EXECUTIVE SUMMARY

In recent years, economic, environmental, and social forces have quickly given rise to the “sharing economy,” a collective of entrepreneurs and consumers leveraging technology to share resources, save money, and generate capital. Homesharing services, such as Airbnb, and peer-to-peer carsharing services, such as Getaround, have become part of a sociodemographic trend that has pushed the sharing economy from the fringe and more to the mainstream. The role of shared mobility in the broader landscape of urban mobility has become a frequent topic of discussion. Major shared transportation modes—such as bikesharing, carsharing, ridesourcing, and alternative transit services—are changing how people travel and are having a transformative effect on mobility and local planning.

WHAT IS SHARED MOBILITY?

Shared mobility—the shared use of a vehicle, bicycle, or other low-speed travel mode—is an innovative transportation strategy that enables users to have short-term access to a mode of transportation on an as-needed basis. Shared mobility includes various service models and transportation modes that meet the diverse needs of travelers. Shared mobility can include roundtrip services (vehicle, bicycle, or other low-speed mode is returned to its origin); one-way station-based services (vehicle, bicycle, or low-speed mode is returned to a different designated station location); and one-way free-floating services (vehicle, bicycle, or low-speed mode can be returned anywhere within a geographic area).

Shared mobility directly influences and is influenced by most facets of urban planning, including the following:

- Transportation and circulation: Shared mobility can influence travel patterns, such as modal choice, vehicle occupancy, and vehicle miles traveled.
- Zoning, land use, and growth management: Shared mobility can affect land use–related planning factors, including zoning requirements (e.g., parking minimums), parking demand, and the use of public rights-of-way.
- Urban design: Shared mobility can support sustainability principles by promoting walking and cycling, providing first-and-last-mile connections to public transportation, and potentially reducing the need to own personal vehicles.
- Housing: Shared mobility can support affordable housing strategies by potentially reducing parking demand and allowing for reduced minimum parking requirements at new developments.
- Economic development: Shared mobility can create new opportunities for employment and generate revenue from underused resources.
- Environmental policy, conservation, and climate action: Shared mobility has the potential to reduce negative impacts commonly associated with surface transportation, such as greenhouse gas emissions.

Because of the wide range of impacts, this report examines the interdependencies, synergies, opportunities, and challenges associated with shared mobility.

IMPACTS OF SHARED MOBILITY

A number of social, environmental, and behavioral impacts have been attributed to shared mobility, and an increasing body of empirical evidence supports many of these relationships, although more research is needed. The various effects can be grouped into four categories: (1) travel behavior, (2) environmental, (3) land use, and (4) social. In recent years, climate action planning has further raised awareness among local governments of shared mobility as a transportation strategy, along with its potential impacts—both positive and negative—on transportation networks. Understanding shared mobility can aid planners in leveraging the positive impacts and taming the negative impacts to achieve planning and public policy goals, including reducing driving and parking congestion; lowering vehicle miles traveled and vehicle ownership rates; improving air quality and achieving climate action targets; and providing mobility access to underserved populations, such as low-income travelers. This report reviews findings from a number of shared mobility studies, specifically ones related to ridesharing, carsharing, bikesharing, and ridesourcing/transportation network companies (TNCs).

Insights into shared mobility can aid planners in understanding impacts on public infrastructure, implementing supportive policies, and making informed transportation and development decisions. However, differences in
service models, data collection, and study methodologies can produce inconsistent results due to limited survey samples and aggregate-level analyses (often attributed to proprietary issues). Thus, it can be challenging to provide a comprehensive and unbiased picture. While automated traveler activity data can offer a rich understanding, these data typically do not capture changes in auto ownership, travel behavior across all modes, and respondent perceptions over time. Beyond operator surveys, many large transportation surveys have begun to assess shared mobility, including the American Community Survey and the California Household Travel Survey; however, these survey instruments also collect self-reported data. While such travel behavior surveys have validity issues—including respondents exaggerating travel behaviors, underreporting the extent or frequency of travel, or reporting inaccurately as well as sample bias—they can offer another source of behavioral understanding.

**SHARED MOBILITY POLICIES**

The connection between shared mobility and land use is not new. Local zoning and codes can have notable unintended impacts on the success and viability of shared mobility. For example, some cities may classify shared mobility modes, such as carsharing, as a commercial use akin to traditional rental cars. In doing so, local zoning codes may prohibit shared mobility from operating in residential neighborhoods, necessitating either revisions to local codes or variances for shared mobility to operate legally. In other cases, local governments may have special zones (e.g., public transit overlay zones) allowing additional density or lower parking requirements for the inclusion of shared mobility in particular development projects. At the municipal level, the most common ways local and regional planning and policies influence shared mobility are through the allocation of public rights-of-ways (e.g., parking, curb space), developer and zoning regulations, insurance and for-hire vehicle ordinances (e.g., licensing), and taxation.

**Public Rights-of-Way**

Public rights-of-ways play a synergistic role in shared mobility growth. Allocating parking and curb space for the inclusion of shared mobility—such as carsharing parking; space for bikesharing kiosks; and loading zones for ridesourcing/TNCs, microtransit, and shuttles—is the most common way local governments provide access to public rights-of-way. A number of local governments and public agencies have developed a combination of formal and informal policies to allocate public rights-of-way. Many of these policies address issues such as (1) how to define a particular shared mode; (2) how to allocate curb space; (3) how to manage demand among multiple operators for public rights-of-way; (4) how to value (and potentially assess the cost) of the rights-of-way; and (5) how to manage administrative issues, such as permits, snow removal, curb and street cleaning, parking enforcement, and signage.

**Incentive Zoning**

Cities can also implement a wide array of policies aimed at easing zoning regulations and parking minimums to promote the inclusion of shared mobility in new developments. Commonly referred to as incentive zoning for shared mobility, these policies can be categorized as (1) policies that enable reduced parking and (2) policies that allow increased density. Policies that allow reduced parking include parking reductions (downgrading the required number of spaces in a new development) and parking substitution (substituting general-use parking for shared modes, such as carsharing parking and bikesharing kiosks).

**Transportation Demand Management**

In addition to the amendment of local zoning and building codes, variances, and special-use permits, shared mobility can be incorporated as part of transportation demand management (TDM) planning. Many TDM measures offer similar incentives to developers and property owners for the inclusion of shared mobility and other TDM measures in residential, commercial, and mixed use projects. For example, a developer may be granted the previously discussed bonuses for the inclusion of other on-site amenities, such as bicycle parking, bicycle lockers, showers, and preferential or free parking for carpools and vanpools.

**Insurance and Taxation**

A number of other policies, such as taxation and insurance, may affect the ability of planners and public agencies to expand shared mobility in local communities. Insurance regulations, either at the state or local level, can make shared modes cost prohibitive, or they can prohibit operations in a jurisdiction altogether. Although some policies may not fall directly under the purview of local jurisdictions, local governments should understand the critical role these policies have on shared modes, particularly ridesourcing/TNCs and carsharing services. Similarly, confusion about shared mobil-
ity services has often led to the implementation of state and local taxes that increase service costs. For example, rental car taxes have been popular among politicians because the taxes were believed to target visitors rather than voters. However, the distinction between carsharing and hourly car rentals has blurred after a series of legal disputes that have made the relationship between taxation and these services less clear. Simply put, taxes on shared mobility can increase service costs and adversely affect use and mainstreaming.

**SHARED MOBILITY PLANNING AND PUBLIC POLICY**

The planning process allows planners and policy makers to document the state of transportation networks, including access and mobility, and establish goals and policies to guide future growth and infrastructure development. Addressing shared mobility in the planning process serves a dual purpose. First, the planning process can define the role of shared mobility and its impacts on travel behavior, transportation forecasts, and transportation models. Additionally, the planning process can leverage the positive social and environmental impacts of shared mobility to increase infrastructure efficiency, mitigate congestion and air pollution, and incorporate shared mobility into future planning and policy decision making. Shared mobility can also aid planners and policy makers in achieving a wide array of long-term visions and shorter-range goals. Public and stakeholder involvement in shared mobility planning and policy-making processes can reduce opposition, provide public agencies and mobility operators with valuable information on community and stakeholder concerns, reduce conflict among stakeholders, and help jurisdictions comply with public-agency environmental justice requirements.

As mobility services in the sharing economy have grown and evolved, the need to develop and manage public policy for these emerging modes has also expanded. Advanced technologies coupled with innovative and unclearly defined service models have increased the need for policy guidance. When considering the allocation of public resources (e.g., on-street parking and loading zones) and policy development (e.g., taxation and the distribution of vehicle medallions), policy makers and urban planners should examine a range of considerations: (1) service characteristics, (2) procedures for allocating and valuing rights-of-way, and (3) management of competition.

Three possible policy tracks could be used by local governments and public transit operators as models for developing shared mobility policies. These model approaches provide a framework for the allocation of public rights-of-way, fees and permits, signage, impact studies, and public and stakeholder involvement based on varying degrees of governmental support. The following sections briefly summarize each policy track.

**Shared Mobility as a Social and Environmental Benefit**

The first model is based on the social and environmental benefits of shared mobility and maximum government support. Under this framework, public agencies and local governments consider the role of shared mobility in mitigating a variety of public costs associated with personal automobile use. As such, policy makers and planners view shared mobility as contributing to the public good and therefore justify the allocation of public resources (e.g., in-kind financial support, free or reduced-cost parking). This framework also includes maximum government support from public agencies through the allocation public rights-of-way through informal (or less formal) processes (e.g., staff/administrative review, case-by-case approvals), often waiving permits and other fees and paying for the installation of signage and other infrastructure maintenance needs for shared mobility (e.g., parking markings).

**Shared Mobility as a Sustainable Business**

The second framework considers shared mobility to be a sustainable business with moderate government support. Under this model, local governments and public agencies view shared mobility as comprising services that yield social and environmental benefits but are simultaneously revenue-generating enterprises. Local governments, therefore, provide more limited support and infrastructure for shared modes, and mobility operators are expected to carry a larger share of the operational costs.

**Shared Mobility as a Business**

In the final model, shared mobility is treated like a business, and local governments provide a minimum level of governmental support. Under this policy framework, shared mobility is viewed as similar to other commercial operators, and these providers bear the full costs of operations (e.g., operators pay the full cost for public rights-of-way). In this laissez-faire approach, public agencies often provide little or no support for shared mobility. If an agency allocates public rights-of-way, it is often done through highly formalized processes, supply-and-demand management, and pricing that typically generates costs plus revenue for a jurisdiction.
SUPPORTING SHARED MOBILITY

This report underscores the need for more precise definitions of shared mobility given increasingly blurring lines among existing and emerging transportation modes. Many local entities fail to define or have differing definitions of shared mobility. As shared mobility companies continue to expand and operate alongside taxis, limousines, and rental car services, more precise designations will help to advance public policy, guide regulation, and enhance public safety in existing, new, and planned markets. Developing clear, consistent, and precise definitions will aid sector growth by providing policy and decision makers with a greater understanding of the spectrum of shared mobility services available and their associated benefits. This can also aid operators with a statewide or national target market rather than a strictly local service focus.

Planners and local municipalities can directly support shared mobility in their communities in a number of ways. Governments and public agencies can become partners of shared modes by providing marketing and administrative assistance, allocating funds for shared mobility through grants and low or interest-free loans, and developing risk-sharing partnerships, where the risk-sharing partner only pays the cost needed to maintain service availability. In addition, they can give incentives to developers aimed at easing zoning regulations, reducing parking minimums, and supplying access to public rights-of-ways.

Another important way municipalities can encourage shared mobility is by incorporating it into plans and planning processes at all levels, which can aid in understanding the current and future impacts of shared mobility on communities and allowing local communities to leverage the positive impacts of shared mobility. Public policy also can have a notable influence on the success or failure of shared mobility and other emerging transportation innovations. Public entities, based on their policy stance, can be instrumental in supporting or stifling innovation, improving public safety, regulating services, or adopting more unrestricted approaches. Local municipalities can provide a supportive policy environment for shared mobility, as appropriate, by minimizing regulation, addressing key areas of public safety concern, defining shared modes, and providing clarity to policy ambiguities.

SHARED MOBILITY: LOOKING FORWARD

Shared mobility represents a transportation strategy that can aid planners and policy makers in achieving greenhouse gas reductions, air-quality mandates, and climate-action goals. Additionally, shared mobility can support multimodality, improve first-and-last-mile access, and enhance mobility for populations with specific needs or barriers (e.g., zero-car households, disabled individuals, older adults, children). As technology and design continue to evolve, shared mobility will likely continue to have a transformative impact on transportation access and options.

In the future, the management of public rights-of-way will likely remain a popular topic of conversation. The increasing number of modes and service providers seeking access to parking and curb space is a trend that is likely to continue. Planners and policy makers will need to develop policies that fairly manage these rights-of-way demands for a variety of uses, including private parking; parking for private shuttles, taxis, paratransit, microtransit, and car-sharing; public transportation; ridesourcing; loading zones; bikesharing; and bicycle infrastructure.

In the coming decades, the convergence of mobility services, shared modes, electric drive vehicles, and automation will undoubtedly transform how people travel, how streets are designed, and the ways in which urban land uses are planned and zoned. The impacts of emerging technologies on auto ownership, parking, and travel behavior remain to be seen. However, as these technologies come online, planners and policy makers will need to rethink more traditional views of access, mobility, and auto mobility. In the future, planners may have to reconsider parking minimums and consider replacing existing parking with infill development and affordable housing. Planners may be able to repurpose on-street parking for other uses—such as wider curbs, bicycle lanes, loading zones for shared automated vehicles, parklets, and housing. What is clear is that these new technologies will likely have a disruptive impact on traditional planning norms and urban form. Thoughtful planning, continued research, and a keen understanding of shared mobility’s impacts on and role in the transportation landscape will be critical to balance public goals with commercial interests and to harness and maximize the social and environmental effects of these innovations.