FAS FEDERATION OF AMERICAN SCIENTISTS

THE CIVIC RESEARCH AGENDA ON Transportation

A NATIONAL STUDY OF LOCAL GOVERNMENT RESEARCH NEEDS ON TRANSPORTATION.

About Us

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About the Federation of American Scientists

The Federation of American Scientists (FAS) works to advance progress on a broad suite of contemporary issues where science, technology, and innovation policy can deliver transformative impact, and seeks to ensure that scientific and technical expertise have a seat at the policymaking table. Established in 1945 by scientists in response to the atomic bomb, FAS continues to bring scientific rigor and analysis to address national challenges. More information about FAS's work at fas.org.

The State and Local Innovation (formerly MetroLab) team within FAS aims to take good ideas from the lab to local governments through intentional, regular and impact-driven policy alignment. This mission is twofold: to put science in cities and to understand, support, and enable transformative partnerships between cities and universities. More information about the State and Local Innovation team's work at https://fas.org/issue/metrolab/.

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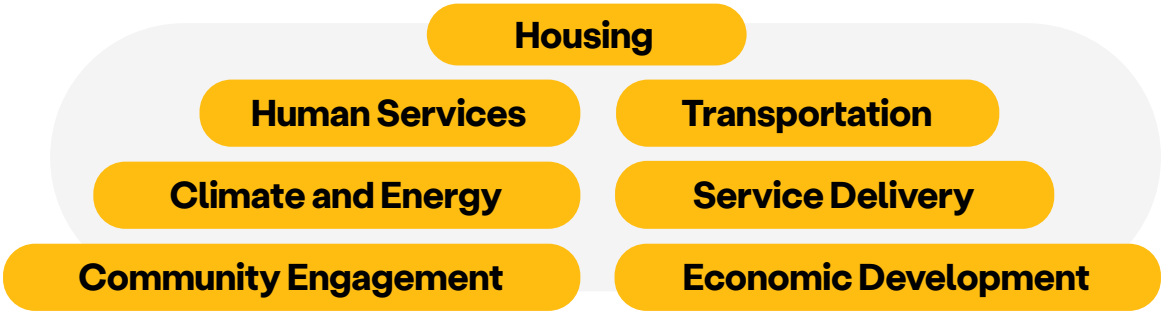
Executive Summary

The Civic Research Agenda is a culmination of several years of study, partnerships, and intelligence gathering that is the first comprehensive reporting on the priority research needs of American cities and counties. It considers the demand and supply of research: what are the research needs of local governments, and how can research outputs improve to "supply" or provide answers to better serve that audience?

The priority research needs for U.S. local governments are the following:



Beyond any specific policy domain, local governments expressed the desire for support from the research community in three overarching areas: 1) **evaluation**; how can the research community measure and provide evidence that a policy intervention has achieved desired (or negative) impacts; 2) **efficiency**; how can the research community help local governments do more with less; and 3) **data generation**; how can the research community create and provide access to useful data that do not currently exist.

This report provides the research needs specifically for transportation.

Based on demonstrated demand across national survey responses and in-person workshops, the top research questions representing priority needs from cities and counties on transportation are:

- ↳ **Which infrastructure design strategies (e.g., complete streets, traffic patterns, Americans with Disabilities Act (ADA) standards and accessibility design, trees, litter controls) most influence resident behavior and safety?**
- ↳ **How can a local government better understand the economic return on investment (ROI) and social health ROI for active transit and transportation networks? What data is needed to do this?**
- ↳ **How will artificial intelligence (AI) impact transit authorities? How will local operations be impacted, and how will users be impacted?**

- **What transportation and infrastructure investments and technologies are best suited for unique challenges to [a specific local government], rather than generalized best practices?**
- **What data should be prioritized when creating policy to improve sustainability and efficiency (across all modes of transportation)?**
- **How can infrastructure planning better coordinate across agencies, utilities, and capital timelines, including balancing of competing capital priorities across agencies and departments?**

Methodologies

In 2024, the Civic Research Agenda project created a steering committee to support this endeavor. The purpose of this committee was multifaceted: 1) to provide guidance and assist MetroLab in selecting cities in which to conduct workshops; 2) ensure the agenda is representative of the diverse and dynamic needs of local governments across the country; 3) ensure that the agenda is appropriate in scope; an exhaustive research list doesn't necessarily reflect the priorities and urgency of local government research needs; and 4) review the final R&D agenda to ensure it is an actionable document that translates to the scientific ecosystem. The Steering Committee included the following individuals:

- **Hana Passen** | Director of Innovation & Partnerships, Stanford Impact Labs
- **Terri Matthews** | Director of Town+Gown:NYC @ NYC DCC
- **Joda Thongnopnua** | Directorate for Technology, Innovation and Partnerships (TIP), National Science Foundation
- **Justin Kits** | Assistant Vice President for Economic Development, The University of Tulsa (formerly Tulsa Innovation Lab)
- **Kevin Cooke** | Assistant Vice President, Research Policy, Association of Public and Land-grant Universities
- **Alvaro J. Muñiz** | Director, International, Community, and Economic Engagement, Association of Public and Land-grant Universities
- **Mark Ritacco** | Senior Advisor, Manatt, Phelps & Phillips, LLP (formerly Chief Government Affairs Officer, National Association of Counties)

Acknowledgement of these individuals demonstrates the collaborative and comprehensive nature of this effort. It does not, in any way, indicate that these individuals or their organizations condone this report and should not be taken as "sponsorship," legal advice, or approval of its contents.

For the purpose of this report, "local government" is considered to include U.S. cities and counties, and "research" refers to the use of data, analysis, and evidence to inform local government decisions, policies, and implementation.

The Civic Research Agenda is informed by three primary sources, as described in detail below:

- A MetroLab-produced digital survey
- In partnership with the National League of Cities (NLC), a MetroLab-NLC digital survey
- In-person workshops hosted at nine locations

MetroLab Survey

The Civic Research Agenda Survey was developed in order to gather feedback from a broader range of cities. MetroLab contracted with PorchLight Insights, a local government consulting firm based in Kansas City, MO, to manage survey development, administration, and analysis.

The survey instrument was developed with feedback from the Steering Committee, and sought to gather information about: 1) cities' experiences with research collaboration with university/college partners, including frequency and barriers; 2) priorities for research collaborations with university/college partners and feedback on specific ideas; 3) preferences for research reporting/communications; and 4) basic demographics about jurisdictions to allow for comparison (type, name, state, population). The survey was designed to primarily consist of multiple-choice or ranking questions to support a high rate of completion, with a few key open-ended questions. The survey was built in the Survey Monkey platform and tested for ease of use and readability with select local government staff.

While contact information was gathered in the survey to ascertain survey completion (particularly if multiple people from the same city or county took the survey), survey participants were informed that all individual responses would be kept confidential and not included in any reporting. Survey reporting was at the aggregate level, and any information that is attributable to individual answers was anonymized to exclude the participant name and the name of the jurisdiction.

The target survey audience was cities and counties across a range of population sizes and geographies that had some experience or opinion about local government research. To reach this audience, we partnered with other organizations that support local government research and innovation, including Results for America, the Alliance for Innovation, the Bloomberg Center for Government Excellence at Johns Hopkins University, and state municipal leagues. MetroLab and PorchLight Insights also distributed the survey through their respective contact channels. Outreach began in early April 2025 and continued through early July 2025 and each partner used their own distinct URL to allow targeted tracking of outreach. As this invite was sent to a network of local government representatives over several channels and over the course of several months, the total number of surveys "sent" are unknown. After cleaning the data, a total of 47 responses from local government staff were received through this survey outreach.

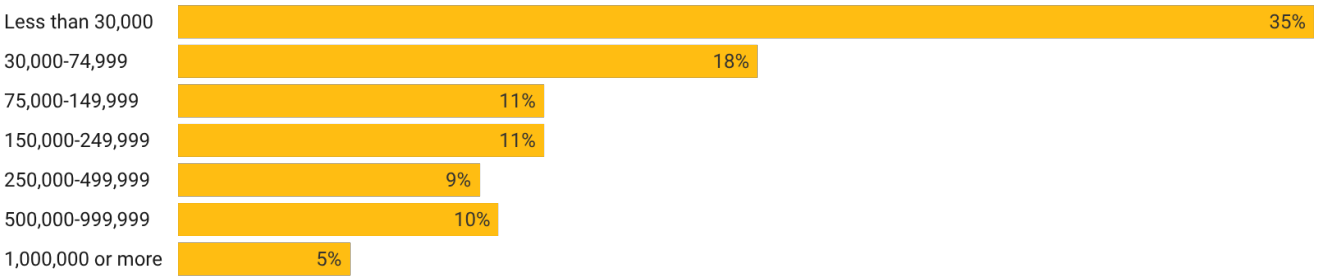
MetroLab-NLC Survey

In an effort to further broaden outreach to cities, in June 2025 MetroLab partnered with NLC, which routinely sends "pulse" surveys via their platform to their network of municipalities to gather information about operations and best practices. To align with NLC's pulse survey structure, the Civic Research Agenda Survey was modified to include just five key questions, in addition to collecting basic demographic information. These questions all aligned with questions from the full survey and included: 1) frequency of collaboration with university/college partners on research projects; 2) barriers to collaboration (open-ended); 3) priorities for research collaborations with university/college partners; 4) feedback on specific ideas for collaboration; and 5) research they would like to get from a college/university (open-ended).

NLC cleaned and provided the data to the project team, after which it was integrated into the previous survey with cross-cutting results reported. A total of 120 survey responses were received through the NLC survey process.

In total, combining the MetroLab-NLC survey and the MetroLab survey, this analysis includes a total of 167 survey responses. These responses represented 152 distinct jurisdictions and 37 states (plus the District of Columbia and Puerto Rico). The results primarily came from cities and towns (92%), representing a broad range of population sizes.

Share of MetroLab-NLC Local Government R&D Survey responses by city population



In-person Workshops

This initiative also included in-depth workshops with nine communities. MetroLab aimed to target cities and counties that represented a wide range of compositions. Ultimately, the nine workshops that were hosted showcase a mix of urban vs. rural, small vs. medium vs. large population, strong university partnerships vs. virtually non-existent, and geographic diversity.

Working collaboratively with mayors, county leaders, and university partners, these workshops allowed us to better understand best practices in creating actionable research, identify existing barriers, and to locally grow these ecosystems. The audience consisted of local government department leaders and staff, university faculty, and key community partner organizations (i.e., local community foundations, housing groups, and chambers of commerce).

TOTAL WORKSHOP ATTENDEES	
TOTAL NUMBER OF INDIVIDUAL PARTICIPANTS AT THE IN-PERSON WORKSHOPS	366
TOTAL NUMBER OF COMMUNITY PARTNERS	81
TOTAL NUMBER OF LOCAL GOV REPRESENTATIVES	139
TOTAL NUMBER OF UNIVERSITY REPRESENTATIVES	146
TOTAL NUMBER OF LOCAL GOVERNMENTS REPRESENTED	12
TOTAL NUMBER OF UNIQUE LOCAL GOVERNMENT DEPARTMENTS REPRESENTED	85
TOTAL NUMBER OF UNIVERSITY INSTITUTIONS REPRESENTED	42
TOTAL NUMBER OF COMMUNITY ORGANIZATIONS REPRESENTED	59

The “bucketing” of policy domains and sub policy domains were based on the following:

- ↳ Survey results
- ↳ Confirmation received across the workshops of including specific research questions were grouped with suggested policy domains

- The discretion and expertise of the FAS State and Local Innovation team. The policy domains align more closely with how local governments are structured (i.e. typical departments that sit within a local government, Department of Housing, Public Works, etc), versus typical academic structures (i.e. School of Engineering, Geography and Environment, Public Policy, etc).

Priority Research Questions Concerning Transportation

Transportation, for purposes of this report, is defined as **the local government systems, infrastructure, technologies, and policies that shape how people and goods move within and across communities**. This includes emerging transportation technology development and deployment, human behavior's influence on transportation systems and vice versa, traffic congestion, curbside management, micromobility, and safety.

Based on demonstrated demand across national survey responses and in-person workshops, the top four research questions representing priority needs from cities and counties in this domain are:

- **Which infrastructure design strategies (e.g., complete streets, traffic patterns, ADA standards and accessibility design, trees, litter controls) most influence resident behavior and safety?**
- **How can a local government better understand the economic ROI and social health ROI for active transit and transportation networks? What data is needed to do this?**
- **How will AI impact transit authorities? How will local operations be impacted, and how will users be impacted?**
- **What transportation and infrastructure investments and technologies are best suited for unique challenges to [a specific local government], rather than generalized best practices?**
- **What data should be prioritized when creating policy to improve sustainability and efficiency (across all modes of transportation)?**
- **How can infrastructure planning better coordinate across agencies, utilities, and capital timelines, including balancing of competing capital priorities across agencies and departments?**

If you are in the research community and have a report or publication addressing a specific question listed that has been published after March 2025, please fill out **this form**.

FAS aims to support this community and support the responses/answers to this report will include it in a repository.

Building on this set of priority questions, the following additional research needs and knowledge gaps were raised during in-person workshops. These do not include the top research questions identified above.

Emerging Technology

- ↳ What are best in class automated mobility solutions that are especially focused on low-income users?
- ↳ How can AI be used to integrate infrastructure, street, and utility data to prioritize projects more effectively?
- ↳ How can a local government leverage broadband access, sensor-based safety systems, and data sharing protocols to build an equitable smart city transportation framework?
- ↳ What are the critical systems and infrastructure needed for security and sustainability?
- ↳ What are the most effective technologies and best practices for local government in managing curbside space, including on-street EV charging?
- ↳ What foundational investments are required for a local government to take advantage of smart infrastructure and data-driven transportation systems, going from "-1 to 0" to prepare for future deployment of these technologies?
- ↳ How can a local government modernize traffic operations and safety systems given fragmented and disconnected infrastructure?
- ↳ How can advanced technologies improve specific transportation and infrastructure issues like trash and recycling truck routing optimization, identification of issues like water leak recognition, traffic and crash troublespot identification?
- ↳ What technologies and data management practices can strengthen the security and resilience of the City's critical infrastructure systems?

Behavioral Influencer + Behavior

- ↳ How can a local government use their infrastructure to control behavior, including speeding, littering, and waste management practices?
- ↳ What are the impacts of trail development based on user counts, and what proportion of usage is recreational versus transportation-related?
- ↳ What factors influence individual transportation mode choice preferences?
- ↳ How do transportation investments affect equity, access, school absenteeism, and daily life across neighborhoods?

Congestion

- What are the critical programmatic elements when considering how to increase participation in new transportation offerings that reduce congestion?
- What traffic patterns are most effective for mobility and urban planning?
- How can a local government provide mobility options in the most energy-efficient and cost-effective manner?
- What strategies most effectively improve traffic flow?
- What is the impact of drive time and congestion on the local economy?
- How can a local government or region better understand how people travel, in order to accommodate the increase in air traffic?
- What transportation needs and mobility preferences define different populations in the city?

Micromobility

- ↳ What does data show about the safety of e-bikes and trails, and what interventions most effectively reduce injuries?
- ↳ What are micromobility usage patterns, destination trends, and unmet mobility needs across different neighborhoods?
- ↳ What are effective models for implementing multimodal transportation systems?

Safety

- ↳ What national metrics can be used to evaluate and score local governments on a spectrum from transit-oriented to auto-oriented systems, including safety performance and best-in-class benchmarks?
- ↳ How can machine learning and predictive analytics improve crash prevention and traffic mitigation strategies?
- ↳ What are the quantified predictive safety benefits of specific transportation infrastructure projects?
- ↳ Data request: Real time traffic analytics to promote pedestrian and cyclist safety.
- ↳ What are the impacts of reduced traffic enforcement?

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We would like to thank Schmidt Futures, who provided the funding for this program. Without their support, this effort would not have been possible.

We would also like to thank Kate Bender of PorchLight Insights for her help in conceiving, developing, distributing, and analyzing the information from our national survey, as well as Christine Baker Smith at the National League of Cities for amplifying our survey in their networks to help gather the data used in this report.

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Lastly, we would like to thank the following individuals from the nine communities we were able to visit in order to host in person workshops.

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- The Honorable Matthew Tuerk, Mayor, City of Allentown
- Katharine Harring, Ph.D., President, Muhlenberg College
- Laura Furge, Ph.D., Provost, Muhlenberg College
- Michaela Boyer, Chief of Staff, City of Allentown

Baltimore, MD

- Ralph O. Mueller, Ph.D., Senior Vice President for Academic Affairs and Provost, University of Baltimore
- Amanda Phillips de Lucas, Ph.D., Director Baltimore Neighborhood Indicators Alliance – Jacob France Institute, University of Baltimore
- Dartanion Swift-Williams, Chief Data and Performance Officer, City of Baltimore
- Jason Howard, Ph.D., Deputy Director, Analytics, Mayor's Office of Performance and Innovation, City of Baltimore

Columbus, OH

- Dave Dixon, Director of Data Analytics & Strategy, Mid-Ohio Regional Planning Commission
- Harvey Miller, Ph.D., Director, Center for Urban and Regional Analysis (CURA) at Ohio State University
- Jessica Kuenzli, Chief Regional Planning Officer, Mid-Ohio Regional Planning Commission

Guilford County, NC

↳ Victor Isler, County Manager, Guilford County
↳ Alice Mahood, Director of Integrated Services, Guilford County Manager's Office

Houston, TX

↳ Michelle Smirnova, Ph.D., Director of the Center for Housing and Neighborhoods and Associate Professor of Sociology, Kinder Institute for Urban Research at Rice University
↳ Caroline Cheong, Ph.D., Associate Director of Housing and Neighborhoods, Kinder Institute for Urban Research at Rice University
↳ Ruth N. López Turley, Ph.D., Professor of Sociology and Director, Kinder Institute for Urban Research at Rice University

Kansas City, MO

↳ The Honorable Quinton Lucas, Mayor of the City of Kansas City
↳ C. Mauli Agrawal, Ph.D, Chancellor, University of Missouri - Kansas City
↳ Troy Lillebo, Associate Vice Chancellor for External Relations, University of Missouri - Kansas City
↳ Gavriel Schreiber, General Counsel, The Office of Mayor Lucas
↳ Nataniel Addington, Director of Community Engagement & Outreach, University of Missouri - Kansas City

Lincoln, NE

↳ The Honorable Leirion Gaylor Baird, Mayor of the City of Lincoln Rodney D. Bennett, Ph.D, Chancellor, University of Nebraska - Lincoln
↳ Nathan Meier, Associate Vice Chancellor for Research, Capacity and Competitiveness, University of Nebraska - Lincoln
↳ Kim C. Morrow, Chief Sustainability Officer The Office of Mayor Gaylor Baird
↳ Riley M. Slezak, Senior Advisor to the Mayor, The Office of Mayor Gaylor Baird

Little Rock, AR

↳ The Honorable Frank Scott, Mayor of the City of Little Rock
↳ Marquis Willis, Chief Data Officer, City of Little Rock
↳ Emily Cox, Vice Chancellor for University Affairs, University of Arkansas at Little Rock

Syracuse, NY

↳ The Honorable Ben Walsh, (former) Mayor of the City of Syracuse
↳ Lois Agnew, Ph.D, Interim Vice Chancellor, Provost and Chief Academic Officer, Syracuse University

- ↳ Katherine McDonald, Ph.D, Associate Vice President for Research, Syracuse University Office of Research
- ↳ Sevgi Erdogan, Ph.D, Associate Professor, School of Information Studies, Syracuse University
- ↳ Jeff Hemsley, Ph.D, Interim Dean, Associate Professor, School of Information Studies, Syracuse University
- ↳ Carsten Østerlund, Ph.D, Professor and Associate Dean for Research, School of Information Studies, Syracuse University

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