructure.

TRACtion: Introduction and Overview

A vast volume of excellent research on transportation and sustainability is published each year. In January 2023, more than 5,000 presentations were made at the largest conference in the field, the Transportation Research Board Annual meeting. The journal *Transportation Research* was established in 1967, with 24 articles published in its first year. Since then, that journal has divided itself into six separate journals from Part A (policy and practice) to Part F (traffic psychology and behavior). In the transportation field as a whole, 104 journals are counted by the Institute of Transportation Studies library at UC Berkeley.

At the same time as scholars produce this torrent of transportation research, progress towards an equitable, low-carbon transportation system in Southern California has been patchy at best. In some areas, substantial improvements have been made — most notably, emissions standards for new vehicles have dramatically reduced the region's legendary smog. But elsewhere, improvements have been noticeably absent. Motor vehicle crashes are the 4th leading cause of premature death in Los Angeles, and the 312 people killed in collisions in 2022 was the highest number since the turn of the century.[1]

A central goal of Transformative Research and Collaboration (*TRACtion*) is to harness the transportation research firehose to more directly address the challenges of environmental protection and social equity. *TRACtion* connects UCLA researchers and faculty with a wider network of community partners, public agencies, policy makers, and other public- and private-sector stakeholders, and aims to set a new agenda for transportation research.

A Partnership at UCLA and with the LA Community

The Sustainable Los Angeles Grand Challenge works across the UCLA campus to channel the university's expertise into transforming Los Angeles the world's most sustainable megacity by 2050. The UCLA Institute of Transportation Studies works to identify and fund policy-relevant transportation research. In doing this work, both organizations noticed that certain researchable questions important to community members were lost in a vast sea of transportation and sustainability scholarship.

It's rare for academia and community groups to focus on the same priorities at the same times without prior coordination. Even when researchers seek to work with communities, they may engage those groups on issues of interest to researchers but of marginal interest to the community group. And community groups sometimes come to researchers with interesting questions, but at times when the researchers are ill-resourced to address them. There are power dynamics at play here too; needs for funding may push community groups into research collaborations that ultimately require more capacity than they have available.

TRACtion is a new approach to community-researcher collaboration that seeks to match the University's academic expertise with the wisdom and perspectives of community groups and advocacy organizations. It is a partnership between the Sustainable LA Grand Challenge (SLAGC) and UCLA Institute of Transportation Studies (ITS). The two organizations recognized a common goal of understanding transportation sustainability and equity challenges facing Los Angeles, and designed *TRACtion* to connect University researchers and faculty with community partners. *TRACtion* aims to create a deeper, shared understanding of transportation sustainability and equity challenges facing Los Angeles and the opportunities to address them.

1 UCLA Clinical and Translational Sciences Institute. Top 10 Causes of Premature Death https://ctsi.ucla.edu/overview/pages/top10; Los Angeles Times, January 14, 2023.

The partners' goals with *TRACtion* are to:

1. encourage cross-sector knowledge transmission;
2. co-develop use-inspired research agendas;
3. mobilize UCLA knowledge and innovations to accelerate impact in the region;
4. illuminate the scale and complexity of transportation challenges and the multidisciplinary nature of their solutions; and
5. create an overarching research agenda or framework to illustrate how individual research projects can make an incremental contribution toward closing critical transportation sustainability and equity knowledge gaps.

Research has undergirded many of the important advances in transportation sustainability in Los Angeles. At Caltech, experiments by chemistry professor Arie Jan Haagen Smit[2] were instrumental in attributing the region's pervasive smog to tailpipe emissions from motor vehicles. More recently, decades of research by UCLA professor Donald Shoup[3] helped bring about state legislation to eliminate minimum parking requirements — which impede housing affordability and fuel car ownership and travel — close to public transit.

In some cases, transportation research might provide practical guidance that informs the policies that elected officials and community-based organizations and advocates are exploring and championing. For example, how does street design affect extreme heat? How do protected bike lanes get more people safely riding their bikes? Such research is often funded by state and federal agencies, and in some cases by regional and local organizations too.

But transportation research can also change the discourse and the sense of possibility, pushing decision makers out of their comfort zones. This type of reimagining may not be a high research funding priority for transportation agency or city staff. But it may speak more directly to the issues faced by those — disproportionately low-income people and people of color — who bear the brunt of air pollution, dangerous streets, and slow or infrequent transit service.

For this reason, the core of the *TRACtion* process consisted of five working groups with members drawn from both the UCLA research community — faculty and staff — and community-based organizations and advocates. Working groups were charged with identifying key issues, research gaps and barriers to a "just transition" for transportation, via the process described in detail in the remainder of this report.

TRACtion can best be understood as a needed exercise in reverse research translation. Rather than simply taking ideas from academia and translating them to make the results relevant to communities and government agencies, which implies a level of distance from community, *TRACtion* also seeks to identify and integrate research ideas that originate with community-based thinkers and develop them into cross-disciplinary, scholarly projects.

This proactive, systematic approach is a necessary foundation for meaningful future community collaborations. *TRACtion* aims to establish patterns of collaboration that go beyond extraction, and to advocate for funding and other resources that would permit meaningful participatory engagement with community and advocacy groups.

2 Including the influential Haagen-Smit, A. J. (1964). The control of air pollution. *Scientific American*, 210(1), 24-31.

3 Much of this work is synthesized in Donald Shoup (2005). The High Cost of Free Parking. Planners Press.

Gaps in Understanding

Before embarking on a new research program, a foundational question is, "What are the gaps in our understanding of the field?" Researchers, policymakers, and community groups are likely to have different views as to what constitutes a "gap" in transportation research. And the nature of the gap informs the appropriate way to bridge it — in some cases, a major research study, but in other cases, a simple telephone call or a briefing for policymakers. This first phase of *TRACtion*, therefore, seeks to identify and assess the gaps between current transportation systems and practices in Los Angeles County and what would make them more sustainable. The *TRACtion* team developed the following categories to facilitate discussion and acknowledge the variation in how different types of gaps are approached.

Knowledge Gaps

Knowledge gaps in policymaking occur when decision-makers lack relevant knowledge that would inform their decisions. Of course, not every policy issue results from a knowledge gap, and not all knowledge gaps require new research to address — there may be an existing body of evidence with which policymakers are unfamiliar. Some knowledge gaps can be closed with education: a productive conversation between decision-makers and university-based experts. The challenge is relational and logistical: connecting the right people at the right time.

Other knowledge gaps can be closed with limited new work: an issue brief that synthesizes existing literature or the translation of prior research to a current context. A sustainable community-academia infrastructure is vital to bringing community knowledge into research and resulting policy recommendations, so *TRACtion*'s work will be relevant. Some policy challenges include epistemological uncertainty that requires new research to address. Identifying critical knowledge gaps impacting policymaking is also attractive to funders and the resulting work can be high-impact to academics and civic partners.

Political and Values Gaps

Many gaps in policy development and implementation don't result from knowledge gaps. Addressing such gaps with new academic research without acknowledging the political and social dimensions often leads to frustration by both academics and external parties. Values gaps occur when people lack consensus over the government's adopted goals and objectives. Political gaps occur when decision-makers agree on values but think the economic or political costs of a course of action are too high. In many instances, research based in political science, sociology, psychology and other fields can illuminate these gaps and a path forward.

Advocacy groups and community-based organizations are on the front lines of addressing political and values gaps. Academics can also play a role in addressing gaps that don't arise from knowledge deficits: by supporting advocates and policymakers with helpful research, taking a public position through op-eds or media engagement, or teaching content related to contentious issues.

About this Report

This Synthesis Report is an interim report that documents the *TRACtion* research development process to date. It aims to:

1. Summarize the working group process and document the groups' discussions and decisions;
2. Communicate the work of the Working Groups to external audiences, setting the stage for discussions with a broader group that includes government staff, elected officials, and potential research funders; and

3. Communicate research and political gaps identified by the working groups to academic and non-academic audiences who are not focused on transportation, but whose expertise and experiences may position them to engage with this work more closely.

Given these goals, this Synthesis Report reflects the discussions and decisions of the Working Groups with intentionally minimal analysis and interpretation by UCLA authors. To the extent that this analysis is included in this report, it aims to translate the ideas of working group members into researchable questions, and can be found in the Synthesis and Conclusions sections.

The *TRACtion* Working Groups

Five working groups consisting of UCLA faculty, researchers, and community partners provided the engine behind TRACtion. The working group process was designed to facilitate in-depth discussions on the topics that were of particular interest to members, and foster an environment of trust. The working group activity, however, is also nested in a broader series of events, summarized in Figure 1.

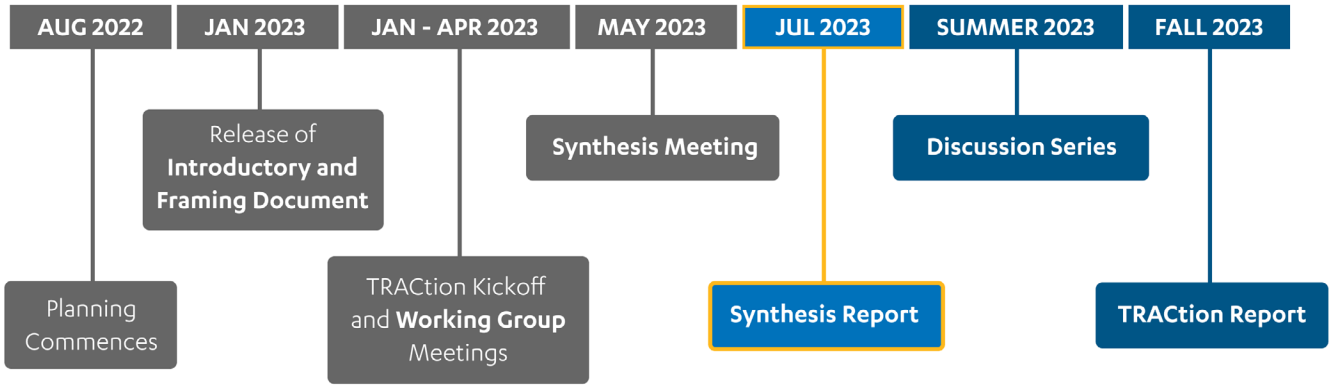

Figure 1: Process Overview

Introductory and Framing Document

TRACtion: An Introduction[4] was released in January 2023 to frame some of the key issues that *TRACtion* would consider. This internal document provided a high-level summary of transportation challenges that are likely central to a transition to just and sustainable transportation. To highlight just three:

- Motor vehicle crashes are the 4th leading cause of premature death in Los Angeles;
- Petroleum refining and transportation use in Los Angeles create air quality impacts that disproportionately burden low-income communities with concentrations of people of color; and
- Greenhouse gas emissions from transportation make up 38% of statewide emissions.

The document also provides a summary of state and local transportation visions, goals, and objectives that are particularly relevant for a transition to just and sustainable transportation.

TRACtion Kickoff

TRACtion kicked off on January 26, 2023 when participants first came together in person at UCLA for a half-day of speakers, discussions, and relationship-building. The day began with an introduction to *TRACtion* and overview of the process, followed by a panel on "The Future of Transportation in Los Angeles." Panelists Laura Raymond (ACT-LA), Richard France (Estolano Advisors and UC ITS and UCLA ITS Advisory Boards), and Justine Johnson (Urban Movement Labs) discussed the strengths and weaknesses of transportation policy and planning in Los Angeles, and where change is needed. They also spoke on the role of research in supporting an equitable transition to sustainable transportation, and fielded questions from the audience. In addition to the panel, keynote speaker Toks Omishakin, Secretary of the California State Transportation

4 TRACtion: An Introduction. (2023) Available at https://bit.ly/TRACtionIntroduction

Agency, spoke on California's vision for the future of transportation, and UCLA Executive Vice Chancellor and Provost Darnell Hunt gave remarks on UCLA's perspective regarding transformative research and transportation.

Working Group Topics

Participants split out into working groups based on five main topic areas, defined as follows:

- **Phasing Out Fossil Fuels:** addressing environmental injustice and mitigating climate change, as well as mitigating unintended consequences of transitioning away from fossil fuels.
- **Access to Opportunities:** how to meet mobility needs for low-income communities, communities of color, and different age groups.
- **Reimagining Transportation:** addressing the problem of sociocultural values and ways of understanding from which transportation-related harm can arise, as well as the lack of imagination or bureaucratic/administrative capacity to deliver on ambitious transportation goals.
- **Resilient Transportation:** how to address the vulnerabilities and fragility present in the existing transportation system, including the ways that car culture and social infrastructure affect resilience. The group's use of the term "resilience" included resilience in the context of climate change but also went beyond it.
- **Safe and Healthy Transportation:** including safety issues for vulnerable roadway users as well as gender and racial discrimination in transportation spaces.

Group Composition and Formation

Each of the working groups was composed of UCLA academic researchers and external partners from community-based and advocacy organizations. In order to allow for more candid conversation, the involvement of public agencies and private-sector organizations was deferred to the series of discussions in Summer and Fall 2023 that will follow this Synthesis Report. Historically, the field of transportation research has relied on government and industry stakeholders to identify priority areas for research, which has contributed to inequities in who receives the benefits and bears the burdens of transportation systems.

Suggestions of possible external partners were solicited from core ITS faculty and researchers who had collaborated or worked with community-based or advocacy organizations. Criteria for external partners in this phase of *TRACtion* included working or volunteering with an organization that has an active presence and does the majority of its work in Los Angeles County. After collecting suggestions, the moderators screened and prioritized invitations to external partners. Twenty-six invitations were extended between November 2022 and February 2023, of which 17 were accepted. External partners were assigned to a group in order to balance external partner participation between groups.

UCLA faculty and researchers were given an open invitation to participate. Information about *TRACtion*'s kickoff and how to sign up for working groups was communicated through email to the 90-member UCLA ITS faculty and researcher email list, as well as to all UCLA academic personnel via a campus-wide Bruin Post. SLAGC maintained an on-boarding form for individuals who wanted to participate or learn more. UCLA faculty and researchers self-selected which working group to join based on their research interests.

There was some reshuffling of working group members after Meeting 1, as the scope of each group became better defined. Allowing the working group participants to collectively set their group's scope of discussion granted groups discretion and demonstrated the permissiveness of self-determination rather than to assume the initial scoping definitions set by *TRACtion* staff. This was important in signaling to participants that they would be able to discuss, negotiate, and set priorities independently from their perception of what organizers might expect.

Charge and Process

Each of the working groups was given the following charge:

1. Further scope and define their theme;
2. Engage in discussion to determine the important barriers and solutions within the working group's theme for a just transportation transition in Los Angeles;
3. Identify knowledge, political, and values gaps or barriers between today and a transformed future;
4. Begin to identify research questions that might flow from these gaps; and
5. Assess and prioritize these gaps or barriers.

Each of the working groups convened four times between January and April 2023, followed by an all-group synthesis meeting in May 2023 (Figure 2).

To assist each working group in this charge, each was supported by a research member of the *TRACtion* team with knowledge of topics being discussed who served as an expert moderator, a trained facilitator who encouraged and balanced participation while managing engagement processes, a graduate student researcher, and one or more notetakers.

To facilitate working group communications and information sharing, the *TRACtion* team established email lists for each working group and a login-required website for the working group process. Working group members could communicate with each other between meetings via these email lists, though the *TRACtion* team generally used the list to disseminate information about upcoming meetings and notes from prior meetings. Working group moderators distributed meeting notes and research memoranda prepared by *TRACtion* graduate student researchers and notetakers via email lists and the login-required website between meetings.

Meeting 1	Meeting 2	Meeting 3	Meeting 4	Synthesis Meeting
Introductions and Scoping • Working group participant introductions • Each group discussed scoping decisions	**Brainstorming** • Introduce the gaps assessment framework • Identify barriers or gaps to achieving future vision	**Classifying Barriers** • Revisit gaps from meeting 2 • Discuss and classify gaps or barriers as knowledge, political, or values	**Prioritization** • Revisit progress from meetings 1-3 • Propose new barriers • Prioritize barriers identified in previous meetings	**Intersections** • All groups meet jointly to identify and discuss cross-cutting themes and priorities

Figure 2: Working Group Process

Meeting 1

The first working group meeting took place in person, with all groups meeting simultaneously. The objective was to allow participants to get to know each other, set the scope of discussion within their respective working groups, and have broad conversations about challenges in transportation.

In the week between meetings 1 and 2, the *TRACtion* team met to discuss each working group's notes and bottom-up scoping discussions. This helped the team further describe each group's topical scopes to assist participants in identifying

the group whose discussions would be most applicable to their research or advocacy interests. UCLA researchers were encouraged to review the revised group descriptions and consider changing groups.

As an example, health impacts from transportation-related emissions and toxins were included within the original scope of Safe and Healthy Transportation. However, working group participants with an interest in these topics saw these impacts as strongly linked to fossil fuels infrastructure and use. Participants with these interests moved to the Phasing out Fossil Fuels working group. One external participant previously assigned to the Safe and Healthy Transportation Group was reassigned to the Phasing out Fossil Fuels working group.

Meeting 2

Each working group met separately, via Zoom, for their second meeting. Each meeting began with introductions and expectations for any newcomers to each working group, and then launched into open-ended discussion of barriers and research gaps related to each working group's themes.

After Meeting 2 graduate student researchers met with the moderators, who were researchers knowledgeable about working group topics, to identify working group questions which could be addressed through quick-turnaround research and memoranda. Graduate student researchers produced short memoranda in response to these areas of inquiry. One memo prepared in advance of Meeting 3 of the Phasing out Fossil Fuels working group included information with citations on low-cost air quality monitors, locations of regulatory air quality monitors, and life-cycle assessments involving the extraction and production of energy storage for electric vehicles and emissions impacts from tire and brake wear.

Moderators and researchers reviewed notes from each working group meeting and placed ideas of potential barriers to just and sustainable transportation in Los Angeles County into a Jamboard for each working group in advance of Meeting 3.

Meeting 3

In the third meeting, graduate student researchers presented a high-level overview of their research memoranda to familiarize all participants with its contents. This meeting used the online visualization tool Jamboard (Figure 3) to continue identifying and refining barriers and research gaps related to their group's topic. Jamboard allowed for the visualization of ideas within emerging themes or overarching topic areas. The working groups also began using a gaps-assessment framework to differentiate between knowledge gaps, political gaps, and values gaps (as discussed in the Introduction to this report).

Meeting 3 brought thematic structure to the ideas identified in Meeting 2's brainstorming session. With this additional scaffolding for soliciting participant contributions, the *TRACtion* team noticed that the volume of ideas and comments that working group members were able to share within a meeting was constrained by what could be shared orally in a 2-hour meeting and the fairly limited features of the Jamboard tool.

While the Jamboard tool allowed collective contribution and visualization of sticky notes, it did not allow for commentary, annotations, or voting on a particular sticky note. Working group members would have to add nuance and context orally, in sequence, to voice their reactions to a particular note. Seeking a collaboration tool with additional features for concurrent or parallel feedback, the *TRACtion* team migrated ideas and themes into a LucidSpark board for each working group in advance of Meeting 3.

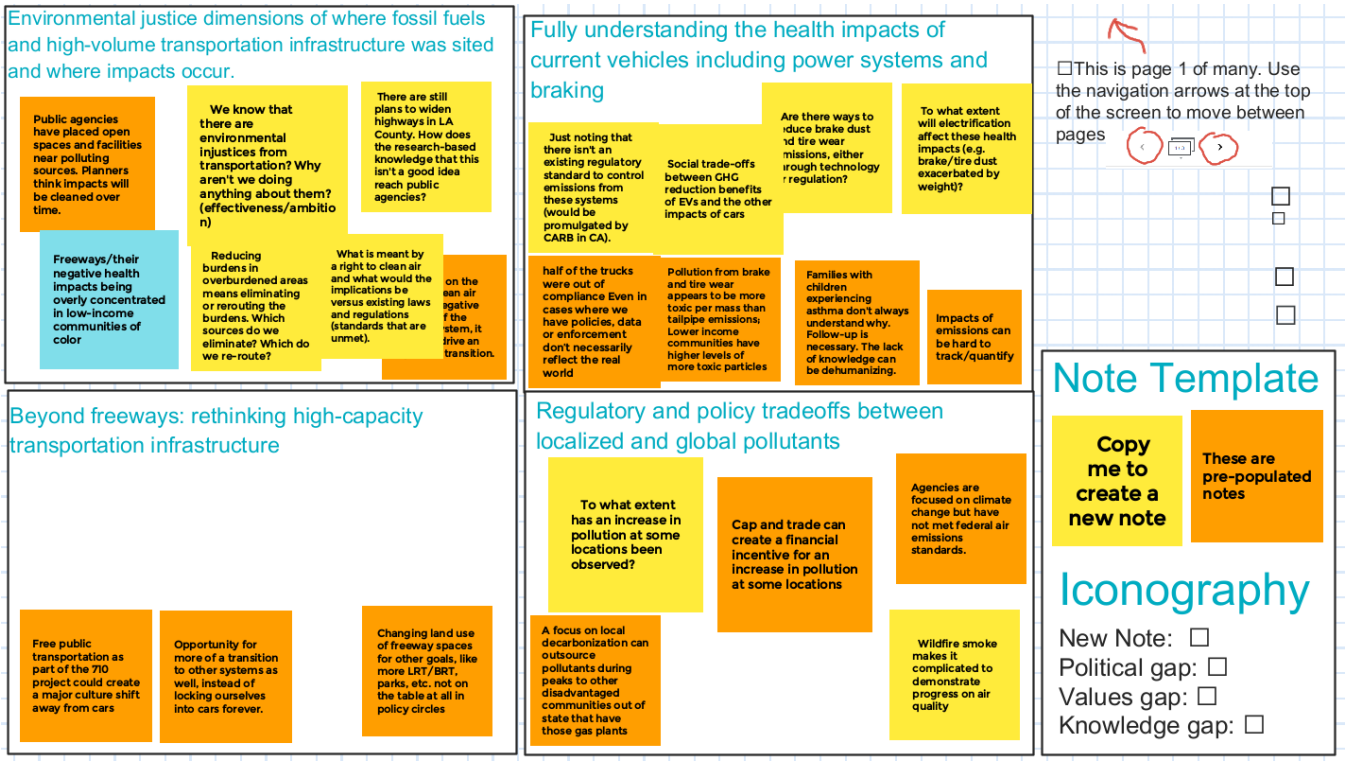

Figure 3: Sample Jamboard Board

Meeting 4

In the fourth meeting, working group members continued the identification of barriers and research gaps from Meeting 3. Time permitting, they also reviewed and rephrased barriers and research questions, and prioritized them through an informal voting process. This meeting used the LucidSpark visual collaboration tool — similar to Jamboard, but with additional annotation and prioritization functions (Figure 4).

This prioritization informed the summary documents developed between Meetings 4 and 5. The summary documents were written by the *TRACtion* team to record the discussions and emerging priorities from the working groups, and were reviewed by at least one external partner from each working group and distributed to all working group members in advance of the Synthesis meeting.

In the month after Meeting 4 and before the Synthesis meeting, the *TRACtion* team made a first attempt to organize barriers from multiple working groups along cross-cutting themes. This served two purposes: 1) to introduce the barriers identified by each working group to the other working groups by clustering barriers that were similar or involved similar ways of knowing within cross-cutting categories; and 2) to begin to translate the barriers into established academic fields.

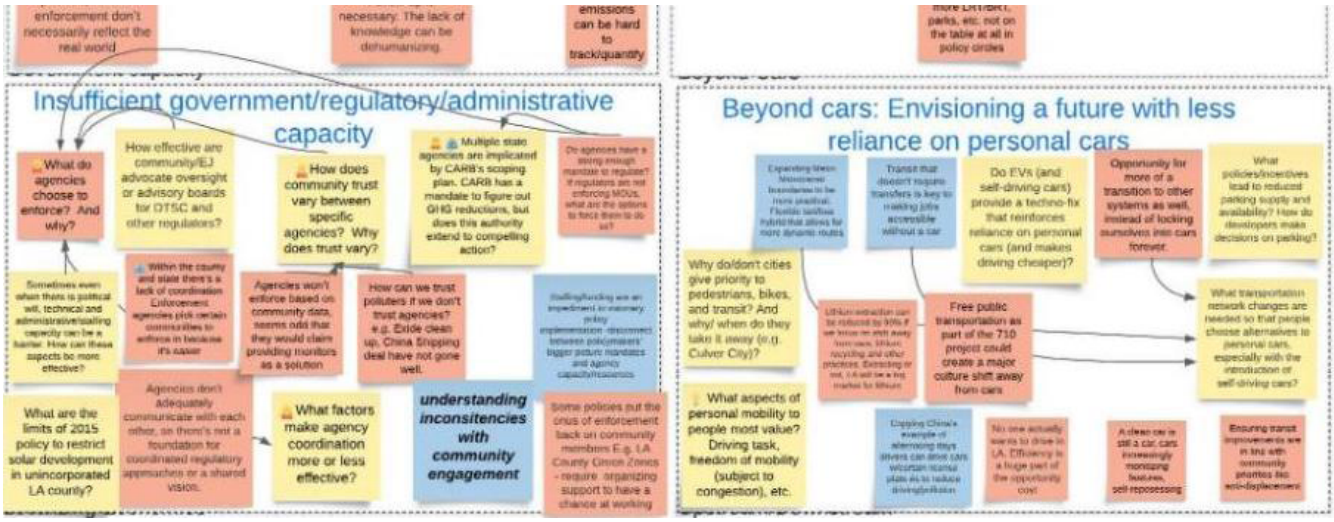

Figure 4: Excerpt from Sample LucidSpark Board

Meeting 5 (Synthesis Meeting)

The final working group meeting was held in person at UCLA, and provided an opportunity for working group members to reconvene as one large group. Working group members were invited to share ideas, identify any new priorities, and talk about next steps. The convening began with a talk and discussion led by guest speaker Mimi Sheller, a prominent mobility justice scholar who is the Dean of The Global School at Worcester Polytechnic Institute in Massachusetts.

Mimi Sheller's talk related mobility justice theory and research to priority ideas that emerged from each working group during Meetings 1-4. After the talk, working group members ate lunch together and reconnected and reflected on Mimi Scheller's talk (see Figure 5).

After lunch, the working group members split back out into their groups to discuss cross-cutting barriers and priorities, and locate them within an emerging set of themes using sticky notes on a large whiteboard. *TRACtion* staff introduced the cross-cutting themes identified in advance of this meeting in order to facilitate ground-truthing, spark additional insight relevant to each theme, and begin locating participants' priorities within these themes. Shifting the discussion to this framework allowed the working groups to illuminate the ways that interdisciplinary research that engages non-transportation fields can help address transportation's most pressing problems. The aim was to provide prompts as a structure, but to be open to amendment and new themes as identified by participants. These themes are discussed in detail in the subsequent section, "Synthesis and Cross-Cutting Themes."

Figure 5: Mimi Sheller's talk on Mobility Justice (from Left to Right: Participants interacting with a matrix, speaker Mimi Sheller, and participants having lunch.

Sheller addressed the *TRACtion* working group participants, reflecting on the *TRACtion* mission of bringing together community leaders and academic researchers on the topic of transportation planning. In her talk, Sheller emphasized the need for a culture shift within transportation planning, funding, and decision-making, which the working groups demonstrated through their prioritization of lived experience. Sheller commended the *TRACtion* working groups for including "human infrastructure" in their analyses, instead of relying solely on technological and infrastructural fixes.

In response to questions about applying the mobility justice framework to policy decisions and everyday life outside of academia, Sheller noted its ability to facilitate broad political coalitions. "Mobility justice looks at not just the person moving from point A to point B, but the whole community of human and non-human entities and beings. [A mobility justice framework] would call in a bigger group of people from wider issues and maybe start the conversation a little differently."

- Excerpt by Jo Dine

Summary of Working Group Findings

The following sub-sections summarize the findings of each working group separately, by topic, highlighting both the themes and, in some cases, specific research questions that arose. We observed that many themes surfaced in more than one working group, and these cross-cutting themes are analyzed in the subsequent section.

Full summaries for each working group's activities and discussions appear in the appendix.

Phasing Out Fossil Fuels

Background and Scope

The Phasing Out Fossil Fuels working group was tasked with identifying and prioritizing barriers to the creation of an equitable, fossil-free transportation system in Los Angeles. The group was composed of advocates with diverse backgrounds in environmental justice, energy, and transportation advocacy, as well as UCLA researchers. Across the five working group meetings, the group members pulled from their experiences and varied areas of expertise to identify, discuss, refine, and prioritize barriers to clean, equitable transportation in Los Angeles.

Primary Themes Discussed

Several primary themes emerged from the group's conversations, including environmental justice and impacts of fossil fuel infrastructure and pollution (particularly related to freight), who will benefit from decarbonization and who could be harmed, and government capacity and incentives (particularly related to regulation and enforcement). The group also emphasized the importance of focusing on community building and reducing consumption, which will result in fewer goods being transported long distances, and highlighted the urgency of electrifying freight corridors. Ultimately, the group envisioned a future where we move beyond dependence on cars and freeways towards alternative, more equitable modes of transportation.

The group prioritized barriers and research questions related to changing incentives to reduce reliance on personal cars, understanding why action is not taken on environmental injustices from transportation, and making decisions around trade-offs when it comes to reducing environmental burdens. They also prioritized questions about the impacts of electrification and transitioning to clean energy, how pro-fossil fuels economic interests influence decision makers, and barriers to electrifying freight (particularly for smaller or independent operators). Finally, the group elevated research questions around agency effectiveness and community oversight.

Access to Opportunities

Background and Scope

The Access to Opportunities Working Group was charged with identifying and prioritizing barriers to the creation of a transportation system in Los Angeles that enhances people's ability to access jobs, services, and other needs and that does so equitably. The working group members included representatives from the community-based organizations, as well as UCLA faculty and staff with expertise in transportation research. Over the course of five working group meetings, the group discussed and prioritized unmet transportation access needs, potential solutions, and underlying barriers that have prevented the implementation of policies and programs grounded in communities' needs.

Primary Themes Discussed

The group upheld improving public transit service quality as the highest priority for creating access to opportunity, and stressed the importance of focusing on ensuring that everyone has an equal ability to access services over focusing on the integration of new technologies and innovations that leave some people behind and may not address communities' fundamental needs. The importance of centering current riders also emerged as a major theme. Centering current riders requires reversing historical patterns of decision-making and technological adoption that have prioritized some riders' ease and comfort at the expense of others, increasing the use of qualitative data and narrative-building, and recognizing that communities often already have the solutions to their problems.

Creating access to public transportation requires holistic efforts that directly address barriers to *physical access* (including issues related to safety, stop locations and amenities, and sidewalk conditions), *economic access* (including issues related to financial barriers and the needs of cash-paying riders), and *informational access* (including issues related to language and technological barriers). The group viewed elevating and building on current advocacy efforts related to providing fareless transit and transforming approaches to safety[5] in transit environments as particularly high priority areas of improving access to transit.

5 ACT LA. (2022). "Metro as a Sanctuary: reimagining Safety on Public Transit." https://www.act-la.org/wp-content/uploads/2022/01/Metro-as-a-Sanctuary-ACT-LA.pdf

Additionally, the group discussed the theme of public transit management that could facilitate improvements to transit service quality and access. Broadly, areas discussed include the need to improve the *working conditions of frontline workers* at public transit agencies, as well as agency *decision-making* processes, *inter-agency coordination*, and *data and metrics*. The group's priorities, which emerged through voting exercises, reflected a belief that the most important research questions related to transportation management are those that are oriented towards producing actionable information that helps improve access to high quality public transit services.

Reimagining Transportation

Background and Scope

The Reimagining Transportation working group was tasked with discussing the gaps and barriers associated with transitioning our transportation systems away from car-centricity. Overarching themes consisted of themes like power dynamics and public decision-making processes, government agency accountability and efficacy, transportation agency culture and public engagement, public space, and more.

Primary Themes Discussed

The group focused around several themes of discussion. Principally, the historical and political choices to design infrastructure for cars over all other modes of transportation permeated much of the discussion in this group. Participants noted that how and why people use cars in Los Angeles is often taken for granted, but there isn't a large body of research on this theme. Group members discussed how cars can contract public interactions, shrink public space, and put vulnerable road and sidewalk users in danger.

Additionally, issues of racism, classism, patriarchy and other marginalization were discussed as a central theme. This group detailed how different communities have vastly different experiences with transportation modes and transportation infrastructure and how this is shaped by transportation policies and culture informed by marginalizing forces. There was also discussion about how more privileged Angelenos (typically White, older homeowners) are able to co-opt decision-making processes in their favor. Beyond uneven political influence, there was also a broader discussion regarding how highly technical knowledge is often presented to community members in community engagement processes in the form of choices, and that this presentation can often obfuscate what the outcomes of different options might be.

These dynamics were discussed under the theme of government agency accountability, culture, and efficacy as well. Participants noted that low trust and past harms committed by governments at all levels are barriers to progress. Participants also discussed how agency culture may influence outcomes in transportation, and the criticality of agency capacity and accountability in achieving any significant change in transportation policy and infrastructure. Ultimately, this group recommended taking a holistic perspective on power, culture, and government to better understand how we can reimagine transportation in a way that advances transportation justice.

Resilient Transportation

Background and Scope

The Resilient Transportation Working Group was tasked with identifying and prioritizing barriers to the creation of a resilient transportation system in Los Angeles, one that would be prepared for the effects of climate change and other hazards. The group grappled with how to define resilience, asking what it means to be resilient - resilient to what, resilient for whom, and at what time scales.

Primary Themes Discussed

Throughout the five working group meetings, several themes stood out as particularly important. One was recognizing the harm of private vehicle travel, and the need to redirect public funds from subsidizing vehicle travel (by building and maintaining highways, for example) towards supporting a multi-modal transportation system that is accessible and human-centered. Another theme that emerged was the need for transportation infrastructure that is adaptive to the effects of climate change, in particular extreme heat and rain.

Group members also emphasized that human and social connectivity is a core aspect of resilience, and envisioned a transportation system characterized by vibrant public spaces. Discussions within this theme were focused on themes like the need for transportation design that values lived experience, is responsive to people's needs, and strengthens social infrastructure.

Specific barriers that the group members focused on were the culture of car dependency and the lack of equitable and transparent approaches for funding allocation, modeling, and project design. The group prioritized several diverse research questions related to: 1) designing messaging and educational campaigns to promote active transportation, 2) understanding how to design adaptable and accessible multimodal transportation, 3) examples of how human-powered and pedestrian mobility can be adapted in response extreme weather, 4) developing resilience and equity metrics for transportation project design and selection, and 5) analysis on how to re-balance priorities and funding for transportation.

Safe and Healthy Transportation

Background and Scope

The Safe and Healthy Transportation Working Group was tasked with identifying and prioritizing gender, racial, and modal dimensions of people's safety when using transportation systems. The group was originally called the "Healthy Transportation" group, but as conversations continued, they ultimately decided that "Safe and Healthy Transportation" better encapsulated the issues they felt were most important.

Primary Themes Discussed

Ultimately, the group narrowed their scope to thinking about 1) physical safety from traffic violence; 2) physical safety and psychological safety from traditional transportation enforcement approaches; and 3) transportation as a social determinant of health.

A major theme for this group was a concern about how data is gathered and who is considered an "expert" in research processes. A recurring theme was the need to support frontline communities in ensuring that government policy and decision making centers their expertise as those most directly impacted by the unsafe and unhealthy impacts of transportation systems. The group was most excited by ideas about how research can be deployed and shaped by these communities.

Within the theme of improving traffic safety and reducing traffic violence, the participants noted that gaps include 1) understanding why certain cities are successfully implementing the Vision Zero campaign and other cities are not; 2) lack of accountability and transparency of public decision-making processes; 3) the lack of safety around houses of worship in low-income communities of color; and 4) the need for a better understanding of how society views and understands road-based safety issues.

For the theme of traditional transportation, participants highlighted a need for more research on whether there is a "right" way to reform transportation policing and traffic enforcement that is equitable and effective; the shift away from traffic speed enforcement towards a safe systems approach; and better understanding of why there has been a recent expansion in street racing and aggressive driving behaviors.

Finally, the group expressed a desire to see more research on transportation as a social determinant of health with a focus on addressing several related gaps (e.g the lack of safe, inclusive opportunities for people to walk, bike and use transit in historically disinvested communities).

Synthesis and Cross-Cutting Themes

Five cross-cutting themes emerged from the working groups, reflecting different types of barriers to a transition to just and sustainable transportation in Los Angeles:

1. **Decision-Making Processes:** how and why transportation agency staff and elected officials arrive at their decisions.
2. **Institutional Effectiveness:** institutions' capacity to implement their intended policies and programs.
3. **Access and Public Space:** the factors that drive inclusion and exclusion from public space.
4. **Determinants of Individual Behavior:** cultural and other factors that influence individual behavior.
5. **Environment and Health:** consequences of the transportation system, particularly its effects on air quality and public health.

The identification and refinement of these themes was an iterative process. Prior to the working group synthesis meeting (#5), *TRACtion* staff reviewed and analyzed the barriers that had been identified during the previous meetings and identified an initial list of cross-cutting themes that connected priorities identified across all of the working groups.

In this iterative process, one initially identified theme — on the benefits of technology — was dropped and replaced by "Environment and Health," in order to capture issues and research questions on the downstream effects of the transportation system. Other initially identified themes were revised. For example, "Social Factors and Mobility" was renamed "Access and Public Space," in part to elevate the understanding of transportation space as public space.

The remainder of this section discusses the synthesized themes in detail, in the form of a short summary and an accompanying table. Each table divides each theme into a series of sub-themes, with associated areas of research that represent an effort by TRACtion staff to identify the broader research areas that unify the specific issues, normative claims, and researchable questions that emerged from the working groups. Note that these identified areas of research were not necessarily directly contributed to by working group members. Moreover, these areas are in no way exhaustive; in general, omission of a question or research topic may depend on the perspectives of the specific individuals who participated in the working groups as well as the importance of that question or topic. Please see Appendix 6 for tables that contains the original working group statements that were translated into these potential areas of research.

Decision-Making Processes

This theme covers the decision-making processes within institutions. Broadly, this relates to factors that support or prevent institutions from making decisions (including policies, programs, etc.) that would support the creation of a just transportation system in Los Angeles. This theme covers barriers associated with who has power in decision-making processes; what is valued, measured, and optimized through decision-making processes; how decisions about trade-offs are made; and how accountability within processes can be improved.

Sub-theme	Potential Areas for Research
Beneficiaries of staus quo	Understanding the ways in which beneficiaries of fossil fuel extraction and dependence influence public opinion and the opinions of decision makers, and how those actors influence academic research. Investigating reasons why some jurisdictions are influenced to prioritize cars and others are not.
Better modeling and metrics	Identifying metrics and models for transportation planning and engineering better adapt to capture important factors like social equity, long term resilience, and life cycle impacts.
Centering people instead of infrastructure	Understanding how transportation agencies incorporate lived experiences and a people/services focused perspective in their decision-making processes.
Criminological approach to safety	Investigating the frameworks decision-makers use to think about increasing safety in transportation environments, and the consequences of a policing-centric approach to safety on transit.
Data gaps	What cost-effective and scalable methods exist to capture qualitative community data, inventory and assess the quality of infrastructure such as sidewalks, and to fill community-defined data gaps?
Educating/convincing public officials	Providing insight on how policymakers form their opinions on transportation and how those opinions are influenced by different actors and stakeholders.
Funding priorities	Investigating transportation finance or budgeting reforms to more equitably distribute money between modes and within modes (i.e., shifting money from capital expenses to operational expenses within transit). Understanding financial decision-making at the bureaucratic level (e.g. when and why do agencies leave federal/state money on the table?).
Influence on private decision-makers	Understanding the factors that influence firms and other private decision-makers in their thinking about transportation issues (e.g. clean trucks, reducing parking).
Repairing harms from injustices	Investigating and working to form a policy framework for reparations in transportation. Understanding how to quantify harms, authentically ascertain community demands, and implement community demands for reparations.
Transition to clean infrastructure	Work towards a better understanding of energy transition trade-offs, and how a transition will affect issues like labor, equity, public health, and energy sources.

Institutional Effectiveness

This theme covers institutions' capacity to implement their intended policies and programs. This theme is differentiated from "Decision-Making Processes" because it concerns institutions' ability to effectively implement priorities that emerge from decision-making processes. This theme covers sub-themes like institutional capacity, inter-agency coordination, and trust between people and government.

Sub-theme	Potential Areas for Research
Accountability	Researching and evaluating existing models for agency accountability that empower marginalized communities, and what these models need to succeed.
Agency priorities	Understanding the core components that successful long-term programs and infrastructure plans have in common, and how they survive transfers of power.
Community- driven decisions	Identifying examples of public engagement that allow people to express their desired outcomes, without the need to weigh in on engineering-level decisions or have a high degree of expertise. Investigating what agencies would need to accomplish deeper community engagement.
Community trust	Investigating how trust in government varies across transportation agencies and levels of government. Researching ways community-government relations have been repaired and strengthened in the past.
Inter-agency coordination	Understanding how complex transportation organization structures can improve and/or consolidate. Investigating how solutions such as consolidation of many agencies or operators worked in practice. Identifying best practices from different jurisdictions for inter-agency coordination.
Legal constraints	Understanding the legal barriers that have the most impact on constraining policy and project implementation. Identifying potential reforms to planning or environmental review laws needed to enable collaborative planning approaches that more meaningfully engage communities.
Management approaches	Understanding the barriers to hiring and retaining staff in transportation, considering not only compensation but issues like safety, benefits, housing availability, and access to public bathrooms.
Staff knowledge	Understanding the personal perspectives and views of agency staff and decision-makers, and to what extent these perspectives affect their decisions.

Access and Public Space

This theme covers the factors that drive inclusion and exclusion from public space. This theme is broad and considers transportation systems both as a way of accessing other public space, and as public space in and of itself. This theme contains many of the factors associated with racial capitalism and other systems of oppression that "determine" individual behavior by restricting mobility options. Additionally, it includes the politics and design of public spaces that can either build community resilience or reproduce exclusion.

Sub-theme	Potential Areas for Research
Accessibility	Understanding the relationship between multimodal transit and accessibility, and what impacts the prioritization of universal design and mobility services for people with disabilities.
Discrimination in policy and design	How to design public transit for people who have traditionally not been centered in transportation planning, and unintended consequences of policies and technological innovations that have focused on increasing comfort and ease of use for middle class "choice riders."
Fare payments	Potential benefits from and best practices for implementation of fareless transit, including co-benefits of fareless transit, potential revenue sources or funding models, the impact on safety and perceptions of safety, and opportunities for a transit agency to act as a public bank.
Safe systems approaches	Identifying root causes of stress and lack of safety in transportation environments, as well as positive interventions. This could include studying the holistic effects of police presence on transit, the effectiveness of positive safety solutions, impacts of different types of traffic enforcement, and alternatives to traffic stops.
Transit amenities	Understanding barriers to and strategies for providing more accurate and widespread information to riders about real-time arrivals and transit availability, as well as barriers/potential solutions to the lack of basic amenities at transit stops. This could include studying decision making processes and how to create cultural shifts within agencies.
Transportation- land use interaction	How to create a multi-racial, LA-context specific land-use regime that addresses mobility justice, gentrification, high housing costs and urban sprawl. This could include sources of community opposition to public transit in their neighborhoods, reducing housing costs in neighborhoods close to frequent public transit, and best practices from other city/metro areas.

Determinants of Individual Behavior

This theme covers cultural and other factors that influence individual behavior. While "Access and Public Space" is focused on the mobility choices available to individuals, this theme is focused on the drivers of choices made within those constraints. In particular, this theme is concerned with factors that influence car culture, aggressive and other unsafe driving behaviors, and other transportation choices.

Sub-theme	Potential Areas for Research
Aggressive driving	The psychology of street racing and best practices for addressing it. For example, what are effective interventions outside of enforcement?
Effects of extreme weather	Understanding how mobility behavior will change during the types of extreme weather events expected to increase in frequency in a climate-impacted Los Angeles, and identifying effective policy and planning responses.

Shifting car preferences	The incentive structure and psychology behind car culture, and strategies to shift mode choice towards more resilient options. This could include best practices for shifting an area away from car dependence, the effectiveness of nudge campaigns in shifting mode-choice, the influence of the built environment on car culture, disaggregated reasonings of different groups (e.g. gender, race, socioeconomic status) for driving, and the potential role of electric vehicle incentives in perpetuating car culture.

Environment and Health

This theme covers the ecological and health effects of the transportation system. This theme is primarily focused on the *consequences* of the transportation system, including its effects on air quality and public health.

Sub-theme	Potential Areas for Research
Compounding hazards	Identifying multi-hazard vulnerabilities in Los Angeles that could have the greatest impacts to the transportation system, and strategies to prepare for them.
Ecological & health inequities	How to motivate action on environmental justice and advance resilient, multimodal transportation focused on public health. This could include research on ethical or political considerations that may cause inadequate response to environmental justice impacts, public health impacts of different transit types and transit access, and transit funding allocation.
Non-emissions impacts	Understanding unintended consequences of the transition to electric and alternative-fuel vehicles, and how to mitigate them. This could include understanding sources of pollution that will continue to exist if heavy-duty vehicle tailpipe emissions are eliminated (such as particulate matter from brakes/tires), and how to make decisions about distributing or rerouting burdens. It could also include research related to the extent that incentivising electric vehicles could lock in car dependence and hinder a shift to transit, walking, and biking.
Resilient infrastructure	Analyzing how extreme weather will impact transportation demand and travel patterns as well as infrastructure, how prepared current systems are to handle extreme weather events, and how to design more resilient infrastructure. This includes topics like the role of green infrastructure in making rights of way more resilient to extreme heat and flooding, and the ways in which multi-modal transit can offer more adaptability than car-centric transportation.

Conclusions and Next Steps

The *TRACtion* working groups generated an enormous quantity of research ideas. The key issues and potentially researchable questions are summarized in the tables above, and even more are included in the appendix. Many of these questions and issues speak for themselves, and can be worth taking forward by researchers, community-focused research partnerships, or transportation agencies and elected officials. Overall, however, several core messages have emerged from the *TRACtion* process so far.

First, there is only limited overlap between the working group priorities and the types of questions that are commonly addressed in the pages of transportation academic journals and other research publications. This is particularly notable in regard to the themes of decision-making processes and institutional effectiveness. The implicit message from the working groups is that in many areas of policy, sufficient credible, technical information already exists for agencies to make informed decisions. The most pertinent questions, then, relate to how and why these decisions are made, particularly when they perpetuate inequities and/or environmental degradation. For example:

- How do agencies choose amongst enforcement priorities (for example with speeding cars and transit fare non-payment), and make decisions on issues such as right-of-way allocation?
- How do cities interpret and implement state-level mandates, such as California's 2022 legislation (AB 2097) that partially abolished parking minimums?
- What motivates policy makers?
- How does community trust vary between specific agencies? Why does trust vary?
- How does their lived experience using transportation services affect transportation planners' design, policy, and planning decisions?
- How effective is transportation research in influencing policymaker decisions, and what would make it more effective?

As two UK transportation academics point out in the context of discussions on road capacity expansion and induced travel, agencies often refer to "limited information" in order to avoid acting on research findings. "It is indeed strictly true that the evidence [on induced travel] is 'limited', in the sense that it is not unlimited," they point out. " But it is still substantial..."[6] In this type of setting, the working group findings imply that further technical research may not be a priority. Instead, interdisciplinary approaches that draw from public administration and political science may yield greater rewards.

Other themes were defined more broadly by the working groups than by traditional transportation research. For example, the working groups emphasized that transportation research related to safety must expand to critically consider enforcement approaches, determinants of behavior beyond design elements, and non-collision safety-related impacts that occur within transportation environments.

Second, there are still many areas where basic knowledge gaps remain. Some of these relate to engineering questions – cost-effective systems to inventory sidewalk quality, for example. Others are the domain of psychology, sociology, and economics. For example:

- What do we know about the psychology of street racing?
- How can public transit agencies best hire and retrain a sufficient number of bus operators?

6 Phil Goodwin and Lisa Hopkinson. 2023. "Induced traffic: yet again a worryingly overlooked dimension in crucial road planning and appraisal policy." TAPAS.network. 19 June, 2023. https://tapas.network/35/hopkinsongoodwin.php

- How can cities avoid the trap that improved transportation may lead to localized rent increases? Have any cities been able to make broader improvements to avoid a strong local amenity effect that fuels housing unaffordability in particular neighborhoods?

Third, some themes are notable by their absence amongst the working group priorities. Two themes that are central to many federal and state calls for research proposals, but attracted little attention from working group members, are traffic congestion and transportation infrastructure. Even within the resilience group, the focus was on use of infrastructure rather than the resilience of the infrastructure itself.

Another little-emphasized theme is technology. Throughout the working group process, participants highlighted the ways that technology can provide solutions to pressing transportation problems, but also highlighted the ways that it can create problems when pursued for the sake of novelty. This observation is consistent with a belief of many participants that research should prioritize the use of technology to address the priority areas mentioned throughout this report, rather than prioritizing it for its own sake. Indeed, some of the working groups singled out the potential unintended consequences of new technologies, such as the safety and emissions impacts of electric vehicles, whose greater weight amplifies the risk to pedestrians and increases particulate emissions from road and tire wear.

Fourth, some of the priorities from the working groups are of international or national relevance. Others, however, are more salient in the specific context of Southern California. For example, the region's high housing costs mean that income inequality also manifests in inequality in access to opportunities. Another example: Many people in the region are unbanked, which in turn affects the equity of fare payment systems such as TAP cards. Moreover, the localized nature of some priorities reflects the physical and economic geography of Southern California. Los Angeles lies on an oil field and there are more than 20,000 active and inactive oil wells in Los Angeles County.[7] And the region's polycentric urban structure, together with the existence of 88 independent cities within Los Angeles County alone, may balkanize decision making and make it hard to reach consensus on geographic priorities for transportation spending.

Finally, *TRACtion* is at heart a process to develop a community-driven research agenda for sustainable and equitable transportation. Many working group participants' priorities are related to *issues* that represent values gaps or political gaps between different groups of people. This leads us to another potential research question: How effective is transportation research in influencing policy-maker decisions? Additionally, fields traditionally viewed as separate from transportation studies like political science, social psychology, and sociology have emerged as important to organizations engaging in the work of addressing values and political gaps in transportation. Transportation researchers may have an opportunity to collaborate in more broad and unique ways to focus research more on changing hearts and minds, rather than infrastructure.

Future Phases

Over summer and Fall 2023, *TRACtion* staff, in collaboration with external partners, will work on developing the *TRACtion* Report, as well as conducting outreach to engage and mobilize regional stakeholders. The *TRACtion* report will build on this Synthesis Report, but will go beyond the direct findings of the working groups to provide more interpretation and analyses and incorporate perspectives from stakeholders that were not directly involved in the earlier phases of *TRACtion*. The main objectives of the final *TRACtion* report will be to:

7 City of Los Angeles, Oil Wells Inside LA County [dataset]. Accessed June 23, 2023. https://geohub.lacity.org/datasets/29f5d6391d0749a7ac59aacd40bb0846_6/about

- Summarize the landscape of sustainable transportation issues in Los Angeles;
- Summarize the working group process, and how *TRACtion* conceptualizes different types of research gaps;
- Convey the research gaps identified by the working groups; and
- Provide recommendations for next steps.

Stakeholder engagement efforts will center around an online discussion series that showcases outcomes from the working group meetings and *TRACtion* Synthesis Report.

Finally, the priorities that came out of the *TRACtion* process will be used to inform the investment of research funding at ITS and SLAGC. Both research organizations fund and support policy-relevant research at UCLA through targeted requests for research proposals and consultative services. Throughout the next academic year, *TRACtion* staff will also continue engagement with possible collaborators and funders to influence research priorities and investments beyond UCLA, and future decision making and implementation efforts of public and private sectors.

Appendix

Full Working Group Summaries and LucidSpark Boards.

1. Phasing Out Fossil Fuels
    A. Full Summary
    B. LucidSpark Board
2. Access to Opportunities
    A. Full Summary
    B. LucidSpark Board
3. Reimagining Transportation
    A. Full Summary
    B. LucidSpark Board
4. Resilient Transportation
    A. Full Summary
    B. LucidSpark Board
5. Safe and Healthy Transportation
    A. Full Summary
    B. LucidSpark Board
6. Full Summary of Participant comments

Summary Report: Phasing Out Fossil Fuels

Overview of the Working Group

The “Phasing Out Fossil Fuels” working group was tasked with identifying and prioritizing barriers to the creation of an equitable, fossil-free transportation system in Los Angeles. The group, which was composed of advocates with diverse backgrounds in environmental justice, energy, and transportation advocacy, as well as UCLA researchers, discussed how harmful the status quo is and identified barriers to creating an equitable system. Some had worked to reduce freight, facility, and freeway pollution in their communities, while others had worked on clean energy transition and energy decarbonization campaigns and research. They brought up questions like who benefits from decarbonization, and what health and labor impacts will come out of the transition from fossil fuels. The group envisioned a future where we do not rely on oil and gas for mobility within the region (and by extension, transition to clean energy fuel sources) and where we move beyond cars and freeways towards alternative modes of transportation.

Participant Acknowledgements

The following members of the Phasing Out Fossil Fuels Working Group contributed to the generation of this document through their participation in Working Group Meetings 1-4:

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Top Themes from Phasing Out Fossil-Fuels

The working group identified the following themes as highest priority within the topic of transitioning the Los Angeles transportation system away from fossil fuels:

- Beyond cars: Envisioning a future with less reliance on personal cars

- Environmental justice dimensions of where fossil fuels infrastructure and high-volume transportation facilities were sited and where impacts occur.
- Understand the upstream and downstream impacts of fossil fuels and their replacements
- Insufficient government/regulatory/administrative capacity

These themes, along with the specific barriers and research questions related to each theme, are discussed in greater detail in the "Prioritization" section below.

High Level Discussion and Barriers Identified

Across the first four working group meetings, the working group members (which included transportation advocates and UCLA faculty of various disciplines) pulled from their experiences and varied areas of expertise to identify, discuss, refine, and prioritize barriers to clean, equitable transportation in Los Angeles. The first three meetings were focused on identifying, discussing, and refining barriers and potential research questions, and are summarized in the following paragraphs. The fourth meeting focused on prioritization of those barriers and research questions, and is covered in more detail in the "Prioritization" section.

In the first working group meeting, participants had a wide-ranging discussion identifying topics and themes of interest related to phasing out fossil fuels in the Los Angeles transportation system. Group members in attendance included transportation advocates and UCLA faculty of various disciplines. The conversation highlighted the importance of land use, and advocated for promoting community-oriented land uses where oil and gas is phased out. Group members also brought up questions around green hydrogen, such as what it means for hydrogen to truly be green, and how do we ensure it does not cause more problems for communities. The conversation turned towards challenges around electrification, such as structural racism and health impacts of goods movement, upstream impacts of mining, resistance from labor unions related to its relationship with automation, and the distribution of cost burdens. The group discussed workforce development programs, and how economic opportunities are not being centered around communities most burdened by fossil fuels. Finally, the group emphasized the importance of thinking on longer time scales for infrastructure change, and the potential long-term consequences of locking ourselves onto a path of personal electric vehicles.

The conversation in Meeting 2 began to coalesce around several overarching topic areas; environmental justice and impacts of fossil fuel infrastructure and pollution, lifecycle and impacts of electric vehicles, and government capacity and incentives (particularly related to regulation and enforcement). Working group members discussed what works in terms of government providing resources and planning, bringing up community benefits agreements and practices that put community members at the same table as decision makers. There was also a robust discussion about enforcement issues, and specifically the lower levels of enforcement of trucking exhaust regulations in environmental justice communities. The lack of interagency communication and lack of legal incentive to enforce regulations were identified as barriers to improving enforcement. Working group members highlighted the example of funding being allocated for community air monitors such as PurpleAir (which cannot be used for regulatory

purposes) instead of expanding regulatory efforts. Additionally, working group members brought up concerns over the current discourse on electric vehicles, noting that electric vehicles have distinctive health impacts (for example, particulate matter from tires and braking) that are not well understood.

In the third meeting, working group members used Jamboard to continue identifying and refining barriers and research gaps in pursuit of a transportation system based on generative power rather than extraction. They also began using a gaps-assessment framework to differentiate between knowledge gaps, political gaps, and values gaps.

In the fourth meeting, the working group did a prioritization exercise to identify barriers and research questions most important to achieving an equitable, sustainable transportation system in Los Angeles. The process and results of this exercise are described in the following section.

In the fifth meeting, the Phasing Out Fossil Fuels working group reconvened in person along with all the other working groups. In this meeting, Phasing Out Fossil Fuels working group members brought up the concern that research questions related to electric vehicles tend to be over-emphasized. They noted that the more important focus area is how to build community and reduce consumption, which would in turn reduce materials coming in through the Port of Los Angeles. While acknowledging that electric vehicles are not the core solution, the working group highlighted the urgency of electrifying freight corridors. They identified key barriers to freight electrification, which include the relative obscurity of electric freight technology and its lack of connection to social science and policy. They also brought up major political gaps, including the pressure that shippers put on the Los Angeles Board of Harbor Commissioners, and the sway that Western States Petroleum Association has at AQMD.

Prioritization

Voting process

In Meeting 4, working group members spent time reviewing and rephrasing barriers and research questions, and then prioritizing them through an informal voting process. First, using the voting feature on LucidSpark, each working group member in attendance identified the overarching topics they felt were most important to focus on to advance just and sustainable transportation in the greater Los Angeles area. Table 1 displays the results of the prioritization of these topic areas within the working group. While the tables below are useful in reflecting the priorities of those in attendance for Meeting 4 (two external partners and six UCLA researchers), they should not be considered definitive.

Table 1. Topic Priority Level Based on Working Group Meeting 4.

Phasing Out Fossil Fuels Topic Area	**Priority**

Beyond cars: Envisioning a future with less reliance on personal cars	High
Environmental justice dimensions of where fossil fuels infrastructure and high-volume transportation facilities were sited and where impacts occur.	High
Understand the upstream and downstream impacts of fossil fuels and their replacements	High
Insufficient government/regulatory/administrative capacity	Medium
Localizing economies: increasing local economic multipliers; creating supportive structures to equitably distribute local benefits	Lower
Beyond freeways: rethinking high-capacity transportation infrastructure	Lower
Fully understanding the health impacts of current vehicles including power systems and braking	Lower
Cleaning heavy duty trucks and goods movement	Lower

Next, the working group members voted on the most important barriers/research questions within each of the highest priority topic areas. The results of these votes can be found in Tables 2-5 in the following section, "Barriers and Research Questions Identified as Most Critical to Address." Finally, the working group voted on high priority barriers and research questions that were not contained in the highest priority topic areas – the barriers and research questions prioritized in this vote can be found below in Table 6.

Barriers and Research Questions Identified as Most Critical to Address

Beyond Cars: Envisioning a Future with Less Reliance on Personal Cars

Throughout the four meetings, working group members emphasized that transitioning from gasoline and diesel-powered vehicles to electric vehicles is not a magic fix – as one working group member put it, "a clean car is still a car." Personal vehicle travel, even in "clean" cars, needs to be reduced drastically to achieve the vision of a transformed, equitable and sustainable transportation system. Working group members identified the policy focus on electric vehicles as a potential barrier to alternative infrastructure investments, and prioritized research questions related to designing policies and incentives to decrease our reliance on personal vehicles.

Table 2. Barrier/Research Question Priority Level Based on Working Group Meeting 4.[1]

Barrier/Research Question	**Priority**
Do EVs (and self-driving cars) provide a techno-fix that reinforces reliance on personal cars (and makes driving cheaper)?	High

[1] 5+ votes = "High", 2-4 votes = "Medium", 1 vote = "Lower"

What transportation network changes are needed so that people choose alternatives to personal cars, especially with the introduction of self-driving cars?	High
What policies/incentives lead to reduced parking supply and availability? How do developers make decisions on parking?	Medium
Why do/don't cities give priority to pedestrians, bikes, and transit? And why/ when do they take it away (e.g. Culver City)?	Medium
What aspects of personal mobility do people most value? Driving task, freedom of mobility (subject to congestion), etc.	Lower

Environmental Justice Dimensions of Where Fossil Fuels Infrastructure and High-Volume Transportation Facilities Were Sited and Where Impacts Occur.

Working group members were focused on the relationship between fossil fuel extraction and environmental injustice, as well as how the clean energy transition could continue to perpetuate harmful cycles. One high priority question that came out of that discussion was “We know there are environmental injustices from transportation, so why aren’t we doing anything about them?” This is a broad question, but the discussion from the working group meetings can help contextualize it. Working group members named groups who are benefitting from the current system, including whiter/wealthier communities with high levels of automobile ownership and lower air pollution burdens, car companies, roadway/pavement and fossil fuel lobbies, utility companies, and oil companies. They also spoke about lack of interagency coordination and lack of legal incentive for the government to fulfill its mandates, particularly when it comes to air pollution enforcement. In addition to the lack of action on environmental injustices from transportation, working group members began to grapple with the complexity of designing solutions, recognizing that reducing burdens in overburdened areas requires potentially difficult and expensive decisions about where and how to eliminate or re-route those burdens. While it was not voted on in Meeting 4, during Meeting 5 **electrification of freight corridors was identified as a high priority.**

Table 3. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	**Priority**
We know that there are environmental injustices from transportation? Why aren't we doing anything about them? (effectiveness/ambition)	High
Reducing burdens in overburdened areas means eliminating or rerouting the burdens. Which sources do we eliminate? Which do we re-route?	High
There are still plans to widen highways in LA County. How does the research-based knowledge that this isn't a good idea reach public agencies?	Medium
What are the opportunities to motivate EJ action by researching and publicizing disparate health impacts?	Medium

What is meant by a right to clean air and what would the implications be versus existing laws and regulations (standards that are unmet)?	Lower

Understand The Upstream and Downstream Impacts of Fossil Fuels and Their Replacements

The Phasing Out Fossil Fuels working group was charged with identifying barriers to an equitable, fossil-free transportation system in Los Angeles. Many of the barriers identified were related to the challenges of transitioning to clean energy and electrification, and the equity implications of that transition both locally and globally. High priority questions that surfaced included how a fast transition would impact low-income utility customers[2], how to make difficult trade-off decisions related to replacing technologies and fuel sources, and what the health impacts of different replacement technologies (such as electric vehicles) would be. Working group members discussed how challenging it is to incorporate social costs into life cycle analysis, and noted that most electric vehicle analyses focus on greenhouse gas emissions and neglect other impacts (such as social and environmental degradation from mining).

Table 4. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	**Priority**
How will a faster transition to clean energy/electrification impact equity for low-income customers?	High
Beyond estimating, how do we trade-off the carbon, urban air quality, and safety (less spills, accidents) against effects from adoption of replacement fuel source (battery storage, biofuels, hydrogen)	High
To what extent will replacement transportation fuels/modes affect these health impacts (e.g. brake/tire dust exacerbated by weight)?	High
Impacts of replacement liquid fuels in heavy duty and other vehicles that are not easily electrified	Lower
Recognize there are impacts related to creating fossil fuels, such as the refineries, as well as the GHG and criteria pollutants that result from burning fossil fuels.	Lower

[2] LADWP's LA100 Equity Strategies project did analysis on this question, aiming to "ensure the path to 100% carbon-free energy is equitable as well as achievable." https://maps.nrel.gov/la100/equity-strategies#learn-more-get-involved

Insufficient Government/Regulatory/Administrative Capacity

Transitioning away from fossil fuel-based transportation will take enormous governmental coordination and resources. Lack of agency coordination, trust, transparency, staffing, internal expertise, community engagement, and enforcement capabilities/incentives were identified as barriers to an equitable and fossil-free transportation system.

Table 5. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	Priority
What factors make agency coordination more or less effective?	High
How does community trust vary between specific agencies? Why does trust vary? Need to understand inconsistencies with community engagement.	High
How effective are community/EJ advocate oversight or advisory boards for DTSC and other regulators?	High
Multiple state agencies are implicated by CARB's scoping plan. CARB has a mandate to figure out GHG reductions, but does this authority extend to compelling action?	Medium
What do agencies choose to enforce? And why?	Lower
What are the limits of 2015 policy to restrict solar development in unincorporated LA county?	Lower

Additional Priority Barriers and Research Questions:

In Meeting 4, the working group also voted on additional barriers and research questions (in order to highlight important barriers and research questions that fell outside of the “high priority” topic areas). Table 5 shows the results of this vote. Research questions related to the topics of “Cleaning heavy duty trucks and goods movement” and “Who benefits from the status quo” were elevated as particularly important for phasing out fossil fuels in Los Angeles.

Table 6. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Topic Area	Barrier/Research Question	Priority
Cleaning heavy duty trucks and goods movement	Technological barriers to electrification of heavy-heavy duty, and unintended consequences (brake/tire wear, exhaust roadwear)	High
Cleaning heavy duty trucks and goods movement	What are the tailpipe impacts of alternative fuels for this sector?	High

Cleaning heavy duty trucks and goods movement	Do we understand the barriers to adoption for smaller/medium sized operators and independent operators?	High
Who benefits from the status quo?	How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means?	High
Who benefits from the status quo?	How can existing oil and gas infrastructure be repurposed (should they be?)? Are there economically profitable options?	Medium
Fully understanding the health impacts of current vehicles including power systems and braking	Social trade-offs between GHG reduction benefits of EVs and the other impacts of cars	Medium
Fully understanding the health impacts of current vehicles including power systems and braking	Are there ways to reduce brake dust and tire wear emissions, either through technology or regulation?	Medium
Air monitoring data quality and availability	Monitoring pollutants other than PM 2.5	Medium
Labor interests and impacts	Many clean energy projects w/project labor agreements aren't built in LA County (many are in Kern, for example)--so the jobs pay well but don't hire locally for logistical reasons	Medium
Fully understanding the health impacts of current vehicles including power systems and braking	Even in cases where we have policies, data or enforcement don't necessarily reflect the real world. Example: truck check where half of the trucks were out of compliance	Medium
Localizing economies: increasing local economic multipliers; creating supportive structures to equitably distribute local benefits	Lots of Los Angeles meets the definitions from IRA and IIJA for "energy communities" for renewable energy and community investments.	Medium
Localizing economies: increasing local economic multipliers; creating supportive structures to equitably distribute local benefits	Moving from privately owned fuels to publicly-owned fuels. Source of energy will need to be developed outside of Los Angeles	Medium
Air monitoring data quality and availability	Pointing out data inconsistencies at the ports (Andrea Rico at USC)	Lower
Labor interests and impacts	Economic opportunity is not being centered around communities most burdened by fossil fuels	Lower

Cleaning heavy duty trucks and goods movement	Impacts of hydrogen and future hydrogen investment	Lower

Types of gaps

V / ⚖️ = Value gap
K / 👷 = Knowledge gap
P / 🗳️ = Political gap

⚖️ **Values** gaps occur when people lack consensus over the government's adopted goals and objectives.

🗳️ **Political** gaps occur when decision-makers agree on values but think the economic or political costs of a course of action are too high.

👷 **Knowledge gaps** in policy making occur when decision-makers **lack applicable knowledge that would inform their decision.**

Charge for Working Groups

1. Identify the barriers to just and sustainable transportation in Los Angeles
2. **Identify knowledge, political, and values barriers between today and and a transformed future**
3. **Assess and prioritize these barriers by which are most critical to address in order to advance just and sustainable transportation**

Stickies Key

Notes from previous meeting

New notes that participants add today

Notes ready for voting

Environmental Justice

+1 vote (yifang)

Environmental justice dimensions of where fossil fuels infrastructure and high-volume transportation facilities were sited and where impacts occur.

Public agencies have placed open spaces and facilities near polluting sources. Planners think impacts will be cleaned over time.

If we lean on the right to clean air and the negative impacts of the current system, it can help drive an equitable transition.

Freeways/their negative health impacts being overly concentrated in low-income communities of color

We know that there are environmental injustices from transportation? Why aren't we doing anything about them? (effectiveness/ambition)

🗳️There are still plans to widen highways in LA County. How does the research-based knowledge that this isn't a good idea reach public agencies?

👷What is meant by a right to clean air and what would the implications be versus existing laws and regulations (standards that are unmet)?

👷 Reducing burdens in overburdened areas means eliminating or rerouting the burdens. Which sources do we eliminate? Which do we re-route?

What are the opportunities to motivate EJ action by researching and publicizing disparate health impacts?

Current vehicle health impacts

+1 vote (Yifang)

Fully understanding the health impacts of current vehicles including power systems and braking

Just noting that there isn't an existing regulatory standard to control emissions from these systems (would be promulgated by CARB in CA).

⚖Social trade-offs between GHG reduction benefits of EVs and the other impacts of cars

Are there ways to reduce brake dust and tire wear emissions, either through technology or regulation?

half of the trucks were out of compliance Even in cases where we have policies, data or enforcement don't necessarily reflect the real world

Families with children experiencing asthma don't always understand why. Follow-up is necessary. The lack of knowledge can be dehumanizing.

Impacts of emissions can be hard to track/quantify

Beyond Freeways

Beyond freeways: rethinking high-capacity transportation infrastructure

Changing land use of freeway spaces for other goals, like more LRT/BRT, parks, etc. not on the table at all in policy circles

Regulatory and policy tradeoffs between localized and global pollutants

To what extent has an increase in pollution at some locations been observed?

Cap and trade can create a financial incentive for an increase in pollution at some locations

Agencies are focused on climate change but have not met federal air emissions standards.

A focus on local decarbonization can outsource pollutants during peaks to other disadvantaged communities out of state that have those gas plants

Wildfire smoke makes it complicated to demonstrate progress on air quality

Insufficient government/regulatory/administrative capacity

👷What do agencies choose to enforce? And why?

How effective are community/EJ advocate oversight or advisory boards for DTSC and other regulators?

👷How does community trust vary between specific agencies? Why does trust vary?

👷🗳️ Multiple state agencies are implicated by CARB's scoping plan. CARB has a mandate to figure out GHG reductions, but does this authority extend to compelling action?

Do agencies have a strong enough mandate to regulate? If regulators are not enforcing MOUs, what are the options to force them to do so?

Sometimes even when there is political will, technical and administrative/staffing capacity can be a barrier. How can these aspects be more effective?

🗳️ Within the county and state there's a lack of coordination Enforcement agencies pick certain communities to enforce in because it's easier

Agencies won't enforce based on community data, seems odd that they would claim providing monitors as a solution

How can we trust polluters if we don't trust agencies? e.g. Exide clean up, China Shipping deal have not gone well.

Staffing/funding are an impediment to visionary policy implementation--disconnect between policymakers' bigger picture mandates and agency capacity/resources

What are the limits of 2015 policy to restrict solar development in unincorporated LA county?

Agencies don't adequately communicate with each other, so there's not a foundation for coordinated regulatory approaches or a shared vision.

👷What factors make agency coordination more or less effective?

understanding inconsitencies with community engagement

Some policies put the onus of enforcement back on community members E.g. LA County Green Zones - require organizing support to have a chance at working

Beyond cars: Envisioning a future with less reliance on personal cars

Expanding Metro Microtransit boundaries to be more practical, Flexible taxi/bus hybrid that allows for more dynamic routes

Transit that doesn't require transfers is key to making jobs accessible without a car

Do EVs (and self-driving cars) provide a techno-fix that reinforces reliance on personal cars (and makes driving cheaper)?

Opportunity for more of a transition to other systems as well, instead of locking ourselves into cars forever.

What policies/incentives lead to reduced parking supply and availability? How do developers make decisions on parking?

Why do/don't cities give priority to pedestrians, bikes, and transit? And why/ when do they take it away (e.g. Culver City)?

Lithium extraction can be reduced by 90% if we focus on shift away from cars, lithium recycling and other practices. Extracting or not, LA will be a big market for lithium

Free public transportation as part of the 710 project could create a major culture shift away from cars

What transportation network changes are needed so that people choose alternatives to personal cars, especially with the introduction of self-driving cars?

💡What aspects of personal mobility to people most value? Driving task, freedom of mobility (subject to congestion), etc.

Copying China's example of alternating days drivers can drive cars w/certain license plate #s to reduce driving/pollution

No one actually wants to drive in LA. Efficiency is a huge part of the opportunity cost

A clean car is still a car, cars increasingly monitizing features, self-reposessing

Ensuring transit improvements are in-line with community priorities like anti-displacement

Who benefits from the status quo?

Business interests very happy to have heavy duty vehicles

Pavement lobby supports dynamics that greater need for roadway maintenance

Elected board members have political, campaign finance, and financial leanings

💡Whiter/wealthier communities with high levels of automobile ownership and lower air pollution burdens

Oil companies & SocalGas

How can existing oil and gas infrastructure be repurposed (should they be?)? Are there economically profitable options?

How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means?

How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means?

Localizing economies: increasing local economic multipliers; creating supportive structures to equitably distribute local benefits

💡 Lots of Los Angeles meets the definitions from IRA and IIJA for "energy communities" for renewable energy and communities investments.

💡 Moving from privately owned fuels to publicly-owned fuels. Source of energy will need to be developed outside of Los Angeles

People are still living with impacts today, so how to we engage in harm reduction now while also working on long-term solutions?

Current economy humanizes corporations, but does not hold them to the same standards as people

Not likely, a community can't provide all it's own energy-Solar, wind, hydroelectric, etc. are scattered throughout the state/are dependent on topography

Understand the upstream and downstream impacts of fossil fuels and their replacements

Lot of lifecycle assessments are biased to GHGs, to the neglect of other impacts People have been more focused on GHG benefits over upstream impacts of battery technologies

How will a faster transition to clean energy/electrification impact equity for low-income customers?

⚖Beyond estimating, how do we trade-off the carbon, urban air quality, and safety (less spills, accidents) against effects from adoption of replacement fuel source (battery storage, biofuels, hydrogen)

👷To what extent will replacement transportation fuels/modes affect these health impacts (e.g. brake/tire dust exacerbated by weight)?

Pollution from brake and tire wear appears to be more toxic per mass than tailpipe emissions; Lower income communities have higher levels of more toxic particles

What is the right type/cost of renewable gas or hydrogen facilities to power different types of heavy industry/ vehicles and wean off of diesel and other fossil fuels, which are harder to electrify?

Impacts of replacement liquid fuels in heavy duty and other vehicles that are not easily electrified

How does the hydrogen debate relate to the natural gas debate? And how to we avoid falling into the same cycles?

👷How can decision-makers in California ensure that impacts external to California are mitigated to the extent feasibly possible if making tradeoffs?.

Recognize there are impacts related to creating fossil fuels, such as the refineries, as well as the GHG and criteria pollutants that result from burning fossil fuels.

Making hydrogen requires a lot of water and electricity. RNG is good idea but the amount available from biodigesters or sewage is limited. Burning RNG still produces GHGs.

What is truly green hydrogen, and how does it apply to heavy industrial uses without causing more problems for communities?

Solar limitations: solar projects may be built on tribal or sensitive lands / may have limited places to be built, reducing clean energy sources in the grid mix/ inequities in net metering

Type something

+1 vote (Yifang)

Cleaning heavy duty trucks and goods movement

Significant portion of medium to heavy duty trucks are independent contractors

in CA around 60-70% of trucks are run by independent operators, complicating implementation of top-down mandates. What are the policy options to clean trucks operated by independent companies?

👷 Do we understand the barriers to adoption for smaller/medium sized operators and independent operators?

Larger subsidies for independent truckers to transition are needed but how much $ can be offered by the state?

impacts of hydrogen and future hydrogen investment

What are the tailpipe impacts of alternative fuels for this sector?

Technological barriers to electrification of heavy-heavy duty, and unintended consequences (brake/tire wear, exhaust roadwear)

👷 What is needed to support smaller actors in transition away from fossil fuels?

Improving local environments while increasing community stability

Lower LA river revitalization has community stability toolkit that is good for reference

Community benefits agreements

A lot of public infrastructure projects do not include stability efforts, and additionally some actors intentionally try to take economic advantage of communities

Air monitoring data quality and availability

Air monitors that monitor below 0.4 microns cost $8,000

Purple air is actually a pretty decent monitor Largest drawback isn't data quality, but rather that it doesn't measure below 4 microns so it misses a lot of fresh emissions

Monitoring pollutants other than PM 2.5

Andrea Rico at USC Pointing out data inconsistencies at the ports

Hydrogen and renewable gas

Hydrogen and renewable natural gas

Labor

Labor interests and impacts

Workforce development - having to install infrastructure at the same time that people are being trained

Economic opportunity is not being centered around communities most burdened by fossil fuels

Resistance from labor unions - some association with electrification and automation

Many clean energy projects w/project labor agreements aren't built in LA County (many are in Kern, for example)--so the jobs pay well but don't hire locally for logistical reasons

Summary Report: Access to Opportunities

Overview of the Working Group

The Access to Opportunities Working Group was charged with identifying and prioritizing barriers to the creation of a transportation system in Los Angeles that enhances people's ability to access jobs, services, and other needs and that does so equitably. Over the course of four working group meetings, the group discussed unmet transportation access needs, potential solutions, and underlying barriers that have prevented the implementation of policies and programs grounded in communities' needs. Through this process, the group's focus crystallized around creating access to opportunity through the provision of accessible, high quality public transit service, in acknowledgement that public transit is essential to equitably meeting the mobility needs of low-income communities and communities of color in the Los Angeles region.

Acknowledgements

The following members of the Access to Opportunities Working Group contributed their wisdom through their participation in Working Group Meetings 1-4:

Tierra Bills, UCLA, Public Policy & Civil and Environmental Engineering
Michael Diaz, SLATE-Z
Alfonso Directo, Jr., ACT-LA
Eli Lipmen, MOVE-LA
Tala Oszkay Febres-Cordero, ACT-LA
Stephanie Ramirez, SLATE-Z
Donald Shoup, UCLA, Urban Planning
Zhiyuan Yao, UCLA Library
Oscar Zarate, SAJE

Key takeaways for review:

- Providing equitable access to opportunity requires providing access opportunity *by public transit.*
- Within this topic, research and policy should prioritize improving public transit service quality and ensuring that everyone has an equal ability to access services (e.g. by investing in cash-paying riders and economic access) over focusing on the integration of new technologies and innovations that leave some people behind.
- Research into areas that facilitate the improvement of transit service quality and access (e.g. research into decision-making processes and metrics) should be oriented towards actionable information for breaking down barriers to the achievement of these priorities.

Areas for additional voting/discussion around prioritization:

- Cultural/values barriers to improving service quality
- Barriers to improving decision-making and inter-agency coordination

High level discussion and barriers identified

Creating access to public transportation requires holistic efforts that directly address barriers to *physical access* (including issues related to safety, stop locations and amenities, and sidewalk conditions), *economic access* (including issues related to financial barriers and the needs of cash-paying riders), and *informational access* (including issues related to language and technological barriers). The group also identified important issues related to public transit management that must be addressed to effectively address these barriers, including the need to improve the *working conditions of frontline workers* at public transit agencies, agency *decision-making* processes, *inter-agency coordination*, and *data and metrics*.

Prioritization

Voting Process

Over the course of the first three meetings, the group brainstormed issues related to Access to Opportunities, which were organized into twelve subtopics. Then, the four working group participants who were in attendance at the beginning of Meeting #4 (which included four external partners and no UCLA researchers) each voted for the five subtopic areas that they believed were the highest priority (out of the twelve subtopics identified in the previous meetings). The topic that was most closely aligned with the research interests of each faculty member who had attended the majority of prior meetings was then given an additional vote. The five topics that received at least three votes were considered the “Highest Priority” subtopics and those that received two votes were considered “Medium” subtopics (see Table 1). These two categories were further explored in this meeting.

Table 1: Subtopic Priority Level Based on Meeting #4

Access to Opportunities Subtopic	**Priority Area Based on Meeting #4**
Improving public transit service quality	High
Eliminating financial barriers to accessing public transit	High
Providing positive safety solutions around Metro service	High
Improving transit stop locations and amenities	High
Understanding and meeting the needs of riders who currently pay in cash	Medium
Eliminating unsafe sidewalk conditions	Medium
Treating Metro’s workers as an investment rather than a cost	Lower
Improving decision-making and inter-agency coordination	Lower
Developing and increasing the use of service quality metrics that reflect riders’ experiences	Lower
Eliminating roadway stress, injuries, and fatalities	Lower
Improving the navigability of public transit	Lower
Ensuring that a Just Transition centers labor impacts	Lower

The voting process highlighted the importance of improving public transit service quality and riders' ability to access transit services (both physically and economically). However, it is important to note that some of the subtopics that received fewer votes are key components of improving public transit service quality and access. For example, improving the experience of Metro's frontline workers is vital to addressing operator shortages that prevent service increases; and improvements to metrics, decision-making, and inter-agency coordination are necessary to achieve other prioritized goals.

Improving public transit service quality

In early working group meetings, members stressed the importance of improving public transit service quality, noting that transit service quality itself is a barrier to people using transit, and that agencies should use service quality rather than ridership as the primary metrics by which they judge system performance. In the second meeting, it was noted that service levels are often inadequate and do not respond to demand and that there would ideally be a system for "qualifying" for service improvements at different ridership levels to target investments to areas with the highest demand.

In the fourth meeting, the group discussed the barriers that have prevented the improvement of service quality, the majority of which were cultural and political biases that limit the resources and knowledge available for improving bus service (see Table 2). Understanding how to erode the stigma against using public transit and its effects is particularly critical. Group members discussed how this stigma leads to inadequate funding (particularly for bus service), NIMBYism and opposition from local residents to the expansion of transit service that prevents transit from connecting riders to key destinations where they can access employment and other opportunities, and a lack of lived experience among transportation planners and decision-makers that prevents them from understanding the problems and potential solutions for transit. The group also discussed biases towards flashier investments over core service provision. Manifestations of this bias include the bias towards funding capital projects over operational expenses, and the pressure for public transit to embrace new technology and ideas that generate buzz for being "innovative" and "cutting-edge" over more "boring" ideas that may provide the most value in riders' lives. The group also previously discussed the insidious desire to pursue the "ideal" rider over current transit riders, which has led to a lack of understanding about how to design for riders who do not look like traditional business-hour commuters (such as riders who must travel with caregivers or children).

In addition to these cultural and political biases, the group noted interdependencies with other subtopics. Particularly notable was that the lack of bus operators prevents service improvements (discussed further in the "Labor" section) and that travel time reliability is often overlooked (which is connected to the need for better metrics).

Table 2: Barriers to improving public transit service quality

Goals	● Prioritize speeding up service and making it more reliable. ● Transit needs to connect the right origins and destinations ● Improve paratransit service (e.g. unreasonable requirements around reserving ahead and missing reservations)
Barriers	● service levels aren't determined by need/demand

	● travel time reliability is a critical aspect of accessibility, but often goes ignored ● not having enough operators - connections to issues of workers at Metro ● Cultural and Political Biases ○ Stigma even stronger for bus ○ NIMBY-ism and barriers that prevent transit from going to the places it needs to go ○ inadequate funding ○ lack of lived experience for planners --> blindness to problems and potential solutions ○ limited operational budget; money earmarked for capital ○ pressure for transit to be engaged with new technology ○ design has centered "ideal commuter" rather than people commuting with caregivers or children

Eliminating financial barriers to accessing public transit

From the beginning of the TRACtion process, creating economic access was elevated as one of the most critical aspects of creating access to opportunities. It was noted that reducing combined housing and transportation costs is particularly important as high housing costs push low-income families further from downtown, where they experience higher transportation costs. Fare free transit was elevated as a policy solution that directly reduces transportation burden and eliminates financial barriers to accessing public transit. In its first meeting, the group identified three key barriers to implementing fare free transit: the cost of making fareless transit free (particularly surrounding implications for paratransit costs), state farebox recovery requirements, and a dearth of good research quantifying the benefits of fareless transit that would occur outside of the transportation system (like public health benefits).

In Meeting #2, the group further discussed quantifying the potential benefits of fareless transit, which are wide-ranging and include reducing operator assaults, improving operational efficiency by reducing time delays associated with fare collection, eliminating racially biased fare enforcement, and increasing ridership. Most past research has focused on ridership increases at the aggregate level, and the group stressed the need to quantify the non-transportation benefits associated with these ridership increases, such as the environmental and public health benefits associated with transit trips that would have otherwise been made by car and the benefits of transit trips that serve latent demand, because low-income riders cannot otherwise afford to make all of the trips that they need to make.

In Meeting #3, the group focused on barriers to funding fareless transit. In addition to brainstorming about potential *sources* of revenue (like freeway tolls or micro transit), the group brainstormed about *process changes* that would support funding fareless transit (such as a more transparent, participatory budgeting processes, and evaluating agency budgets against their ability to expand regional access). Additionally, the group discussed the relationship between fareless transit and safety. It was noted that fareless transit could make transit safer (particularly for operators) by removing conflict about fare payment, but there has been a narrative of fear around fareless transit and unhoused riders.

In Meeting #4, the group added further detail to these topics, and voted on what they believed were the most critical barriers to achieving fareless transit in Los Angeles. The three

barriers that received the most were 1) identifying a source of revenue to use for fareless transit, 2) quantifying the benefits of fareless transit that would occur outside of the transportation system, and 3) addressing the narrative of fear around fareless transit.

Table 3: Barriers to eliminating financial barriers to accessing public transit

Goals	● More participatory, transparent budgeting process to understand where there are fiscal opportunities ● Evaluate agency budgets - revenue sources and spending - with lens for clearing barriers to expanding regional access ● The landscape of how transportation is funded will shift soon (given erosion of the HTF). The new funding mechanism needs to address travel demand, marginal costs, and equity
Barriers	● **[Highest Priority]** Is there any revenue that we could use for fareless? (freeway tolls, micro transit?) ● **[Highest Priority]** Narrative of fear: Do Metro, elected officials, the public think eliminating fares would make safety issues on transit worse? How do we study questions about safety and fareless? ● **[Highest Priority]** Benefits outside transportation system haven't been effectively quantified (e.g. benefits to public health, climate, bus operator safety, racial justice, car dependency, dwell times) ○ Have to implement with OTHER interventions to lead to benefits and avoid drawbacks ○ What happened to Metro's VMT projections? ○ Capturing the SPEED at which interventions could have effects (how quickly would you see mode shift?) ● Metro is subject to state farebox recovery ratio requirements ● Other marginalized riders (paratransit riders, unhoused riders) are used an an excuse for why fare free can't work ○ funding for equal paratransit services ● Market-oriented logic instead of thinking about transit as a public good ● High housing costs pushing low-income families further from downtown, where they experience higher transportation costs

Providing positive safety solutions around Metro services

Beginning in Meeting #1, the group acknowledged that safety is vital to accessing public transit services, and that riders' identities (including gender and disability) influence their unique safety concerns. In particular, the presence of police was noted as a barrier that disproportionately impacts black and brown riders through disproportionate targeting by law enforcement. In Meeting #2, representatives from ACT-LA presented their organization's work advocating for an ecosystem of positive safety solutions (including providing amenities, support services, and programming) that leverages Metro's geographic dispersion as an opportunity to create resource hubs to meet people's basic needs throughout the region. The group noted that while these positive safety solutions are rooted in community knowledge, many have not yet been elevated or vetted through the academic process, and doing so would help move advocacy efforts forward. In subsequent meetings, the group identified other barriers that have prevented the implementation of positive safety solutions, including the fact that

decision-makers have approached safety through a criminological lens rather than seeking to understand and address the root causes of safety issues (see Table 4).

Table 4: Barriers to providing positive safety solutions around Metro services

Goals	● Care-based strategies outlined in ACT LA's Metro as a Sanctuary one-pager and report including support services, care-centered design, public education, job creation, and stewardship
Barriers	● Decision-makers approach safety through a criminological lens (as opposed to public health, economic, etc.) ● What are the root causes of people's stress and lack of safety and how do we fix those? ● Many positive safety solutions have not yet been elevated or vetted through the academic process ● Demographic differences in experiences with policing affect perceptions: while presence of police is a barrier to accessing public space (including public transportation), particularly for Black and brown riders, presence of police can be a factor that increases the willingness to take public transit at different times of a day, particularly for women.

Improving transit stop locations and amenities

Beginning in the Meeting #1, the group began discussing issues with the locations and amenities located at transit stops, with an acknowledgement that the system ought to be redesigned to eliminate the location of bus stops at inhospitable and unsafe locations, like along freeways. In Meeting #2, it was noted that being able to get to transit stops and the amenities located within them (like adequate lighting and restrooms) are all integral to creating holistic access to public transit service. In Meeting #3, the group identified a variety of goals associated with improving transit stops: the provision of adequate shelter, particularly in places experiencing higher surface temperatures; walkable distances; and improvements to the reliability of elevator and escalator services on fixed transit systems. In Meeting #4, the group discussed barriers that have prevented the realization of these goals: lack of inter-agency coordination, inadequate data, inadequate financial resources, and the need for a cultural shift towards treating transit stops as resource hubs (see Table 5).

Table 5: Barriers to improving transit stop locations and amenities

Goals	● Bus stops within a walkable range from where people live ● No bus stops in places with unsafe noise levels (e.g. freeways) ● Adequate shelter, particularly in places experiencing higher surface temperatures ● Adequate amenities (lighting, bathrooms, etc.) ● Improved reliability of elevator and escalator services ● Prioritize understanding needs of current bus riders in developing solutions
Barriers	● Inadequate data on infrastructural issues at bus stops ● Lots of different agencies responsible - problems with inter-agency coordination

	• Lack of resources • Cultural shift necessary to invest in amenities to uphold Metro as a Sanctuary

Understanding and meeting the needs of riders who currently pay in cash

Beginning in Meeting #1, ensuring that riders are not left behind as Metro embraces new technology emerged as a key issue, particularly related to addressing the divide between cash and non-cash-paying riders. In Meeting #2, it was noted that Metro collects millions of dollars in cash fares each year, and that these riders are likely disproportionately from Gateway Cities, elders, low-income, and/or undocumented. However, despite this large need and the equity considerations, Metro has continued to prioritize investments in TAP, indicating misalignment between agency and community priorities.

In Meetings #3 and #4, the group identified a variety of issues related to meeting the needs of cash-paying raiders summarized in Table 6. In particular, the group highlighted the *knowledge gaps* that impede the design of effective policy responses (including a lack of demographic information or research into why riders who pay in cash choose to do so). Additionally, the group highlighted the *values gaps* that has resulted in toleration of leaving some riders behind in the transition to higher-tech solutions and the treatment of cash-paying riders as a problem to be solved rather than an opportunity to leverage Metro's existing infrastructure towards it acting as a public bank for riders.

Table 6: Barriers to understanding and meeting the needs of riders who currently pay in cash

Goals	• Understand and meet the needs of riders who currently pay in cash • Metro could invest in cash riders rather than treating them as a liability and become a public bank in California • Prioritize understanding needs of current bus riders in developing solutions
Barriers	• We don't really know too much about cash-paying riders. Demographic data would be very beneficial as well as income levels. • Almost 1/3 of all fares paid are cash at Metro. Who are these people? Why are they paying cash? How can we reduce their burden? • TAP contracting questions: what does the contractor (Cubic) do, what does Metro get from TAP besides fares (rider data, etc?) • Cash riders talked about as a "problem" to be solved rather than as an opportunity to leverage current infrastructure for Metro to act as a public bank • Pressure to elevate technology

Eliminating unsafe sidewalk conditions

From the first meeting, the working group acknowledged that the elimination of unsafe sidewalks is integral to transit's success, and that the disability justice community has been at the forefront of sidewalk advocacy in Los Angeles by having to sue for their rights. Through subsequent meetings, the group discussed the current issues with sidewalks in Los Angeles, and key barriers associated with their repair (Table 7). Nearly 40% of Los Angeles' sidewalks are broken, and t it would take 500 years to fix all the sidewalks at the current rate of repair.

Additionally, Los Angeles has not completed a sidewalk assessment which has caused repairs to be conducted in an ad hoc manner and impedes research into disparities in walking accessibility. Sidewalk quality is important for safety (poor sidewalk maintenance causes pedestrians to walk in the street where they are more vulnerable to traffic collisions), access to mobility for people with disabilities and older adults, and supporting transit ridership.

Professor Donald Shoup, one of the members of the working group, has been advocating for Los Angeles to adopt a point-of-sale program that would require owners to repair the sidewalks fronting their property before they can sell their property. Such a program would reduce public expenditures (by requiring no public spending and reducing lawsuits over injuries on sidewalks), repair sidewalks relatively quickly (since half of properties within Los Angeles are sold within 12 years), and create high-quality union jobs that must be filled by local labor. Primary opposition to point-of-sale programs comes from realtors, because it adds additional steps into real estate sales.

Table 7: Barriers to eliminating unsafe sidewalk conditions

Goals	• Repair-at-sale policy would fix sidewalks relatively quickly, reduce public expenditures, and create positive labor impacts
Barriers	• Real estate dealers are the primary opponents of the repair-at-sale policy. They oppose any rule that can complicate the sale of property. • Data on the quality of sidewalk infrastructure is often unavailable or erroneous; limiting the ability to evaluate walking accessibility • Bureau of Street Services does not have enough resources to address requests in a timely manner, leading to a growing backlog

Treating Metro's workers as an investment rather than a cost

Beginning in the first meeting, the working group began discussing the need to address the bus operator shortage, which has hampered Metro's ability to increase service quality. The group was particularly interested in research into housing and safety for operators. Participants noted that increasing housing costs have caused some transit operators to be unable to afford to live near their yards. Working group participants are particularly interested in research into the ability for transit agencies to provide housing to operators by using their properties (e.g., operator housing above yards). The group also elevated safety as an important concern. A 2022 survey of Metro Bus Operators found that operators' three largest concerns were low pay, safety from passenger confrontation, and high stress. Participants were particularly interested in the relationship between operator safety and fareless transit. They noted that some operators are supportive (because fare enforcement issues are one the largest factors responsible for operator assaults) while others are against it (due to concerns about an increased presence of riders struggling with mental health). There is some evidence that removing operator responsibility for fare collection does improve safety (like the comparison of Las Vegas bus operators working on lines that have offboard or onboard fare collection), but robust academic research on the relationship between fareless transit and operator assaults does not yet exist. Working group participants were also interested in research about more secure cockpits to protect bus operators from passengers. While generally popular with operators, some operators experience feelings of claustrophobia and have concerns about glare, which has led some

agencies to make them optional. One of the first two adopters of operator barriers in the United States (Miami-Dade) believes they have been very effective, while the other (MUNI) has not yet studied their effectiveness. Further research into effective barrier design is currently underway.

In Meetings #3 and #4, the group expanded this discussion to begin thinking about bus operators in the larger context of labor at Metro. Participants brainstormed about broader issues related to the recruitment pipeline, compensation, and employment structure, and about the importance of creating alliances between Metro workers and riders who are members of organized labor (see Table 8).

Table 8: Barriers to treating Metro's workers as an investment rather than a cost

Goals	• Metro should redesign all its rider-facing jobs, incl. bus operators and maintenance workers, to provide them with ecosystems of support for their wellbeing (eg access to bathrooms) • Housing development opportunities on agency-owned land for employees? • Organized labor as riders
Barriers	• Compensation has not kept up with the high cost of living in Los Angeles, many operators live far away from yards • Bus operator safety is a major issue • Lack of clarity on effects of safety interventions (e.g. fareless transit, barriers) • Metro uses contract work rather than permanent employment for jobs like Transit Ambassadors • How can Metro treat labor as an investment rather than a cost? • What is the pipeline for recruitment? How are we recruiting great talent for all levels - from operators and maintenance to planners and project managers? • Where is the next generation of workers coming from? How are they being treated • Career-level compensation for community-based expertise - what do we call these roles?

Improving decision-making and inter-agency coordination

Throughout the working group meetings, decision-making and institutional effectiveness (particularly related to inter-agency coordination) came up as important barriers to a Just Transition. For example, the existence of numerous agencies with diverging priorities and goals involved was acknowledged as a barrier to creating equitable access to amenities like benches and shelters. Although this subtopic received fewer votes, it is an important facilitative issue that should be researched in relation to other priority goals.

Table 9: Barriers to improving decision-making and inter-agency coordination

Goals	• Bring decisions into alignment with what public would want • Improve inter-agency coordination • This is essential for data quality research as well. Better coordination means better data quality

Barriers	● Agencies don't talk to each other ● There is no strong higher-up authority setting a cohesive vision ● How do decisions get made? ● What is the role of analysis? ● Who has a seat at the table?

Developing and increasing the use of service quality metrics that reflect riders' experiences

Data and metrics similarly came up throughout the process in relation to other priority topics. Although the prioritization exercise revealed that developing better metrics is not viewed as a high priority *in and of itself*, improving data and metrics is an important *facilitative priority* that must be addressed towards achievement of other goals. For example, developing metrics that capture travel time reliability is integral to measuring and improving this integral aspect of service quality.

Table 10: Developing and increasing the use of service quality metrics that reflect riders' experiences

Goals	● Create metrics that adequately capture the experience of riding the bus ● Get agencies to use better metrics
Barriers	● Aggregate measures mask spatial and temporal variations in service quality is vital to being able to measure equitable access to transit ● Federal regulations for equity analyses and environmental impact assessments do not capture a lot of the nuance we would want metrics to capture ● Qualitative data is necessary to reflect the experience of taking the bus ● There is a disconnect between accessibility often use and expected benefits (QOL, Employment, health, etc.). This is problem of metrics ● Measures do not capture reliability of travel time ● Agencies use metrics that capture operational performance rather than service from a rider's perspective ● Metrics do not capture individuals' personal barriers

Eliminating roadway stress, injuries, and fatalities

Throughout its meetings, the working group acknowledged the importance of eliminating roadway stress, injuries, and fatalities, which disproportionately affect communities of color and prevent the use of new transportation infrastructure. The group noted that failure to provide roadway safety have resulted from a wide-ranging and complex set of barriers that span data availability, the pipeline for transportation engineers, and the cultural and political treatment of traffic safety.

Table 11: Barriers to eliminating roadway stress, injuries, and fatalities

Goals	● Reallocate road space to protect the safety of all road users ● Shift policy to a Safe Systems approach (approaching collisions as a failure of systems rather than individuals) ● Harm reduction in a roadway context (risk of injury, stress of being near

	fast-moving vehicles, and more)
Barriers	● There is incongruence between our desired outcomes + engineering design standards, engineering school accreditation, and Professional Eng. licensure ● Policymakers approach traffic safety as a failure of individuals rather than a failure of systems rather than through a Safe Systems approach ● Data on traffic incidents come primarily from police reports and Hospital records, which tend to underreport less severe incidents. There is little study of the ramifications...

Improving the navigability of public transit

Throughout the process, the working group stressed the importance of breaking down informational barriers to accessing transit. In particular, attention should be paid to informational barriers related to differences in language, literacy, and access to technology, and to making it easier for people to navigate trips and processes that require interaction with a variety of different agencies and service providers.

Table 12: Barriers to improving the navigability of public transit

Goals	● Address language and literacy barriers that prevent people from being able to navigate payments systems, maps, etc. ● Addressing technological divide that prevents people from being able to access new programs and services that increasingly rely on smartphone ownership ● Improve Metro's trip planning system by including information about services offered by other transit agencies, human service organizations and private service providers.
Barriers	● There are many different agencies that have to be navigated, and people have to be their own case managers ● Metro treats Spanish as a second language rather than another primary language

Ensuring that a Just Transition centers labor impacts

In its first meeting, the group stressed the importance of ensuring that a Just Transition centers labor impacts. The group was interested in research about the job creation potential from building new freeways vs. sustainable transportation investments, and about how to protect individuals and communities who will lose their current jobs. The group was also interested in research about retaining community fabric and ensuring that investments benefit neighborhoods themselves rather than providing pathways out of these neighborhoods. Although the group's primary focus ended up coalescing on public transit over the course of subsequent meetings, these questions remain important areas for research.

Table 13: Barriers to ensuring that a Just Transition centers labor impacts

Goals	● Ensure that Just Transition centers Labor impacts and downstream effects on communities

Barriers	● What is the job creation potential from freeway construction vs. sustainable transportation? ● How do we prevent harm to communities due to loss of good, local jobs (e.g., car mechanics)? ● How do we maintain community fabric?

Environmental Justice

Environmental justice dimensions of where fossil fuels infrastructure and high-volume transportation facilities were sited and where impacts occur.

Public agencies have placed open spaces and facilities near polluting sources. Planners think impacts will be cleaned over time.

We know that there are environmental injustices from transportation? Why aren't we doing anything about them? (effectiveness/ambition)

🛋️There are still plans to widen highways in LA County. How does the research-based knowledge that this isn't a good idea reach public agencies?

👱What is meant by a right to clean air and what would the implications be versus existing laws and regulations (standards that are unmet)?

Freeways/their negative health impacts being overly concentrated in low-income communities of color

👱 Reducing burdens in overburdened areas means eliminating or rerouting the burdens. Which sources do we eliminate? Which do we re-route?

If we lean on the right to clean air and the negative impacts of the current system, it can help drive an equitable transition.

Current vehicle health impacts

Fully understanding the health impacts of current vehicles including power systems and braking

Just noting that there isn't an existing regulatory standard to control emissions from these systems (would be promulgated by CARB in CA).

⚖Social trade-offs between GHG reduction benefits of EVs and the other impacts of cars

Are there ways to reduce brake dust and tire wear emissions, either through technology or regulation?

👱To what extent will electrification affect these health impacts (e.g. brake/tire dust exacerbated by weight)?

half of the trucks were out of compliance Even in cases where we have policies, data or enforcement don't necessarily reflect the real world

Pollution from brake and tire wear appears to be more toxic per mass than tailpipe emissions; Lower income communities have higher levels of more toxic particles

Families with children experiencing asthma don't always understand why. Follow-up is necessary. The lack of knowledge can be dehumanizing.

Impacts of emissions can be hard to track/quantify

Beyond Freeways

Beyond freeways: rethinking high-capacity transportation infrastructure

Free public transportation as part of the 710 project could create a major culture shift away from cars

Opportunity for more of a transition to other systems as well, instead of locking ourselves into cars forever.

Changing land use of freeway spaces for other goals, like more LRT/BRT, parks, etc. not on the table at all in policy circles

Regulatory and policy tradeoffs between localized and global pollutants

To what extent has an increase in pollution at some locations been observed?

Cap and trade can create a financial incentive for an increase in pollution at some locations

Agencies are focused on climate change but have not met federal air emissions standards.

A focus on local decarbonization can outsource pollutants during peaks to other disadvantaged communities out of state that have those gas plants

Wildfire smoke makes it complicated to demonstrate progress on air quality

Insufficient government/regulatory/administrative capacity

👱What do agencies choose to enforce? And why?

How effective are community/EJ advocate oversight or advisory boards for DTSC and other regulators?

👱How does community trust vary between specific agencies? Why does trust vary?

👱🛋️ Multiple state agencies are implicated by CARB's scoping plan. CARB has a mandate to figure out GHG reductions, but does this authority extend to compelling action?

👱What factors make agency coordination more or less effective?

How can we trust polluters if we don't trust agencies? e.g. Exide clean up, China Shipping deal have not gone well.

🛋️Within the county and state there's a lack of coordination Enforcement agencies pick certain communities to enforce in because it's easier

Sometimes even when there is political will, technical capacity can be a barrier

Some policies put the onus of enforcement back on community members E.g. LA County Green Zones - require organizing support to have a chance at working

Staffing/funding are an impediment to visionary policy implementation--disconnect between policymakers' bigger picture mandates and agency capacity/resources

Limits of 2015 policy to restrict solar development in unincorporated LA county

Agencies don't adequately communicate with each other, so there's not a foundation for coordinated regulatory approaches or a shared vision.

Do agencies have a strong enough mandate to regulate? If regulators are not enforcing MOUs, what are the options to force them to do so?

Beyond cars: Envisioning a future with less reliance on personal cars

Expanding Metro Microtransit boundaries to be more practical, Flexible taxi/bus hybrid that allows for more dynamic routes

Transit that doesn't require transfers is key to making jobs accessible without a car

Do EVs provide a techno-fix that reinforces reliance on personal cars (and makes driving cheaper)?

Reducing parking availability!

💡What aspects of personal mobility to people most value? Driving task, freedom of mobility (subject to congestion), etc.

Copying China's example of alternating days drivers can drive cars w/certain license plate #s to reduce driving/pollution

No one actually wants to drive in LA. Efficiency is a huge part of the opportunity cost

A clean car is still a car, cars increasingly monitizing features, self-reposessing

Ensuring transit improvements are in-line with community priorities like anti-displacement

Who benefits from the status quo?

Business interests very happy to have heavy duty vehicles

Pavement lobby supports dynamics that greater need for roadway maintenance

Elected board members have political, campaign finance, and financial leanings

💡Whiter/wealthier communities with high levels of automobile ownership and lower air pollution burdens

How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means?

Oil companies & SocalGas

How can existing oil and gas infrastructure be repurposed (should they be?)? Are there economically profitable options?

How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means?

Localizing economies: increasing local economic multipliers; creating supportive structures to equitably distribute local benefits

💡Lots of Los Angeles meets the definitions from IRA and IIJA for "energy communities" for renewable energy and communities investments.

💡Moving from privately owned fuels to publicly-owned fuels. Source of energy will need to be developed outside of Los Angeles

People are still living with impacts today, so how to we engage in harm reduction now while also working on long-term solutions?

Current economy humanizes corporations, but does not hold them to the same standards as people

Not likely, a community can't provide all it's own energy-Solar, wind, hydroelectric, etc. are scattered throughout the state/are dependent on topography

Understand the upstream and downstream impacts of fossil fuels and their replacements

Lot of lifecycle assessments are biased to GHGs, to the neglect of other impacts People have been more focused on GHG benefits over upstream impacts of battery technologies

Faster transition to clean energy/electrification increases utility bill rates--could be equity issue for low-income customers

⚖Beyond estimating, how do we trade-off the carbon, urban air quality, and safety (less spills, accidents) against effects at site of mining/ process/ disposal

👱How can decision-makers in California ensure that impacts external to California are mitigated to the extent feasibly possible if making tradeoffs?.

Lithium extraction can be reduced by 90% if we focus on shift away from cars, lithium recycling and other practices. Extracting or not, LA will be a big market for lithium

Recognize there are impacts related to creating fossil fuels, such as the refineries, as well as the GHG and criteria pollutants that result from burning fossil fuels.

Solar limitations: solar projects may be built on tribal or sensitive lands / may have limited places to be built, reducing clean energy sources in the grid mix/ inequities in net metering

Cleaning heavy duty trucks and goods movement

Significant portion of medium to heavy duty trucks are independent contractors

in CA around 60-70% of trucks are run by independent operators, complicating implementation of top-down mandates. Tech increases risk and expense

👱 What is needed to support smaller actors in transition away from fossil fuels?

👱 Do we understand the barriers to adoption for smaller/medium sized operators?

Larger subsidies for independent truckers to transition are needed but how much $ can be offered by the state?

Improving local environments while increasing community stability

Lower LA river revitalization has community stability toolkit that is good for reference

Community benefits agreements

A lot of public infrastructure projects do not include stability efforts, and additionally some actors intentionally try to take economic advantage of communities

Air monitoring data quality and availability

Air monitors that monitor below 4 microns cost $8,000

Purple air is actually a pretty decent monitor Largest drawback isn't data quality, but rather that it doesn't measure below 4 microns so it misses a lot of fresh emissions

Agencies won't enforce based on community data, seems odd that they would claim providing monitors as a solution

Monitoring pollutants other than PM 2.5

Andrea Rico at USC Pointing out data inconsistencies at the ports

Hydrogen and renewable natural gas

Making hydrogen requires a lot of water and electricity. RNG is good idea but the amount available from biodigesters or sewage is limited. Burning RNG still produces GHGs.

What is truly green hydrogen, and how does it apply to heavy industrial uses without causing more problems for communities?

How does the hydrogen debate relate to the natural gas debate? And how to we avoid falling into the same cycles?

Labor interests and impacts

Workforce development - having to install infrastructure at the same time that people are being trained

Economic opportunity is not being centered around communities most burdened by fossil fuels

Resistance from labor unions - some association with electrification and automation

Many clean energy projects w/project labor agreements aren't built in LA County (many are in Kern, for example)--so the jobs pay well but don't hire locally for logistical reasons

Summary Report: Reimagining Transportation

Overview of the Working Group

The Reimagining Transportation working group set out to discuss the gaps and barriers associated with transitioning our transportation systems away from car-centricity. Some overarching themes (in no particular order) were:

- **Car Culture**
- **Transportation Agency Culture and Public Engagement**
- **Education/Culture/Design Issues Around New Transportation Infrastructure**
- **Regulating/reckoning with emerging technology**
- **Public space and the local economy effects of COVID**
- **Power Dynamics and Public Decision-making Processes**
- **Government/Agency Accountability**
- **Making Land Use More Conducive to Active/Public Transportation**
- **Barriers Between Visualizing and "Doing"**

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Over the course of four productive and detailed conversations about the above topics, the Reimagining Transportation working group **identified several key topics that are likely to cut across other working group issue areas**. These topics include:

- **Car Culture**
- **Decision-Making Processes**
- **Race, Class, Gender, and Transportation Justice**
- **Government Agency Accountability, Culture and Efficacy**

Identified Barriers and Gaps by Subtopic

Through discussion, participants of the working group worked to identify and classify barriers to progress as knowledge, political, and values gaps. Participants discussed the details and dynamics of these barriers, and in some cases offered potential solutions.

1. **Car Culture**

The infrastructural preference of cars over all other modes of transportation permeated much of the discussion in this group. Participants noted that there is much that **we take for granted about how and why people use cars in Los Angeles, but there isn't a large body**

of research on the topic. As a cultural phenomenon group members discussed how cars can contract public interactions, shrink public space, and put vulnerable road and sidewalk users in danger. Additionally the group discussed how **car ownership and culture varies across gender, race and class**. Understanding the differences and reasons between different people's relationship with cars in Los Angeles will be crucial to understanding how to best shift transportation culture and perspectives on transportation options. Discussion centered around issues like media representation of cars, road rage, the impact of over-policing on car use, and intersections of toxic masculinity and car culture.

2. **Race, Class, Gender, and Transportation Justice**

Issues of racism, classism, patriarchy and other marginalization have affected outcomes across all areas touched by planning, and transportation is no exception. This group discussed how **different communities experience vastly different outcomes in transportation and how this is shaped by transportation policies and culture informed by marginalizing forces**. For example, some participants provided examples of how many Black and Latinx people will opt to drive over taking transit or biking to avoid interactions with the police. Similarly, women experience a much higher degree of harassment than men in public places, which affects their experiences using public transportation and facilities. **Beyond individual experiences institutional marginalization has affects the outcomes of public engagement processes (or the lack thereof) in transportation planning, which has harmed trust and relationships between communities and local governments**. This damaged trust is an issue that cuts across many of the other subtopics.

3. **Government Agency Accountability, Culture and Efficacy**

"How many public employees even take public transportation?" These and other questions were raised in discussions about local government and transportation agencies. **The overarching discussion here focused on how agency culture may influence outcomes in transportation, and the criticality of agency capacity and accountability in achieving any significant change in transportation policy and infrastructure**.

4. **Decision-Making Processes and Community Engagement**

Discussion around this sub-topic centered around how more privileged angelenos (typically **White, older homeowners) are able to co-opt decision-making processes in their favor.** There was also a broader discussion about often highly technical knowledge is presented to community members in the form of choices, and that this can often obfuscate what the outcomes would be. Participants noted that taking information from community experiences and desired outcomes and using engineering and planning knowledge to propose an appropriate solution could be a better dynamic.

5. **Land Use**

Participants discussed the need to better distribute resources throughout the city and bring key destinations closer to each other to achieve more efficient transportation outcomes. The **discussion noted the utilities and drawbacks of a 15-minute city framework, and highlighted the acute need for anti-displacement measures and a multi-racial lens in**

order to re-imagine the urban landscape in Los Angeles in a way that affirms justice as a priority.

6. **Public Space**

Participants discussed public and active transportation as connected to and as an extension of public space. **Discussion around this topic centered around the attitudes and needs of different communities around public space, and how those attitudes and need shifted throughout the varying courses of the COVID-19 Pandemic**.

Prioritizing Subtopics For Broader Inter-Working Group Conversation

Voting process

In order to prepare for a fifth working group meeting across all working groups, participants utilized a platform called LucidSpark where previous conversations were summarized by subtopic in sticky notes. First, each subtopic was briefly recapped and participants had the opportunity to add any additional thoughts they might have. Second, participants voted broadly on which subtopics to prioritize. Finally, participants were asked to vote on individual thoughts on sticky notes for each subtopic to prioritize and bring to the final working group meeting.

Subtopics Selected

The following subtopics were the highest voted for the Reimagining Transportation working group:

Reimagining Transportation Topic Areas	Priority level based on Meeting #4
Power Dynamics and Public Decision-making Processes	High
Making Land Use More Conducive to Active/Public Transportation	High
Government Agency Accountability and Efficacy	High
Transportation Agency Culture and Public Engagement	High
Car Culture	High
Regulating/reckoning with emerging technology	Medium
Public space and the local economy effects of COVID	Medium
Education/Culture/Design Issues Around New Transportation Infrastructure	Lower
Barriers Between Visualizing and "Doing"	Lower

Priority Ideas

The following are key ideas that participants voted on in order to include in this summary, and to reflect the broader conversations had around the idea over the course of the four meetings:

“Study of political influence across a spectrum from elite social life to door-to-door information sharing”

Participants discussed a desire to better pinpoint the less transparent ways that transportation decisions were made through key relationships, regulatory capture and other processes. It was noted that the formal power map of decision markers is often belied by informal networks and influencing factors that can be hard to pin down. From an organizing perspective, this creates an asymmetry of power between community based and advocacy organizations and those who comprise the informal network. In order to most effectively institute change, one would need to understand the most effective channels to follow, which are obfuscated by this phenomenon.

“Study how money influences outcomes and how it flows through contracts”

In a similar vein as the above comment, participants spoke about wanting a better understanding and more transparency on how money influences transportation outcomes in programs and infrastructure. Some initial work has been done on breaking down the complex processes for resource allocation in the City of Los Angeles (e.g. the Sidewalk and Transit Amenities Program), but overall the structure of contracts, who receives them and how resources are distributed across geographies and programs is less understood. Participants also discussed imbalances in funding between infrastructure like freeways and public transit, and even within public transit the broader preference for capital projects over service provision. Part of this was hypothesized to be attributed to agencies having a narrower view of the meaning of transportation, and the rest of the discussion revolved around a strong desire to better understand the budget allocation process from the start to the implementation of the last dollar.

“Use international comparisons with cities similar to and different from LA's racial geography to determine if it's easier to shift to "human scale" in more homogenous places, and alternatives to market-based development that increase affordable housing and high quality public spaces”

This discussion was a part of the conversation around reshaping the urban landscape of Los Angeles to better accommodate the needs of everyone, and to move away from car-centricity. Participants emphasized Los Angeles’ diversity and the need to account for the varying needs of angelenos in planning. It was noted that in many places, conversations around shifting to new models of land use (e.g. 15-minute cities) are often in relatively more homogenous countries/jurisdictions, and that it is important to look for examples from similarly diverse cities with similar characteristics and problems as Los Angeles. Additionally, avoiding gentrification was a central piece of this conversation. Due to acutely high housing costs in Los Angeles, infrastructural and land use shifts can threaten displacement in many communities if safeguards are not put in place. The need to explore alternative models of housing like community land

trusts and social housing in greater breadth and depth were noted as key preconditions in order to ensure community stability. Without serious consideration and investment, participants mentioned, the very people meant to be served by improvements could be forced to leave their own neighborhoods.

“Study internal culture at agencies to see how interdepartmental collaboration works and how expectations might be shifting, and How open/closed are agencies to community partnerships”

Participants were curious to know more about the internal dynamics at transportation agencies. For example, are longer-term bureaucrats more conservative about what can be accomplished in transportation? Have cultures in transportation agencies trended in a direction that can be accurately quantified or described? Participants discussed how the daily lives of bureaucrats and elected officials may also influence how they approach decision-making. It was noted that it would seem that very few of them ride public transportation, and thus are farther from understanding the core concerns of riders. Additionally participants expressed a desire for greater insight on the attitudes and priorities around community engagement and partnerships as expressed by transportation agency employees and department heads themselves.

“Transportation agencies have a narrow view of "transportation" (going from A to B), when it's more than that. It's about public space, dignity, and wellbeing.”

Participants discussed that in program design, decision-making and infrastructure investment and planning, transportation agencies tend to miss the mark on integrating other aspects of life with transportation. Transportation was discussed as an extension of public space, and vital to be integrated into conversations about street vending, community stability, green space and other issues in Los Angeles. It was noted that because of this view, public feedback can often be redirected to other agencies or processes, leading to less integrated solutions in transportation. This particular barrier was discussed as having a knock-on effect for other issues in transportation. Without a holistic view of transportation, participants argued, it will not be possible to successfully address issues that cut across culture, intersectionality, gentrification, and transportation justice.

“Democracy falls short in representing minority interests (People of Color, walking, biking, etc). Is democracy really what we are looking for? Transparency and accountability are pieces of democracy-”

This discussion focused on planners and decision makers expecting community members to make decisions from an engineering perspective, or other technical perspectives. Participants mentioned that public agencies should be taking the perspectives and lived experiences of community members and using their expertise to translate those needs and wants into the outcomes that are being asked for, rather than asking community members whether they want the infrastructure. Follow-up conversations about how decisions were made, and avenues for recourse when there are issues were discussed as crucial missing pieces for marginalized

communities. Additionally, a broader conversation was had about the process of community engagement and how most engagement now disproportionately advantages people with more resources and time to participate. Alternatives discussed included door knocking, surveys, and removing key veto points for transportation decisions.

“How do you persuade public officials? Given the channels we've identified, how do you intervene?”

After considering the formal and informal networks of power in Los Angeles, as well as asymmetries in power among community members, participants expressed a desire to better understand more empirically what influences decision makers? This information would be useful to participants both from the perspective of advocacy and organizing, as well as for the sake of transparency and designing more effective community engagement and input processes.

Types of gaps

V / ⚖️ = Value gap
K / 👷 = Knowledge gap
P / 🖨️ = Political gap

⚖️ **Values** gaps occur when people lack consensus over the government's adopted goals and objectives.

🖨️ **Political** gaps occur when decision-makers agree on values but think the economic or political costs of a course of action are too high.

👷 **Knowledge gaps** in policy making occur when decision-makers **lack applicable knowledge that would inform their decision.**

Charge for Working Groups

1. Identify the barriers to just and sustainable transportation in Los Angeles
2. **Identify knowledge, political, and values barriers between today and and a transformed future**
3. **Assess and prioritize these barriers by which are most critical to address in order to advance just and sustainable transportation**

Stickies Key

Notes from previous meeting

New notes that participants add today

Notes ready for voting

Who are Public Officials Hearing From?

Who are public officials hearing from now and what are they hearing?

What's the baseline of transportation culture today? Assumptions that influence decisionmaking may be incorrect

city council isn't asking the right questions but instead listening to the loudest voices

Awful or nonexistence translation/interpretation services for public meetings, public documents, public programs.

Privileged people are very good at capturing processes

potential gap- easier participate in city council meetings- via zoom or message- in people are unaware of this. How can we make this information more accessible?

Support for operation and maintenance and demonstration of equitable use of public space looks like

Throught what channels do public officials hear from people outside the formal process? E.g. their kids' schools, at the golf course (?!), dinners with lobbyists? Does this matter?

There seems to be no strategy to how they are being informed on these issues or mobility justice issues

Need a renewed emphasis on door to door / in community based engagement for planning discussions in communities

Hearing from people who have the luxury ot time to participate during the day

How do you persuade public officials? given the channels we've identified, how do you intervene

Land Use

Land Use

LA is very spread out

land back for native peoples when possible (Tataviam, Tongva, etc).

Who owns the land? Prop 13 but paying low taxes on buildings and just waiting. Hard to address transportation in isolation from

Well invested space for the public are usually private/commercial spaces; meanwhile public spaces (parks and metro) are not the best invested.

Arts

How can there be affordable housing when City Planning keeps approving market-rate development?

Cost efficiency index - consider what it takes to get a passing score

International comparisons re: decisionmaking for infrastructure and investment in programs

Is the sustainable transpo shift easier in European-dominant countries? Why? What does legacy of segregation and racism have to do with it?

Localizing resources in neighborhoods

"15 min city" l style in communities so people can re-imagine how they NEED to move about the city and then do it and avoid gentrification

here are tons of proposed models- - are there more specific LA models that are multicultural and multiracial- could this be a possible outcome of this group?

Better use of transportation space (ie allow for street vending, small business, public wifi, bathrooms, etc.)

Different Kind of Democracy

+4 Votes

Different Kinds of Democracy

Generational shifts in transportation culture

Government contracts and doing outreach- how can we re-imagine contracts with more community integration, how to create a base level of expectation,

Is a 1 minute testimony truly the best way to get public feedback?

Sometimes there is too much democracy in infrastructure such as street humps and perhaps decreasing democracy in these situations, or too much democracy in the wrong places

Entry points for community narratives

How community expertise and community based planning aren't part of the process where things begin

Democracy falls short in representing minority interests (bikers, POCs etc). Is democracy really what we are looking for? Transparency and accountability are pieces of democracy-

Overburdening communities to understand transportation engineering during "community engagement".

Re-imagining includes when process are needed or not needed

What are the possibilities for bringing transportation issues into elections to counter influence of $?

Transportation Agencies

Transportation Agencies

Collecting data about lived experiences are different in each community- how to make it attractive to each community;

Narrow view of "transportation" going from A to B, when it's more than that. It's about public space, dignity, and wellbeing.

How many government staff actually ride transit?

Role of democracy in determining agency contracting

Are we on the cusp of planning process changes? Or do staffers become more conservative over time?

Having to rely on one person to take a risk on a new idea (at agencies, politicians, etc)

Importance of how welcoming or unwelcoming they are to more community integrated projects are a huge factor

The systems that are in place are ineffective- siloed departments- lack of communication between departments. Lack of future planning- short sighted

Government/ Agency Accountability

Government/Agency Accountability

Could we use social media to create accountability?

Is restructuring of agencies necessary to improve accountability?

political scientists focus much more about Congress and similar institutions. They don't pay attention to neighborhood councils

Do creative methods for gathering community input get utilized in design and decisionmaking?

someone from the city having a continued relationship w/communities, similar to field reps but someone who updates communities about changes

political staff v. agency staff (who leads the other)

What is the funding that backs the strategy buidling and the process for accountability?

Institutional commitment to plans beyond a political term

Conflicts in use with new infrastructure

Conflicts in use with new infrastructure

Deliveries vs. bike lanes

Need to invest in public education when changing infrastructure, shift habits (ie: scrambled crosswalks at MacArthur Park - many still don't know about it)

Visualizing/ Acting

Visualizing/Acting

How does insurance factor or ability to demonstrate the new forms of transportation andnliving we are trying to manifest?

not just re-imagining but also **acting**

Car culture

Car Culture

Can we de-escalate anger within driving culture?

Safety perceptions by mode, how people underesimate the danger of cars vs. other modes

Auto lending and leasing

How can we re-imagine when our population and quantity of cars continue to grow?

Decision-makers buy into the car culture of LA. their solution is always about widening roads. The invisibility of people who use public transportation.

Media & pop culture

Creates invisibility of all other modes of transportation

Built environment reinforces car culture (sprawl, limited commercial/entertainment options in communities) and how do we activate public spaces to shift residents out of cars

People are attached to their vehicles/people who want to out of their vehicles. The cultural and status aspects of car (objects of desire). Also a gendered dimension

Regulating/ Reckoning with Emerging Technology

Regulating/reckoning with emerging technology

Companies that are profiting over the right of way –such as scooters and delivery robots. Who is regulating this and who should get to use public right of way spaces? e.g. curbivore

Unequal power dynamics in the landscape of advocacy: CBOs v. well-monied tech companies (both vying for government attention)

Key to provide BIPOC communities access to clean energy mobility

Public space and local economy

Public space and the local economy effects of COVID-19

What was the effect on pedestrians thinking about restaurants and dining taking over sidewalks and public space during COVID as well as the new permitting ?

Support for operation and maintenance and demonstration of equitable use of public space looks like

small businesses did well during active transit expansion. This was also connected to Move Culver City but there has been pushback from people who are upset about traffic

socialization of the street

Why have pandemic-induced changes to public spaces often not stuck?

Summary Report: Resilient Transportation

Overview of the Working Group

The Resilient Transportation Working Group was tasked with identifying and prioritizing barriers to the creation of a resilient transportation system in Los Angeles, one that is prepared for the effects of climate change and other hazards. The working members included representatives from the community-based organizations Re:Ciclos, Climate Resolve, and TreePeople, as well as UCLA faculty and staff from multiple disciplines. The group grappled with how to define resilience, asking what it means to be resilient - resilient to what, resilient for whom, and at what time scales. Group members brainstormed and strategized around what barriers and research gaps exist and which need to be addressed most urgently, highlighting things like creating a culture where the use of public transit and human-powered transportation is the norm, and connecting engineering more closely to community needs. Many of the barriers and research questions identified were potential cross-cutting topics, including car culture and car-dependency, equitable and transparent approaches for funding allocation, modeling, and project design, and upstream and downstream impacts of different modes of transportation.

Participant Acknowledgements

The following members of the Resilient Transportation Working Group contributed to the development of this document through their participation in Working Group Meetings 1-4:

Jimmy Lizama, Re: Ciclos
Brian Yueshuai He, UCLA, Project Scientist
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John Gahbauer, UCLA, Institute of Transportation Studies
Jennifer Craer, UCLA, Sustainable LA Grand Challenge
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Shona Paterson, TreePeople
Manny Gonez, TreePeople
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Henry Burton, UCLA, Civil & Environmental Engineering
Jiaqi Ma, UCLA, Civil & Environmental Engineering
Guang Cheng, UCLA, AI Lab
Tamar Christensen, UCLA, Creative Writing
Randy Fallows, UCLA, Creative Writing

Introductory comments from reviewer Jimmy Lizama:

Resilience in the Culture of mobility by and for the people backed by engineering of transportation through government agencies*. Today we have an unhealthy public perception that cars equal freedom and upward mobility and transportation agencies envision, fund and build for this ever-eluding and unattainable concept that the car can actually work as means to move people around and concomitantly create economic well being. Dispelling these notions is imperative to create resilient and equitable mobility for all Angelinos.*

Car Culture, Car Infrastructure and the related Fossil Fuel Economies are directly causing Global Warming*. Not only are they not resilient to climate change, they are the agents of it. When we speak of multi-modal approaches to transportation, we really are saying: privately owned Cars and Fossil Fuel dependency, as two separate things, need to be absolutely curtailed to stop Global Warming. Electric Cars are not a solution to Global Warming and definitely not an example of equity in the future. Multimodal, public transportation that is green and built with user equity in mind IS the solution for Los Angeles combating the environmental crisis we're in and that we have, in part, caused. Additionally, by way of addressing the climate crisis through resilient public transportation initiatives we also tackle the social inequities brought on by the classist approaches of private [auto]mobility.*

High Level Discussion and Barriers Identified

The discussion in Resilient Transportation's first working group meeting was broad and cross-cutting. Participants shared their personal experiences navigating transportation in Los Angeles, as well as their perspectives on the largest challenges the LA Metro-area faces in developing a more robust, equitable, and multi-modal transportation system. Some cross-cutting ideas came up in the conversation, including the need to connect engineering with the needs of people and communities rather than focus solely on efficiency and the need to better understand behavior and social dynamics around car culture. Working group members emphasized the ways private vehicle travel exacerbates inequalities, as well as the need to redirect funding away from private vehicle infrastructure towards public transit and other forms of mobility. One suggestion the group made during this meeting was to reclaim space from cars by creating bus lanes on major freeways in Los Angeles. The group also brainstormed ways to make public transit more efficient, resourceful, and desirable, including infrastructure changes, improved network connectivity, and messaging around lifestyles and transit modes. When the conversation turned to resilience, the group focused on the way that multi-modal transportation is a way to create resilience, while car-dependence creates vulnerabilities.

In the second meeting, working group members discussed the meaning of the word resilience, and considered the question "How can transportation infrastructure meet the evolving needs of a climate-impacted Los Angeles?" Working group members identified hazards to consider in a changing Los Angeles, including extreme heat, flooding, earthquakes, and cyber-attacks, and

emphasized the importance of a multi-hazard approach to engineering. It became clear through the group's discussion that the challenge of incorporating resilience and equity into engineering models and infrastructure planning is a key barrier to address.

In the third meeting, working group members used Jam-Board to continue identifying and refining barriers and research gaps in pursuit of a resilient transportation system in Los Angeles. Working group members also began using a gaps-assessment framework to differentiate between knowledge gaps, political gaps, and values gaps. The conversation around defining resilience continued in this meeting, and a knowledge gap was identified related to how resilience is defined by different fields and government agencies. Another knowledge gap identified was the lack of information on the state of transportation infrastructure in Los Angeles (accessible sidewalks, for example), which makes it challenging to make meaningful improvements.

In the fourth meeting, the working group did a prioritization exercise to identify barriers and research questions most important to achieving an equitable, sustainable transportation system in Los Angeles. The process and results of this exercise are described in the following section.

In the fifth meeting, the Resilient Transportation working group reconvened in person along with all the other working groups. In this meeting, Resilient Transportation working group members talked about overarching themes, and emphasized shifting our focus towards strengthening our social infrastructure and building collective, diverse means of resilience (instead of continuing to invest in private cars). This could look like designing vibrant public spaces, including transportation hubs and infrastructure, that foster community resilience.

Prioritization

Voting process

In Meeting 4, working group members spent time reviewing and refining previously identified barriers and research questions, and then prioritizing them through an informal voting process. First, using the voting feature on LucidSpark, each working group member in attendance identified the overarching topics they felt were most important for advancing just and sustainable transportation in the greater Los Angeles area. Table 1 displays the results of this prioritization exercise. While the tables below are useful in reflecting the priorities of those in attendance for Meeting 4 (two external partners and five UCLA researchers), they should not be considered definitive.

Table 1. Topic Priority Level Based on Working Group Meeting 4.

Resilient Transportation Topic Area	**Priority level based on Meeting #4**

Funding for transportation infrastructure	High
Transportation infrastructure and extreme weather	High
A transportation system with high dependency on cars lacks resilience	High
Upstream and downstream impacts of transportation infrastructure and its use	Medium
Incorporating social considerations, including equity, into engineering models and infrastructure planning	Medium
Understanding the needs people have for infrastructure	Medium
Resourcefulness	Lower
Funding for transportation services	Lower

Next, the working group members voted on the most important barriers/research questions within each of the highest priority topic areas. The results of these votes can be found in Tables 2-5 in the following section, "Barriers and Research Questions Identified as Most Critical to Address."

Barriers and Research Questions Identified as Most Critical to Address

Funding For Transportation Infrastructure

The topic of funding for transportation infrastructure came up in discussions across multiple working group meetings. Working group members brought up the fact that the Los Angeles area's dependence on cars deepens inequalities and contributes to climate change. Based on that conversation, the working group identified the need to transition away from using government funds to continue investing in private vehicle infrastructure, and instead focus on "funding for public interest," which could be housing, public transit, pedestrian/bike infrastructure, and more. Working group members also emphasized the scale of resources put towards private vehicle infrastructure in contrast to public transit and raised the idea that car manufacturers should be held financially accountable for their role in elevating infrastructure costs. Working group members also discussed whether and how resilience is being considered when deciding what projects to fund, and the lack of resilience metrics that would help to normalize and standardize including resilience as part of project selection criteria. The incorporation of resilience metrics in project selection and the need for increased funding for active transportation programs/projects were elevated as high priorities in Meeting 4.

Table 2. Barrier/Research Question Priority Level Based on Working Group Meeting 4.[1]

Barrier/Research Question	**Priority**

[1] 5+ votes = "High", 2-4 votes = "Medium", 1 vote = "Lower"

When MPOs and public agencies are selecting projects, they should consider resilience metrics and long-term outcomes (e.g., in 50-100 years)	High
More funding for Active Transportation: These are low-cost projects with high potential, which makes funding them "low-hanging fruit". Funding more Active Transportation Program (ATP) projects could also improve transit accessibility and have positive "spillover" effects (and allow transit funding to be used elsewhere and/or more effectively).	High
As a whole, massive amounts of (public and private) resources go to cars. This calls for a re-balancing of priorities and funding for infrastructure. Car manufacturers should pay for their role in elevating infrastructure costs.	Medium
How much funding is being spent on car infrastructure versus other infrastructure? Can some of this funding be repurposed towards equity and resilience goals?	Lower

Transportation Infrastructure and Extreme Weather

The topic of transportation and extreme weather emerged as a priority when discussing adapting to a changing climate in the Los Angeles Area. In Meeting 2, the working group discussed extreme rainfall and the role of transportation infrastructure in stormwater management. This conversation is reflected in the prioritized research question in Table 3 related to green infrastructure. In Meeting 4, working group members pointed out that understanding the value infrastructure provides and current capacity is an important part of planning for extreme weather, yet in some cases there is a disincentive to gather information on how and where infrastructure is deficient because it would be followed by pressure to address the problem quickly. While this lack of information and misaligned incentives were not identified as a high priority in Meeting 4, several distinct barriers/research questions did emerge from the discussion (see the last three rows in Table 3 below). The research question that was seen as the highest priority in Meeting 4 is how human-powered and multi-modal mobility will be impacted by extreme weather, and what are examples of ways we can adapt to and prepare for extreme heat and intense rain. Another prioritized topic was the need for flexibility and resilience of infrastructure to respond to changing travel patterns, for example in response to an extreme weather event or cyberattack. Finally, the cross-cutting topic of accessibility for those with disabilities that affect their mobility was highlighted as it relates to navigating extreme weather and multi-modal transit systems.

Table 3. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	**Priority**
How will human-powered and pedestrian mobility happen in the future with extreme weather patterns? Are there examples that already exist in the world?	High

Role of green infrastructure in making Right of Way more resilient to extreme weather (heat, flooding) through shade trees, bioswales, etc.	Medium
Transportation demand and travel patterns will likely change with extreme weather. Is existing/planned infrastructure resilient/flexible enough to handle?	Medium
What are approaches to understanding the value that infrastructure provides as a service for people?	Medium
Car-centric transportation is vulnerable to extreme weather, but intentional consideration must be given to how multi-model transit will be adaptable	Medium
Do people value accessibility for those with disabilities that affect their mobility?	Medium
We lack complete and recent data on the conditions of curbs, sidewalks, and roadways.	Lower
We don't have adequate surveys of current infrastructure capacity for extreme heat or extreme rain.	Lower
Legal disincentive to know what transportation infrastructure is deficient.	Lower

A Transportation System with High Dependency on Cars Lacks Resilience

This topic surfaced frequently within the Resilient Transportation working group and will be relevant across many working groups. Working group members were clear from the first meeting that the Los Angeles area's dependency on cars is a key barrier in achieving a resilient system. Cars and car-infrastructure are susceptible to weather events, cyber-attacks, fuel shortages, and more. Building up a network of diverse mobility options will allow the transportation system to better respond to hazards or emergencies. The working group also discussed the ways that car-culture negatively impacts our social networks, which are an essential component of resiliency. In Meeting 4, "Identifying the underlying value gaps that prevent people from using active travel modes other than cars" was prioritized as the most urgent research question, alongside related questions focused on strategies to shift car-users towards alternative modes of transportation (Table 4).

Table 4. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	**Priority**
Identifying the underlying value gaps that prevent people from using active travel modes other than car.	High
How can mobility hubs be designed and introduced to make Los Angeles less dependent on cars?	Medium
How can governmental messaging and taxing negative externalities (nudges) lead people and companies to make more sustainable/resilient choices?	Medium
How to get people to want to use different travel modes besides personal automobiles? Human-centered design can provide perspectives.	Medium

How can the public learn that an overdependence on cars is not resilient?	Medium
Transit systems require transit-supportive land uses to be effective.	Lower
How does multimodal mobility impact accessibility?	Lower
How does the role of time-based accessibility affect mode choice? What are the opportunities to make biking, walking, and public transit more time competitive?	Lower

Incorporating Social Considerations, Including Equity, Into Engineering Models And Infrastructure Planning

Engineers are key players in the creation of a resilient transportation system, and the working group's conversations, particularly in Meeting 2, reflected the challenges of incorporating equity and resilience into engineering projects and infrastructure planning. Working group members discussed how rarely equity and resilience are incorporated into metrics and models, in part because it is difficult to do, and in part because it is not sufficiently incentivized by funding processes. One challenge identified related to equity metrics was that including equity in cost-benefit analysis requires placing a value on equity. The group's discussion also highlighted the lack of a clear definition of equity and resilience across agencies and disciplines, which is reflected in the prioritized research questions and barriers below (Table 5). While it did not make it into the final priorities, the working group also spent some time discussing the benefits of open source and transparent modeling practices, such as increased potential for collaboration within and across disciplines and improved trust of models.

Table 5. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Barrier/Research Question	**Priority**
We need new approaches to infrastructure planning and funding that embed equity. What approaches would be most effective for LA?	High
Existing legal requirements for infrastructure planning (CEQA) limit the dialogue and responsiveness that agencies can show in planning.	High
How do different fields (or government agencies) and disciplines define equity? If there are disagreements, what are the consequences? How to address that equity is defined differently across areas, no "one size fits all."	Medium
How can social equity be represented within an engineering model? As an input variable/constraint or output variable? Or in/as a parallel sister process?	Medium
Agent-based transportation modeling can better incorporate individual-level socio-demographic considerations to embed equity considerations.	Medium

Additional Topics for Consideration:

The following topics were not identified as highest priority during the Meeting 4 voting process. However, they were discussed throughout the first three meetings and represent additional research questions and barriers raised by the working group.

Upstream And Downstream Impacts of Transportation Infrastructure and Its Use

This topic area overlaps with discussion that occurred in the Phasing Out Fossil Fuels Working Group, particularly related to electric vehicles and battery production. Working group members brought up the global impact of lithium and other resource consumption and identified a need to incorporate global equity into our system design in addition to local equity.

Understanding The Needs People Have for Infrastructure

Understanding the needs people have for infrastructure is a cross-cutting topic that surfaced repeatedly in discussion across Meetings 1-3. It also came up as part of the discussion around the topic of transportation infrastructure and extreme weather, which prioritized the research question of "What are approaches to understanding infrastructure as a service for people?" Working group members drew on experience from past projects to emphasize the importance of timing when conducting surveys and focus groups; for example, to inform infrastructure design, community input may need to happen before the engineering process begins as opposed to simultaneously.

Resourcefulness

Resourcefulness is a broad topic, but in this case it aims to reflect discussions the working group had about the reality that resources are finite, and our consumption of resources impacts other people. This means that creating a resilient transportation system will require creative and innovative use of existing resources (for example, repurposing freeways) and an increased focus on human-powered transportation such as biking and walking.

Funding For Transportation Services

Funding for transportation services was a common theme within this working group and is also relevant across working groups. Working group members emphasized the importance of transparency and formal processes for community input on decisions related to transportation funding. They also identified barriers and research gaps related to transportation services funding, including the lack of awareness about how much money is spent on private vehicles as opposed to other essential needs (public transit, housing, etc.).

Types of gaps

V / ⚖️ = Value gap
K / 👷 = Knowledge gap
P / 🗳️ = Political gap

⚖️ **Values** gaps occur when people lack consensus over the government's adopted goals and objectives.

🗳️ **Political** gaps occur when decision-makers agree on values but think the economic or political costs of a course of action are too high.

👷 **Knowledge gaps** in policy making occur when decision-makers **lack applicable knowledge that would inform their decision.**

Charge for Working Groups

1. Identify the barriers to just and sustainable transportation in Los Angeles
2. **Identify knowledge, political, and values barriers between today and and a transformed future**
3. **Assess and prioritize these barriers by which are most critical to address in order to advance just and sustainable transportation**

Stickies Key

Notes from previous meeting

New notes that participants add today

Notes ready for voting

This is a new note

This is an old note

Topic 1: Understanding the needs people have for infrastructure

Understanding the needs people have for infrastructure

People's needs are supposed to be met through political representation and government designing the needs of the project. Is this working as designed?

Infrastructure reflects the equity values incorporated into decision-making about infrastructure.

Getting the timing right for community input - start asking for input earlier in the process (example = bus shelter design project)

How can we learn about the needs of people so that we can actually do something to accommodate them?

Develop a codified method of including grassroots voices in design & planning

Demographic data is not enough to understand actual needs. Direct inquiry is necessary.

There needs to be a framework for civil engineers to start thinking about people and services instead of starting with infrastructure.

Incorporating social considerations, including equity, into engineering models and infrastructure planning

Colorado Department of Transportation has a model for "transport equity" metrics. In the future, metrics such as these could be included in benefit-cost analysis (with a dollar value)

Trust in models requires transparency

We need new approaches to infrastructure planning and funding that embed equity. What approaches would be most effective for LA?

How can social equity be represented within an engineering model? As an input variable/constraint or output variable? Or in/as a parallel sister process?

Existing engineering methods incorporate additional considerations in the benefit-cost analysis - we discuss safety, congestion, emissions.

How do different fields (or government agencies) and disciplines define equity? If there are disagreements, what are the consequences? How to address that equity is defined differently across areas, no "one size fits all".

There's a gap between engineering and people

Equity is one of five major goals for transportation engineering. Must show equity and community impact to have a project funded.

LA is a test-tube in so many ways for social and political movements, being able to share how we can enact equity in engineering and design is important

Agent-based transportation modeling can better incorporate individual-level socio-demographic considerations to embed equity considerations.

Existing legal requirements for infrastructure planning (CEQA) limit the dialogue and responsiveness that agencies can show in planning.

People and data engineering components: transportation engineering includes behavioral modeling, other Civil Engineering fields do not.

How equity is defined is an essential question for adapting engineering tools.

There is a disconnect between physical and social and economic.

How is equity associated with resilience?

Subtheme 4

A transportation system with high dependency on cars lacks resilience

How does the role of time-based accessibility affect mode choice? What are the opportunities ot make biking, walking, and public transit more time competitive?

Identifying the underlying value gaps that prevent people from using active travel modes other than car.

Car product labeling on GHG effects would help to educate people about their impacts

How to get people to want to use different travel modes besides personal automobiles? Human-centered design can provide perspectives.

Transit systems require transit-supportive land uses to be effective.

People want more lanes for cars, but not having a car is freedom.

How can the public learn that an overdependence on cars is not resilient?

Our system is highly dependent on a single mode - cars. A functional multi-modal system would contribute to resilience.

How can mobility hubs be designed and introduced to make Los Angeles less dependent on cars?

Thinking about where people need to travel, beyond commuting model, that drives reliance on cars

How can governmental messaging and taxing negative externalities (nudges) lead people and companies to make more sustainable/resilient choices?

If extreme weather increasing, this must be a consideration in building a multi-modal system. Existing resilience efforts go into car-dominant structures.

How does multimodal mobility impact accessibility?

An over-reliance on cars has health, social, and environmental impacts

We need a multi-modal system.

Sub theme 5

Understanding and modeling climate-related hazards, including interactions between multiple h

Existing engineering design uses single-hazard approaches

Climate modeling with large-scale social analyses are helping with prioritizing equity

As researchers and engineers we need to be adaptable and throw away our old tools if we realize they're not serving the broader purpose.

Interactions with man-made disasters such as terrorist attacks and cyber attacks.

Immediate threats (ie pandemic) can be more influential over behavior and funding than longer term threats (ie climate)

Is what's coming out of engineering model contributing to the broader question of how infrastructure serves civil needs in the way that it needs to?

How will climate hazards and non-climate hazards interact?

Resourcefulness

Use off-street parking for other purposes, like housing.

How can managing people's expectations drive resourcefulness (and mitigate long commutes and large vehicles)

Often the greenest solution is using what we already have, rather than using something new.

Resourcefulness and re-allocation of transportation and roadway space to uses that are more energy and space efficient or uses that are more resilient.

Funding for transportation infrastructure

More funding for Active Transportation
Active transportation funding programs are oversubscribed already. These are low cost projects with high potential, which makes funding them "low-hanging fruit". Funding more ATP projects could also improve transit accessibility, and have positive "spillover" effects (and allow transit funding to be used elsewhere and/or more effectively).

EV (ZEB) infrastructure considerations for transit?

Making the system work for private motorized transportation is more expensive than for public or human-powered transportation

As a whole, massive amounts of (public and private) resources go to cars. This calls for a re-balancing of priorities and funding for infrastructure. Car manufacturers should pay for their role in elevating infrastructure costs.

How much funding is being spent on car infrastructure versus other infrastructure? Can some of this funding be repurposed towards equity and resilience goals?

When MPOs and public agencies are selecting projects, they should consider resilience metrics and long-term outcomes (e.g., in 50-100 years)

How does transportation funding meet both existing fix-it-first needs and address growing climate hazards/challenges?

sub theme 10

Transportation infrastructure and extreme weather

How will human-powered and pedestrian mobility happen in the future with extreme weather patterns? Are there examples that already exist in the world?

What are approaches to understanding the value that infrastructure provides as a service for people?

We lack complete and recent data on the conditions of curbs, sidewalks, and roadways.

Role of green infrastructure in making Right of Way more resilient to extreme weather (heat, flooding) through shade trees, bioswales, ect.

We don't have adequate surveys of current infrastructure capacity for extreme heat or extreme rain.

Car-centric transportation is vulnerable to extreme weather, but intentional consideration must be given to how multi-model transit will be adaptable

Do people value accessibility for those with disabilities that affect their mobility?

Legal disincentive to know what transportation infrastructure is deficient.

Transportation demand and travel patterns will likely change with extreme weather. Is existing/planned infrastructure resilient/flexible enough to handle?

It does not seem like LA's transportation system is prepared.

Permeability in roadways has technical and implementation challenges

Extreme heat creating need for adapting infrastructure (e.g. shade for those not in vehicles)

aquifers are different throughout Southern California and our water use is different across LA and the region.

sub theme 11

Funding for transportation services

How can LA Metro increase transparency and meaningful community input opportunities around funding decisions?

Today, we spend a lot of public funding on automobiles which is privately sold and profited on. An important outcome of this should be decommodifying transportation

All funding should be geared towards resilient, multimodal formats focused on public health.

Metro instated free fares for transit riders last year.

Recognizing the importance of paying a fare for revenues

Los Angeles county does a poor job of chasing earmarks. Do people know how to do that?

Incorporating social values into the budgeting process in a way that's transportation and engagaing.

LA County has multiple transit operators (37!). Interoperability challenges limits ridership.

Cyberresilience for Transportation

Two needs: 1) how can these attacks happen?, and 2) how can we defend against attacks? There is a lot of research happening on both of these tracks.

As more transportation solutions rely on technology, how can cyber vulnerabilities undermine these solutions?

cyber resilience is very important in terms of transportation, especially intelligent transportation systems and connected/automated vehicles

Will people see personal mobility (vehicles) as less vulnerable to cyber attacks than shared mobility (transit)?

While e-bicycles and e-vehicles are good, human-powered mobility is ultimately more resilient and less costly economically and ecologically. You can't cyber hack a bicycle.

Defining resilience

Diversity in modality is a form of resiliency

How do different fields (or government agencies) define resilience? If there are disagreements, what are the consequences?

Resilience to what? could be:

How is equity associated with resilience?

the word resilience often means something happened, and now we're returning to a different state

Resilience definitions intersect with how we will build infrastructure

Resilience for whom? could be:

Bringing in different perspectives in designing resilience is very important. We want to bring resilience into decision-making in the context of natural hazards.

Upstream and downstream impacts of transportation infrastructure and its use

Where does lithium come from? What are the impacts of lithium and other materials?

Communicating impacts about resiliency - people focus on tailpipe emissions and not upstream/downstream

Transportation infrasructure useful life and maintenance cycles

Life-cycle impacts of EV charging; are we locking in EVs at the expense of other modes?

Defining equity

Summary Report: Safe and Healthy Transportation

Overview of the Working Group

The Safe and Healthy Transportation Working Group was tasked with identifying and prioritizing gender, racial, and modal dimensions of people's safety when using transportation systems. The group was originally the "Healthy Transportation" group, but as conversations continued, they ultimately decided that "Safe and Healthy Transportation" better encapsulated the issues they felt moved to address. Ultimately, the group narrowed their scope to thinking about 1) physical safety from traffic violence; 2) physical safety and psychological safety from traditional transportation enforcement approaches; and 3) transportation as a social determinant of health. The group was most excited by ideas about how research can be deployed and shaped by those on the frontlines of the issues. There was a hope that frontline communities could be supported to ensure that government policy and decision making centers the expertise of those most directly impacted by the unsafe and unhealthy impacts of transportation systems.

Participant Acknowledgements

The following members of the Safe and Healthy Transportation Working Group contributed to the development of this document through their participation in Working Group Meetings 1-4. Participants designated with an * attended every working group meeting:

- **Jasneet Bains*** - Program Manager, Prevention Institute
- **Damien Kevitt*** - Executive Director, Streets Are for Everyone (SAFE)
- **Suzanne Paulson** - Professor, UCLA Department of Atmospheric and Oceanic Sciences
- **Allison Clement** - Professor, UCLA Department of Psychology
- **Mark! Lopez** - Eastside Community Organizer & Special Projects Coordinator, East Yard Communities for Environmental Justice (EYCEJ)
- **Cassie Rauser** - Director, UCLA Sustainable LA Grand Challenge
- **Madeline Brozen** - Director, UCLA Lewis Center for Regional Policy Studies
- **Galyn Sumida-Ross*** - UCLA Law School 3L - Notetaker
- **Tamika Butler*** - Second-Year Phd Student in UCLA Urban Planning Program - GSR
- **Phoebe Chiu** - undergrad student at UCLA, secondary notetaker
- **Nushy Golriz** - 4th year PhD Student in UCLA Geography Department, secondary notetaker

Prioritization

Voting process

In meeting four the Safe and Healthy Transportation working group members participated in a voting process using LucidSpark. Utilizing the four subtopics generated by the group through a collaborative process over the first three meetings, participants determined the priority of the different subtopics. A limitation of this group's prioritization process is that by meeting four, only two working groups members participated.

Table 2 displays the results of the prioritization of these topic areas within the working group. During this meeting five, this priority list will be revisited by a larger group and is subject to change.

Table 2. Topic Priority Level Based on Working Group Meeting 4.

Safe and Transportation Topic Area	**Priority level based on Meeting #4**
Lack of accountability and transparency in decision making processes (10 total votes)	High
Traditional transportation enforcement (10 total votes)	High
Vision Zero barriers (10 total votes)	High
Transportation as a social determinant of health (6 total votes)	Lower

Next, the working group members voted on the most important barriers/research questions within each of the highest priority topic areas. The results of these votes can be found in Tables 2-6 in the following section, "Barriers and Research Questions Identified As Most Critical to Address."

Barriers and Research Questions Identified As Most Critical to Address

Lack of accountability and transparency in decision making processes

The Safe and Healthy Transportation working group continually asserted that beyond safe and healthy transportation outcomes, there need to be more equitable processes. In particular, group members believe that accountability and transparency are critical components of any process that will result in safe and healthy transportation. Suggestions that generated the most energy and were highlighted as being essential to making decision making processes more equitable include getting more community-based organizations (CBOs) and partners involved in decision making processes. This has to happen from the beginning as policies and strategies are being created and continue through the end of processes to allow for accountability. This could manifest in a community advisory group being formed that helps with interagency coordination and accountability. Group participants articulated that community members should be viewed as experts who have decision-making power and have the ability to hold agencies accountable through transparent decision making processes. Finally, things that often go unnoticed like procurement policies and definitions of allowable expenses require attention. The group identified models that could be consulted in thinking through research on this topic(e.g., LADOT's Dignity Infused Community Engagement (DICE)).

Table 3. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Need to get more CBOs and partners at decision making table to motivate change and not only for "engagement" and build in opportunities to hold agencies accountable (2 total votes)	High
Some sort of community advisory group that are at the table and can help with interagency coordination and accountability (e.g., Seattle, Tucson Complete Streets Advisory group) (2 total votes)	High
Procurement policies: food, payment, etc. (Mechanism that allows for work with CBOs including technical support)--e.g., DICE program at LADOT vs. Metro (2 total votes)	High
Need for investment in community education programs that help people understand road safety (1 total vote)	Lower
Lack of Capital Improvement Plan (CIP) and transparency about why and what we use without one (IiP doing some work on this) (1 total vote)	Lower
Lack of contextual data collection for partners like churches (not doing counts or surveys on Sundays) (1 total vote)	Lower
Capacity building for both CBOs and govt employees (skills, issue areas, etc.) (1 total vote)	Lower

Traditional Transportation Enforcement

Members of the working group felt a tension between acknowledging that enforcement in America has been racially biased with wanting to still have enforcement mechanisms to make streets safe. There was a sentiment that enforcement cannot be completely disregarded and instead research should focus on identifying more equitable alternatives. The alternatives that generated the most excitement and curiosity were technology based automated responses and other responses that do not require police officers. Finally, there was a desire to better define what it would mean to “decriminalize mobility” and establish benchmarks to determine what solutions work best.

Table 4. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Not all traffic enforcement is equal: Need more transparency on types of traffic stops and if there are some that are more equitable/inequitable than others also want to learn about traffic stop alternatives (2 total votes)	High
Explore enforcement alternatives: technology based (not police officer) automated responses: is there study on taking officers out of this? Do police have to be final (or any) say on tickets? (2 total votes)	High
Need stats and benchmarks to help figure out how/which methods of decriminalizing mobility works. How do we balance decriminalizing and keeping people safe (2 total votes)	High
Legality of bicycle/scooter riding on the sidewalks - what are conflicts between this and other modes/groups of people? (1 total vote)	Lower
Are there ways to address street racing without using only enforcement? (1 total vote)	Lower
The shift is away from speed traffic enforcement towards a safe systems approach. When are infrastructure improvements the best and when should enforcement be used? (1 total vote)	Lower

What's behind the expansion in street racing and aggressive driving behavior? (1 total vote)	Lower

Vision Zero Barriers

Participants noted that many cities, regions, and agencies have employed a Vision Zero framework to address safe streets. However, there was a concern that while many places have adopted safe street programs, few have taken the time to evaluate and share their implementation strategies that garner the most success in improving safety and public health. This limits an ability for coordination actions across jurisdictions and hinders the ability for transparent evaluation of the effectiveness of interventions against one another and on their own.

Table 5. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Differences in implementation by different cities (budget, implementation/ governance, best practices) (4 total votes)	High
Another barrier: coordinated action (or lack thereof) across different agencies/depts (2 total votes)	Medium
How effective are LA's street safety improvement measures? Which measures are most effective? Least effective? (2 total votes)	Medium
Does societal view of road safety differ by geographic area, social factors, or economic factors? If so, why? (1 total vote)	Lower
What types of vision zero improvements have lowered speeding? Do crosswalks do this? Do protected bike lanes? (1 total vote)	Lower

Transportation as Social Determinant of Health

The working group wanted to ensure that transportation was framed as a social determinant of health and as a result, something that is a basic need. In order to do this the group believes that more research could help provide the support for and articulation of transportation's direct tie to public health. The group hoped that any future research would focus on communities that have historically lacked transportation investment and note the long term impact this has on public health outcomes–particularly for low-income people and people of color.

Table 6. Barrier/Research Question Priority Level Based on Working Group Meeting 4.

Need to recognize transportation/mobility as a key neighborhood-level condition in supporting healthy, sustainable, and equitable communities (2 total votes)	High
Individual level: Need a clear articulation of transportation's tie to health and description as a basic right /need like food, water, etc. (2 total groups)	High
Lack of safe, inclusive opportunities for people to walk, bike and use transit in historically disinvested communities (1 total vote)	Lower
Systems level: think about transpo as basic need like housing (1 total vote)	Lower

Additional Topics for Consideration:

The following topics were not identified as highest priority during Meeting 4, but were discussed throughout the first three meetings and encompass additional barriers and potential research questions.

Community Research and Knowledge

- This working group was deeply concerned with the the ability of the most impacted communities to shape research agendas and be viewed as experts

Psychological Impacts of Unsafe Transportation

- Mental help came up repeatedly as something that is deeply tied to how safe transportation is in specific communities. The group wanted to ensure that health went beyond a focus on physical health and well-being and also included mental health.

Gentrification and Displacement Tensions

- Many projects that make streets safer are often viewed as signs of gentrification that can lead to displacement. This is likely a shared concern across groups that warrants further discussion with the larger group.

Reform vs. Abolish

- When talking about traffic enforcement, this group focused on research questions related to policing and enforcement reform. Other groups may feel strongly that reform is not enough and this topic could be presented for larger discussion.

High Level Discussion and Barriers Identified

Meeting 1

The discussion in the Safe and Healthy Transportation working group's first meeting was centered around how to narrow the topic of a group originally defined as focusing on healthy transportation. Because of the broad scope of "healthy" the group grappled with how to address all of the issues they came to the table hoping to discuss. Initially, the group was able to refine its focus to transportation related emissions and impacts on human health, social determinants of health, and infrastructure. These topics encompassed various group members' desire to focus on 1) how transportation can provide access to health promoting resources (e.g., parks, doctors, etc.); 2) how transportation related emissions, especially ultrafine particulate (UFP), impacts the health of individuals in low-income communities of color adjacent to freight corridors; and 3) how to assess the nationwide success of Vision Zero type programs and how places have addressed street safety without utilizing police enforcement. Additionally, this first meeting included a robust discussion on how data is gathered and who is considered an expert in research processes. Participants hoped this theme would be centered throughout the TRACtion process and with each working group.

Meeting 2

The second meeting was focused on garnering working group participants' feedback on the TRACtion's team proposal of how to narrow the scope of the group and rename it the "Safe Transportation" working group. The proposal was to have the working group narrow their work to 1) physical safety from traffic violence; 2) physical and psychological safety from overpolicing during traffic stops; and 3) psychological and physical safety from harassment. The new framing would incorporate the following topics from the initial TRACtion survey:

- Gender and racial dimensions of people's safety when using transportation systems. Including but not limited to design that is not universally-adapted to all genders and races/ethnicity, and institutional and social racism including policing of transportation systems.
- Modal dimensions of people's safety when using transportation systems. Safety differences between modes including active transportation and transit use.
- Intersections of the above

However, the framing would exclude transportation-related emissions and impacts of ultrafine particulate effects on human health and move that discussion to the Phasing Out Fossil Fuels working group. The group expressed a desire to keep elevating the question of: "safety from *what*?" The participants wanted to make sure this group continued the discussion on social determinants of health and suggested the group be renamed Safe and Healthy Transportation Working Group. The meeting ended with a revised framework and topics: 1) physical safety from traffic violence; 2) physical safety and psychological safety from traditional transportation enforcement approaches; and 3) transportation as a social determinant of health. While the group did not explicitly discuss the gaps and barriers to these topics as the majority of time was spent in clarifying and redefining this topic's general theme, several ideas did emerge in conversation. Some of the gaps that were discussed include:

- Reframing transportation as a public health issue
- The interconnection between improving people's opportunities and quality of life and transportation (i.e. being able to access universities, schools and employment via public transportation)
- Structural issues of traffic enforcement: a lot of the enforcement and ticketing practices are up to the discretion of the officer, whether community enforcement could replace policing
- Accountability of political leaders and decision-makers
- More emphasis on the importance of investing in infrastructure despite cost
- The subjectivity of who and what is considered data and how that data is constructed in the first place (different forms of metrics)
- What role community can play in making mobility safer: community enforcement instead of policing

Similarly, different barriers were also identified:

- Sexual harassment: there is no infrastructure solution to patriarchy
- Power structure between cars and cyclists: harassment
- The un-policeability of street racing: happens too fast to respond, many times police don't respond

Meeting 3

Meeting three of the Safe and Healthy Transportation Working Group shifted participants' attention to identifying research gaps and barriers. This was done utilizing JamBoard and by asking participants to share their thoughts on "What We Need to Know About". Using the framework established in meeting 2, the group identified research gaps related to 1) improving traffic safety & reducing traffic violence; 2) traditional transportation enforcement approaches; and 3) transportation as a social determinant of health. Participants were then asked to review the gaps they identified and determine if they were political gaps, values gaps, or knowledge gaps. The gaps highlighted by the group are summarized in the chart below:

	Working Group Topic	**Type of Gap**	**Big Questions**
Gap 1: Vision Zero and why certain cities are successfully implementing the policy while other cities are not.	Improving Traffic Safety & Reducing Traffic Violence	Political Knowledge	-What infrastructure improvements are working and which aren't?
Gap 2: Lack of accountability and transparency of public decision making processes in implementing traffic safety related policies and plans	Improving Traffic Safety & Reducing Traffic Violence	Political Values	-Who are the decision makers? How do CBOs get to be part of strategy and decision making? -How do citizens and CBOs offer critique and get feedback on what's done with that feedback?
Gap 3: Research around faith based communities and lack of safety around houses of worship, particularly of interest in low-income communities of color	Improving Traffic Safety & Reducing Traffic Violence	Values	-How are faith communities being reached?
Gap 4: What does society view as road-based safety issues	Improving Traffic Safety & Reducing Traffic Violence	Values Knowledge	-What do people want/will they tolerate? -How does this change across regions and demographics?
Gap 5: Research on whether there is a "right" way to reform police and traffic	Traditional Transportation Enforcement Approaches	Knowledge	-How do we decriminalize mobility and reform archaic, historical, racist

	Working Group Topic	**Type of Gap**	**Big Questions**
enforcement that is equitable and effective			policies? -What are some of the opportunities to do traffic enforcement research technology?
Gap 6: The shift away from speed traffic enforcement towards a safe systems approach	Traditional Transportation Enforcement Approaches	Political Values Knowledge	-Are there ways to address street safety without enforcement? -Are there different situations or settings where there are different types of enforcement or infrastructure that are effective? -How do we consider certain operational procedures as policy or infrastructure, and does it matter?
Gap 7: What's behind the expansion in street racing and aggressive driving behaviors?	Traditional Transportation Enforcement Approaches	Political Values Knowledge	-What are the factors that lead people to be involved in aggressive driving behaviors? -Do marketing campaigns work? If so, what's the best way to expand them? -What are the parallels between the anti-smoking campaigns and safe-driving campaigns?

	Working Group Topic	**Type of Gap**	**Big Questions**
Gap 8: Lack of safe, inclusive opportunities for people to walk, bike and use transit in historically disinvested communities	Transportation as a Social Determinant of Health	Political Values	-Why isn't there more action on the data from high injury corridors? -How to successfully make pilots into permanent projects or ensure they result in similar pilots in other areas? -How do you address competing conflicts within neighborhoods? -How do you address the tension between gentrification and historical lack of investment?
Gap 9: Transportation/mobility access as key neighborhood-level condition in supporting healthy, sustainable, and equitable communities	Transportation as a Social Determinant of Health	Values Knowledge	-What is transportation as a social determinant of health? -Can transportation and mobility be described as key needs (e.g., food, water, etc.)?
Gap 10: Research on multi-sectoral approaches to addressing safe and healthy streets?	Transportation as a Social Determinant of Health	Political Knowledge	Which tools from which fields are working to improve health (public health, transportation, planning, public works, law enforcement, etc.) and how can different tools be combined?

Finally, participants discussed existing city and regional plans that address the topics of interest to this group. The plans identified by the group were:

- Metro Long Range Transportation Plan

- Mobility Plan 2035
- Our County: Los Angeles Countywide Sustainability Plan
- Green New Deal: Sustainable City pLAn
- City of Los Angeles Vision Zero 2025 Plan
- Los Angeles County Vision Zero Plan
- Metro Active Transportation Strategic Plan (ATSP)

Types of gaps

V / ⚖️ = Value gap
K / 👷 = Knowledge gap
P / 🏛️ = Political gap

⚖️ **Values** gaps occur when people lack consensus over the government's adopted goals and objectives.

🏛️ **Political** gaps occur when decision-makers agree on values but think the economic or political costs of a course of action are too high.

👷 **Knowledge gaps** in policy making occur when decision-makers **lack applicable knowledge that would inform their decision.**

Charge for Working Groups

1. Identify the barriers to just and sustainable transportation in Los Angeles
2. **Identify knowledge, political, and values barriers between today and and a transformed future**
3. **Assess and prioritize these barriers by which are most critical to address in order to advance just and sustainable transportation**

Stickies Key

Notes from previous meeting

New notes that participants add today

Notes ready for voting

I've made a note

Improving traffic safety & reducing traffic violence: Vision zero barriers

Vision zero barriers

These 3 red ones seem pretty similar despite different wording.

Differences in implementation by different cities (budget, implementation/ governance, best practices)

Don't know whether improved streets are actually safer--LA Specific

While LA might be primary, there is this secondary interest in the different scales and being able to review and assess progress

What types of vision zero improvements have lowered speeding? Do crosswalks do this? Do protected bike lanes?

How effective are LA's street safety improvement measures? Which measures are most effective? Least effective?

+1 on this idea about comparing to other places--both within southern CA and other places

Interest is in budgeting: how is VZ money allocated and how does success of that city compare to others

Desire for dedicated funding and transparency around that funding

Hard to tell why certain infrastructure improvements are selected - do they work?--feels like this relates to other two red stickies (decisionmaking & implementation)

Does societal view of road safety differs by geographic area, social factors, or economic factors? If so, why?

Another barrier: coordinated action (or lack thereof) across different agencies/depts

Role of impaired driving--need for expanded definition and understanding of what it looks like

proving traffic safety & reducing traffic violence: Lack of accountability, transparency, and decision making processes

Lack of accountability, transparency, and decision making processes

Need to get more CBOs and partners at decision making table to motivate change and not only for "engagement" and build in opportunities to hold agencies accountable

Different CBO engagement at county vs. city level

Lack of contextual data collection for partners like churches (not doing counts or surveys on Sundays)

Follow up on engagement: letting people know how their input has or will impact decisions (accountability and trust building)

Some sort of committee advisory group that are at the table and can help with interacgency coordination and accountability (e.g., Seattle, Tucson Complete Streets Advisory group)

Decision makers at different levels of government and within agencies -political leaders, staff (esp those that interface with community

Something that helps people understand how decisions are made and how different players are/aren't working together. Help people understand how outcomes end up different than plans

Procurement policies: food, payment, etc. (Mechanism that allows for work with CBOs including technical support)--e.g., DICE program at LADOT vs. Metro

Need for investment in community education programs that help people understand road safetey

Lack of Capital Improvement Plan (CIP) and transparency about why and what we use without one (IiP doing some work on this)

More inclusive an transparent outreach policies that acknowledge power dynamics and utilize best practices

Capacity building for both CBOs and govt employees (skills, issue areas, etc.)

Group 2: Traditional transportation enforcement

Traditional transportation enforcement

Racialized/gendered/ability pretext when folks try to **naviagate public space** (using any mode)--decriminalizing mobility means address these racist policies on t books

Decriminalizing mobility - e.g removing jaywalking or bike repair

Need stats and benchmarks to help figure out how/which methods of decriminalizing mobility works. How do we balance decriminalizing and keeping people safe

Media glorifying images of aggressive driving - movies, commercials, etc.

Are there ways to address street racing without using only enforcement?

The shift is away from speed traffic enforcement towards a safe systems approach. When are infrastructure improvements the best and when should enforcement be used?

Legality of bicycle/scooter riding on the sidewalks - what are conflicts between this and other modes/groups of people?

Not all traffic enforcement is equal: Need more transparency on types of traffic stops and if there are some that are more equitable/inequitable than others also want to learn about traffic stop alternatives

What's behind the expansion in street racing and aggressive driving behavior?

Is there a way to reform police traffic enforcement so it's equitable and effective?

Explore enforcement alternatives: technology based (not police officier) automated responses: is there study on taking officers out of this? Do police have to be final (or any) say on tickets?

Transportation as a social determinate of health

Transportation as a social determinate of health

lack of safe, inclusive opportunities for people to walk, bike and use transit in historically disinvested communities

Need to recognize transportation/mobility as a key neighborhood-level condition in supporting health, sustainable, and equitable communities

Multi-sectoral approach with different stakeholders working more collaboratively (public health, transportation, planning, public works, law enforcement, etc.)

Individual level: Need a clear articulation of transporation tie to health and description as a basic right /need like food, water, etc.

Systems level: think about transpo as basic need like housing

Appendix 6

Full Summary of Participant Comments from Synthesis Meeting

The following tables provide a more comprehensive list of Working Group statements and potential research questions, organized by cross-cutting themes. Each statement is classified based on:

⚖️ **Values gaps:** when people lack consensus over the government's adopted goals and objectives.

🤷 **Knowledge gaps:** when decision-makers lack relevant knowledge that would inform their decision. This is often the gap that university-based researchers are best positioned to help address.

🗳️ **Political gaps**: when decision-makers agree on values but think the economic or political costs of a course of action are too high.

Decision-Making Processes

This theme covers the decision-making processes within institutions. Broadly, this relates to factors that support or prevent institutions from making decisions (including policies, programs, etc.) that would support the creation of a just transportation system in Los Angeles. This theme covers barriers associated with who has power in decision-making processes; what is valued, measured, and optimized through decision-making processes; how decisions about trade-offs are made; and how accountability within processes can be improved.

Topic	Working Group Statements	Potential Researchable Questions
Beneficiaries of status quo	🗳️ How do pro-fossil fuels/pro-roadway economic interests influence key decision makers through lobbying, campaign finance, or other means? 🤷 What does the TAP contractor (Cubic) do, and what does Metro get from TAP besides fares (rider data, etc?) 🗳️ Why do/don't cities give priority to pedestrians, bikes, and transit? And why/ when do they take it away (e.g. Culver City)?	• What are the costs and benefits to riders and transportation agencies of using transportation-specific accounts (e.g. transit-specific smartcards) rather than accepting open payments? • How do agencies make decisions on issues such as right-of-way allocation? • Does the presence of fossil fuel extraction and processing industries affect decisions about transportation beyond the wellsite or refinery?
Better modeling and metrics	🤷 Travel time reliability (on public transit) is a critical aspect of accessibility, but often goes ignored.	• What metrics would effectively capture critical aspects of public transit service quality (e.g., travel

	🤷 How can social equity be represented within an engineering or similar decision-making model (e.g. cost benefit analysis)? As an input variable/constraint or output variable? Or in/as a parallel sister process? 🤷 Agent-based transportation modeling can better incorporate individual-level socio-demographic considerations to embed equity considerations. 🤷 When MPOs and public agencies are selecting transportation projects, how could they measure resilience metrics and make decisions pertaining to long-term outcomes? 🤷 Understanding/considering full lifecycle resilience impacts - people focus on tailpipe emissions and not upstream/downstream.	time reliability) from riders' perspectives? • How can social equity and individual-level or household-level socio-demographic considerations be represented within an engineering or decision-making model? • Can metrics on resilience and long-term outcomes affect an agency's project selection? • Can an understanding of life-cycle consequences from decisions affect people's transportation-related choices?
Centering people instead of infrastructure	🤷 What are approaches to understanding the value that infrastructure provides as a service for people? • There needs to be a framework for civil engineers to start thinking about people and services instead of starting with infrastructure. 🤷 How can agencies change to better incorporate lived experiences as data with the same value as other inputs?	• What approaches exist to understand how the value of infrastructure services may differ based on socio-demographics? • How are more equitable/sustainable transportation systems funded? • How can agencies incorporate lived experiences as data within their decision-making processes?
Criminological approach to safety	⚖️ Decision-makers approach safety through a criminological lens (as opposed to public health, economic, etc.)	• What framework do decision-makers use to think about increasing safety in transportation environments? What are the consequences of this approach?
Data gaps	🤷 We lack complete and recent data on the conditions of curbs, sidewalks, and roadways. 🤷 We lack complete and recent data on on infrastructural issues at bus stops 🤷 We don't have adequate surveys of current infrastructure capacity for extreme heat or extreme rain. 🤷 Collecting data about varied lived experiences, which are different in each community to understand how to make	• What cost-effective and scalable methods exist to regularly inventory the conditions of curbs, sidewalks, roadways, stormwater systems, and/or bus stop infrastructure? • How are qualitative data and narratives used within decision-making processes?

	things attractive to each community. 🤷 Qualitative data: narrative, embodied experience, visual media.	
Educating/ convincing public officials	⚖️ There are still plans to widen highways in LA County. How does the research-based knowledge that this isn't a good idea reach public agencies? 🤷 How do you persuade public officials? Given the channels we've identified, how do you intervene most effectively? 🤷 What's the baseline of transportation culture today? Assumptions that influence decision-making may be incorrect. 🤷 What motivates policymakers who have taken political risks and/or lost power?	• How effective is transportation research in influencing policymaker decisions? • What are the main factors driving decision-making in freeway expansion/maintenance? • What are public attitudes on the state of and future of transportation, and how do these vary across demographics? • What motivates policymakers who have taken political risks and/or lost power?
Funding priorities	⚖️ How much funding is being spent on car infrastructure versus other infrastructure? Can some of this funding be repurposed towards equity and resilience goals? ⚖️ More funding for Active Transportation: These are low-cost projects with high potential, which makes funding them "low-hanging fruit". Funding more Active Transportation Program (ATP) projects could also improve transit accessibility and have positive "spillover" effects (and allow transit funding to be used elsewhere and/or more effectively). ⚖️ We need new approaches to infrastructure planning and funding that embed equity. What approaches would be most effective for LA? 🗳️ How can LA Metro increase transparency and meaningful community input opportunities around funding decisions? ⚖️ As a whole, massive amounts of (public and private) resources go to cars. This calls for a re-balancing of priorities and funding for infrastructure. Car manufacturers should pay for their role in elevating infrastructure costs. 🗳️ There is inadequate funding for public transit, particularly for transit operations	• What transportation finance or budgeting reforms would transform the allocation of funding towards a more equitable distribution of money between modes (i.e., shifting money from car infrastructure to infrastructure for public transit and active modes) and within modes (i.e., shifting money from capital expenses to operational expenses within transit)? • How do agencies determine the allocation of funding towards different goals? What is the role of regional- or state-level plans, incentives, and guidance? • How would different ways of budgeting (e.g. zero-based budgeting, participatory budgeting, internal cost-benefit guidelines, etc.) lead to different expenditure decisions? • How can expenditures be allocated across modes (e.g. if roadways are widened as part of an active transportation project)?

	🗳️ Lack of resources to provide basic amenities (shade, bathrooms, etc.) at transit stops ⚖️ We need more funding for active transportation projects. Active transportation funding programs are oversubscribed already. These are low cost projects with high potential, which makes funding them "low-hanging fruit". Funding more ATP projects could also improve transit accessibility, and have positive "spillover" effects (and allow transit funding to be used elsewhere and/or more effectively).	
Influence on private decision-makers	🤷 Do we understand the barriers to clean trucks adoption for smaller/medium sized operators and independent operators? 🤷 How do developers make decisions on parking? 🤷 What policies/incentives lead to reduced parking supply and availability? How do developers make decisions on parking?	• How do industry structure, firm size and capitalization, and firm managers affect the adoption and operation of clean trucks? • If minimum parking requirements are removed as a binding constraint on the quantity of parking a developer would supply in a new building, are there new binding constraints, such as bank financing? • How do cities interpret and implement state-level parking mandates (e.g. AB2097 that partially abolished parking minimums)?
Repairing harms from injustices	⚖️ Prioritize BIPOC communities through reparations in transportation, housing, EJ, economic justice and social justice. 🤷 Who is impacted by new transportation infrastructure, including projects deemed "sustainable"? (e.g. land dispossession).	• What is the monetary value of harms caused by past injustices from transportation-related decisions? From present decisions? • What is a policy framework for reparations related to transportation harms?
Transition to clean infrastructure	🤷 How can existing oil and gas infrastructure be repurposed? Are there economically profitable options? 🗳️ In moving from privately owned fuels to publicly-owned fuels, new sources of energy will need to be developed outside of Los Angeles. 🗳️ Because many clean energy projects with	• How can existing oil and gas infrastructure be repurposed? Are there economically profitable options? • How can local agencies overcome barriers to the development of local renewable energy projects and reduce the

	project labor agreements aren't built in Los Angeles County (many are in Kern, for example), these jobs don't hire Los Angeles County residents for logistical reasons. ⚖️ Should existing oil and gas infrastructure be repurposed? 🤷 How will a faster transition to clean energy/electrification impact equity for low-income customers? 🗳️ Beyond estimating, how do we trade-off the carbon, urban air quality, and safety (less spills, accidents) against effects from adoption of replacement fuel source (battery storage, biofuels, hydrogen). ⚖️ Social trade-offs between GHG reduction benefits of EVs and the other impacts of cars.	need for energy imports? ● What equity impacts may be expected from a transition to clean energy?

Institutional Effectiveness

This theme covers institutions' capacity to implement their intended policies and programs. This theme is differentiated from "Decision-Making Processes" because it concerns institutions' ability to effectively implement priorities that emerge from decision-making processes. This theme covers topics like institutional capacity, inter-agency coordination, and trust between people and government.

Topic	Working Group Statements	Potential Researchable Questions
Accountability	🤷 How effective are community/EJ advocate oversight or advisory boards for DTSC and other regulators? 🤷 What public transit agency governance models are accountable to actual riders (rather than elected officials)? 🗳️ Politicians are distant from the on-the-ground needs of transit riders and low income communities as they often drive. How can the divide in lived realities be bridged? ⚖️ How to make integrative and accountable decision-making processes that really center the needs of those who rely heavily on public transportation rather than those with power and wealth.	● To what extent do public transit agency governance models provide accountability to riders? ● How have social movements and political campaigns historically held elected officials accountable to communities and issues they are not directly affected by or personally experience? ● What makes community/advocate advisory boards for environmental regulators more or less effective? ● What could a system that regularly adjusts public transit service levels in response to demand look like? ● How can decision-making processes

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Topic	Working Group Statements	Potential Researchable Questions
	🧊 Public transit service levels are not responsive to demand/transit riders' needs. 🧊 What do agencies choose to enforce? And why?	be designed to prevent capture by a powerful minority? • How do environmental regulators or transit agencies choose amongst enforcement priorities?
Agency priorities	🧊 How do we ensure institutional commitment to plans beyond a political term?	• What core components do successful long term programs and infrastructure plans have in common? How do they survive transfers of power?
Community-driven decisions	🧊 Develop a codified method of including grassroots voices in design & planning. 🧊 Getting the timing right for community input - start asking for input earlier in the process (e.g., bus shelter design project). 🧊 Build capacity to capture the expertise of marginalized groups & implementing that knowledge into transit operations; redesign the decision-making process to be informed by excluded groups. 🤷 Democracy falls short in representing minority interests (bikers, POCs etc). Is democracy really what we are looking for? Transparency and accountability are pieces of democracy.	• What are examples of public engagement that allow people to express their desired outcomes, but not need to weigh in on engineering-level decisions or have a high degree of expertise? • What is needed for public agencies to be able to better incorporate the voices and expertise of marginalized groups? • Is there a way to institutionalize community engagement so that it is efficient and replicable, but also caters to the unique needs of different communities?
Community trust	🤷 How does community trust vary between specific agencies? Why does trust vary? 🤷 What role do academic institutions play in upholding oil & gas interests?	• How does community trust vary between specific agencies? Why does trust vary? • Do parties interested in the status quo affect academic research?
Inter-agency coordination	🤷 What factors make agency coordination more or less effective? 🤷 LA County has multiple transit operators (37!). Interoperability challenges limit ridership. 🤷 Having so many agencies responsible for the public right of way in Los Angeles makes infrastructural projects take a very long time, increase costs, and limit approvals. This makes improving stop conditions, sidewalk conditions, etc. much more difficult. 🤷 What are some of the differences in transportation planning and	• What are some best practices from different jurisdictions for inter-agency coordination, and general management of transportation planning and implementation? • In what ways can complex transportation organization structures improve? How have solutions such as consolidation of many agencies or operators worked in practice?

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Topic	Working Group Statements	Potential Researchable Questions
	implementation by different cities (budget, implementation/ governance, best practices)?	
Legal constraints	🗳️ Multiple state agencies are implicated by CARB's scoping plan. CARB has a mandate to figure out GHG reductions, but does this authority extend to compelling action? 🗳️ Existing legal requirements for infrastructure planning (CEQA) limit the dialogue and responsiveness that agencies can show in planning. 🗳️ Legal disincentive to know what transportation infrastructure is deficient. 🤷 What are the limits of 2015 policy to restrict solar development in unincorporated LA county?	• What legal constraints have the most impact on constraining policy and project implementation? • Are reforms to planning or environmental review laws needed to enable collaborative planning approaches between communities and agencies?
Management approaches	🤷 Public transit agencies are unable to hire enough operators to provide an adequate level of service.	• How can public transit agencies best hire and retrain a sufficient number of bus operators?
Staff knowledge	🤷 How many government staff actually ride transit? 🤷 How does planners' lack of lived experience with public transit makes them blind to both problems and potential solutions? 🗳️ Los Angeles county does a poor job of chasing earmarks. Do people know how to do that?	• How does lived experience using transportation services affect transportation planners' design, policy, and planning decisions related to those services? • What are the personal perspectives and views of agency staff and decision makers, and to what extent do these affect their decisions? Do these change with demographics and the length of time spent within an agency? • Does a lack of agreement over common county-wide or regional impacts affect the region's ability to obtain federal congressional funding earmarks?

Access and Public Space

This theme covers the factors that drive inclusion and exclusion from public space. This theme is broad and considers transportation systems both as a way of accessing other public space, and as public space in and of itself. This theme contains many of the factors associated with racial capitalism and other systems of oppression that “determine” individual behavior by restricting mobility options. Additionally, it includes the politics and design of public spaces that can either build community resilience or reproduce exclusion.

Topic	Working Group Statements	Potential Researchable Questions
Accessibility	🤷 How does multimodal mobility impact accessibility? ⚖️ Do people value accessibility for those with disabilities that affect their mobility?	• How does the ability of individuals to access destinations via walking, biking, and transit impact overall accessibility? • Do ethical considerations like universal design for people with disabilities affect people’s political preferences for the provision of mobility services and infrastructure?
Discrimination in policy and design	⚖️ Design has centered an "ideal commuter" rather than people commuting with caregivers or children. ⚖️ Technology is used to minimize some frictions but not others. ⚖️ Whose comfort is centered on transit?	• What design elements and technological innovations would make public transit easier to use for people who have traditionally not been centered in transportation planning (e.g., people traveling with children/caregivers, cash-paying riders)? • What are the unintended consequences of policies and technological innovations that have focused on increasing comfort and ease of use for middle class “choice riders”?
Fare payments	🤷 How can we effectively quantify benefits outside the transportation system (e.g. benefits to public health, climate, bus operator safety, racial justice, car dependency, dwell times)? 🤷 Narrative of fear: Do Metro, elected officials, the public think eliminating fares would make safety issues on transit worse? How do we study questions about safety and fareless? 🛋️ Is there any revenue that we could use for fareless? (freeway tolls, micro transit?) ⚖️ Cash riders talked about as a "problem" to be solved rather than as	• How can we effectively quantify the benefits of fareless transit that would occur outside the transportation system (e.g. public health, climate, bus operator safety, racial justice, car dependency, dwell times)? • What sources of revenue or current expenses within Metro’s budget could be reallocated towards paying for fareless transit? • How would fare-free transit affect safety (for both riders and operators)? How do Metro decision-makers, elected officials, and the public think fareless transit would affect safety? • What could an effective system where

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Topic	Working Group Statements	Potential Researchable Questions
	an opportunity to leverage current infrastructure for Metro to act as a public bank.	Metro acts as a public bank look like? What benefits would this create for riders and the region?
Safe systems approaches	🧑 What are the root causes of people's stress and lack of safety and how do we fix those? 🧑 Many positive safety solutions (such as those advocated for by ACT-LA) have not yet been elevated or vetted through the academic process. 🧑 Not all traffic enforcement is equal. We need more transparency on types of traffic stops, research into whether some types are more equitable than others, and research into traffic stop alternatives. 🟦 The presence of police is a barrier to accessing public space (including public transportation), particularly for Black and brown riders.	• What are the root causes of people's stress and lack of safety in transportation environments? What interventions would address these root causes? • How can we effectively study the effects of implementing positive safety solutions on public transit? • What are the holistic effects of police presence on public transit? • What types of traffic stops are less or more equitable than others? • What alternatives to traffic stops can effectively and equitably promote traffic safety?
Transit amenities	🧑 Improve information about real-time arrival times and transit availability. ⚖️ A cultural shift at Metro is necessary for the agency to provide basic amenities at transit stops.	• What are the causes of discrepancies between actual and predicted arrival times of transit vehicles? How can these discrepancies be addressed either through changes to arrival time estimates or changes to service? • How do agencies determine when to provide basic amenities (like bathrooms) at transit stops?
Transportation-land use interaction	🧑 What could a multi-racial, LA-context specific land use regime look like? How would something like a 15 minute city concept be adapted to better address mobility justice and gentrification? 🧑 How can we address the issue of high housing costs pushing low-income families further from downtown, where they experience higher transportation costs? ⚖️ Transit systems require transit-supportive land uses to be effective. ⚖️ Barriers like NIMBY-ism prevent	• What are the sources of communities' opposition to public transit being located within their neighborhoods? Can these concerns be addressed? • What are strategies for reducing housing costs in areas close to high quality public transit service? • Have any cities/metro areas been able to make broader improvements to avoid a strong amenity effect in one particular neighborhood? • Are there demographically analogous regions (to Los Angeles) that have improved public and active transit without displacement?

Topic	Working Group Statements	Potential Researchable Questions
	transit from connecting riders to key destinations	

Determinants of Individual Behavior

This theme covers cultural and other factors that influence individual behavior. While “Access and Public Space” is focused on the mobility choices available to individuals, this theme is focused on the drivers of choices made within those constraints. In particular, this theme is concerned with factors that influence car culture, aggressive and other unsafe driving behaviors, and other transportation choices.

Topic	Working Group Statements	Potential Researchable Questions
Aggressive driving	🤷 Are there ways to address street racing without using only enforcement? 🤷 What do we know about the psychology of street racing?	• Are there ways to address street racing without using only enforcement? • What do we know about the psychology of street racing?
Effects of extreme weather	🤷 How does mobility behavior change during extreme weather (e.g. heat waves) and how to prioritize health/increase mobility? 🤷 How will human-powered and pedestrian mobility happen in the future with extreme weather patterns? Are there examples that already exist in the world?	• How does mobility behavior change during the types of extreme weather events expected to increase in frequency in a climate-impacted Los Angeles? What are appropriate policy and planning responses?

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Topic	Working Group Statements	Potential Researchable Questions
Shifting car preferences	🤷 What policies/incentives lead to reduced parking supply and availability? 🤷 How to get people to want to use different travel modes besides personal automobiles? Human-centered design can provide perspectives. 🤷 How can governmental messaging and taxing negative externalities (nudges) lead people and companies to make more sustainable/resilient choices? 🤷 How does the role of time-based accessibility affect mode choice? What are the opportunities to make biking, walking, and public transit more time competitive? 🤷 What transportation network changes are needed so that people choose alternatives to personal cars, especially with the introduction of self-driving cars? ⚖️ Identifying the underlying value gaps that prevent people from using active travel modes other than cars. ⚖️ How can the public learn that an overdependence on cars is not resilient? 🤷 What aspects of personal mobility do people most value? Driving task, freedom of mobility (subject to congestion), etc. 🤷 Do EVs (and self-driving cars) provide a techno-fix that reinforces reliance on personal cars (and makes driving cheaper)? 🤷 What are the underlying value gaps that prevent people from using active travel modes other than car? 🤷 How can mobility hubs be designed and introduced to make Los Angeles less dependent on cars? ⚖️ Improve access and user experience on public transit to reduce need for a car. 🤷 Evaluating the effects of incentives we are offering to electrify and how to pair them with other policies to push outcomes (i.e. pushing EVs, but are we pairing w/ policies that reduce overall vehicle use).	• What policies, campaigns, practices and cultural movements have successfully shifted societies away from car dependence? • What are some of the idiosyncrasies of car culture in Los Angeles? Why do people claim to rely on their cars? In their own words, what would it take for them to drive less or not at all? • What are the explicitly stated reasons people drive, and what unspoken cultural tendencies keep people in their cars? • What are the disaggregated reasonings of different groups (e.g. genders, race, socioeconomic status) for driving? • How is car culture influenced by public space and the built environment? • Are there policies to discourage the frequency or distance of vehicle trips that complement policies to encourage vehicle electrification? • To what extent does “car culture” explain the high car mode share in Los Angeles, as opposed to factors such as cost, travel time, and perceived safety?

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Environment and Health

This theme covers the ecological and health effects of the transportation system. This theme is primarily focused on the *consequences* of the transportation system, including its effects on air quality and public health. The barriers that the working groups identified within the theme of "Environment and Health" were:

Topic	Working Group Statements	Potential Researchable Questions
Compounding hazards	🤷 How will climate hazards and non-climate hazards interact?	• What multi-hazard vulnerabilities in Los Angeles may have the greatest impacts to the transportation system?
Ecological & health inequities	🤷 What are the opportunities to motivate EJ action by researching and publicizing disparate health impacts? ⚖️ We know that there are environmental injustices from transportation? Why aren't we doing anything about them? (effectiveness/ambition). ⚖️ Equitable access and its consequences for people's health and welfare. ⚖️ All funding should be geared towards resilient, multimodal formats focused on public health.	• What ethical or political considerations may cause inadequate response to environmental justice impacts?
Non-emissions impacts	🤷 What are the tailpipe impacts of alternative fuels for the heavy duty trucks sector? 🤷 Technological barriers to electrification of heavy-heavy duty, and unintended consequences (brake/tire wear, exhaust roadwear) 🤷 Are there ways to reduce brake dust and tire wear emissions, either through technology or regulation? 🤷 To what extent will replacement transportation fuels/modes affect these health impacts (e.g. brake/tire dust exacerbated by weight)? 🤷 Reducing burdens in overburdened areas means eliminating or rerouting the burdens. Which sources do we eliminate? Which do we re-route?	• If localized impacts from fossil fuels infrastructure and high-volume traffic can be reduced but not eliminated, how should these impacts be redistributed? • What sources of pollution will continue to exist if heavy duty tailpipe emissions are eliminated? What can be done to mitigate these sources? • To what extent will electric vehicles lock in car dependence, and hinder a shift to transit, walking, and biking?
Resilient infrastructure	🤷 Transportation demand and travel patterns will likely change with extreme weather. Is existing/planned infrastructure resilient/flexible enough to handle? 🤷 Role of green infrastructure in making rights of way more resilient to extreme weather (heat,	

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Topic	Working Group Statements	Potential Researchable Questions
	flooding) through shade trees, bioswales, ect. 🤷 Car-centric transportation is vulnerable to extreme weather, but intentional consideration must be given to how multi-modal transit will be adaptable.	

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