Fast Forward

The Technology Revolution in Transportation and What it Means for Massachusetts

Policy Recommendations

A Public Policy Framework for Innovative Mobility

Transportation for Massachusetts recognizes the transformative benefits that advances in information technology, shared mobility, and autonomous vehicles can have for Massachusetts' economy, environment and quality of life – as well as the challenges that could result from disruption to existing forms of mobility. Emerging innovative mobility options will affect not only our transportation system, but also our economy, our safety, our workforce, our environment, our land use, and our energy use.

Federal, state, regional and local governments must play an important role in shaping our transportation future by setting overall goals for mobility based on the following policy principles, and by integrating information technology, shared mobility and autonomous vehicles into our transportation system in ways that help to meet those goals.

Policy Principles

Protect people and the environment. Innovative mobility should improve community quality of life and bring us closer to the safety objectives of the Vision Zero initiative. Innovative mobility must prioritize the safety of all transportation users, advance social equity, ensure that the benefits and burdens of new advancements are fairly distributed, and protect the environment.

Serve everyone. The evolution of services should directly benefit people of low-income and of color, people whose primary language is not English, seniors, people with disabilities, and suburban and rural residents across the Commonwealth.

Encourage innovation. To address long-standing transportation problems, challenges, and barriers, local and state governments should support public-serving innovative pilot projects and adoption of new technologies and services.

Share data. Data sharing is essential for the Commonwealth, municipal governments, and public agencies (such as Regional Transit Authorities) to have access to the information they need to plan, operate,

and invest in the transportation system we need for the future.

Modernize oversight and address gaps in regulatory coverage for emerging services. With multiple startups entering the market, government should create a level playing field among shared services without inhibiting innovation, while encouraging collaboration and innovation by public and private providers.

Plan for our future infrastructure needs. Innovative mobility options will bring changes to our public infrastructure and illuminate new infrastructure needs. Government should ensure that the costs of those investments are allocated equitably.

Improve and expand our public transportation, walking and biking network. The public sector should continue to maintain and expand our transit network and improve infrastructure for walking and biking, which are the foundation of affordable, safe, low-carbon transportation. Innovative technologies and services can complement and supplement public transportation by enabling the MBTA and RTAs to use new technologies, tools, and providers in making transportation more efficient and effective, and encourage "mobility as a service" platforms using unifying gateways to bring together public and private mobility services.

Policy Recommendations

Governments at all levels must develop and adopt policies that shape the evolution of innovative mobility tools to meet public needs. The following policy recommendations are a starting point for a more detailed discussion among businesses, government officials, and community leaders. Our recommendations were developed by many people in Massachusetts who participated in roundtable discussions, and with input from practitioners around the country.

1) Set goals. State government should hold an ongoing dialogue with all key constituencies, public and private, to set overall goals for mobility, drawing on the above policy principles, and should shape the integration of information technology, shared mobility and autonomous vehicles to help meet those goals. Agencies should develop standards, share data, support pilot projects, develop and evaluate mobility policies, assess implications for land use and other related policies, and work together with the private sector and stakeholders to address challenges and service gaps, while providing best practices and model ordinances and by-laws to municipalities.

2) Maintain core infrastructure and enhance the network with innovative mobility. *State and local government* should promote safety and expand access to equitable and fairly priced mobility options for all customers by:

- Facilitating connections between shared mobility platforms and public transportation, including physical connections (such as the creation of "mobility hubs"), coordinated schedules, and the development of multi-modal apps and shared payment methods.

- Continuing to invest in public transit service that is accessible, competitively-priced, reliable, and convenient.

- Maintaining and expanding existing sidewalks, bike lanes, paths and crossings to encourage active transportation, while addressing the safety of all users – especially bike riders, pedestrians and people with disabilities – in allocating street space.

- Collaborating with TNCs to address critical 'first- and last-mile' gaps in transit service, expand access to late night and other off-peak transit services, and potentially deliver high-quality, affordable, demand response service that addresses customer needs.

- Adopting autonomous vehicle technologies in the transit fleet, where appropriate.

3) Encourage electric, shared, autonomous fleets that serve everyone. *The public and private sectors* should incorporate shared mobility providers into strategies to expand access to and utilization of electric and zero-emissions vehicles in the Commonwealth, support the eventual introduction of AV technology into shared fleets, and ensure that emerging networks serve neighborhoods of low-income and of color, addressing barriers to use for the unbanked.

4) Support pilots and demonstrations. *Local and state government* should support innovative pilot projects and demonstration projects by *public agencies and private providers* to address long-standing transportation problems, such as:

- Providing new or complementary mobility services that meet users' needs, including 'first- and last-mile' gaps in transit service.

- Reducing barriers, such as lack of access to smartphones or financial accounts, to facilitate the use of privately provided shared mobility services.

- Encouraging the development of data-based applications to provide unified platforms for users to access an array of private and public transportation options.

- Supporting increased use of transportation network companies (TNCs) or other shared services to connect with commuter rail and transit stations, decreasing the need for parking spaces and parking facilities at transit stations, and potentially creating new opportunities for transit-oriented development.

5) Provide regulatory and indirect support for AV testing in Massachusetts. *The private sector (including the state's software development cluster), potential host communities, universities, and state agencies* should work to develop AV testing facilities in the state and identify and enact regulations needed to ensure safe and efficient interactions with other road users, particularly with bicyclists and pedestrians.

6) Require selected standardized, open data. *Government agencies* should set a minimum level of open data as a condition of entry to the market for TNCs and other providers, with additional reporting for those in contracts with public agencies. Standards for this data collection should ensure interoperability and should separate regulatory data from analytic data for use by the public, public agencies, and private providers while protecting proprietary data and any needed customer confidentiality.

7) Update modeling. *Planners* should modify existing transportation models used by U.S. DOT, MassDOT, the MBTA, Metropolitan Planning Organizations, Regional Transit Authorities, and municipalities to account for the impact on existing forms of mobility of new services and technologies, rather than assuming existing technologies and travel patterns will continue indefinitely.

8) Encourage regional efforts to regulate taxis and coordinate policy around innovative mobility. With TNCs now regulated statewide, *local governments* should explore, with the encouragement of the *state*, shared oversight of taxis across municipal boundaries. Regional regulation of taxis and regional coordination of innovative mobility would recognize the inter-municipal nature of these emerging services, increase public awareness of mobility options, create efficiencies, coordinate technical assistance resources for municipalities and RTAs, and allow for coordinated introduction of new technologies such as autonomous vehicles.

9) Limit zero-occupancy and single-occupancy use of AVs in congested areas. *Policymakers* should discourage zero (so-called 'zombie') AV and single-occupancy AV travel, including in emerging AV services, especially in portions of the Commonwealth rich in transportation choices, and

should incentivize vehicle sharing in AV networks. Policymakers should strictly limit practices like car cruising – when empty autonomous cars idle or use public roadways.

10) Empower municipalities to maximize local benefits of innovative mobility. *Cities and towns* should be empowered to ensure that new mobility tools serve their communities appropriately and safely; to adopt policies to ensure that interactions between vehicles, bike users, and pedestrians serve the needs of all road users on local roads; and to take advantage of the opportunities presented by new technologies to modernize local zoning rules, parking strategies, and street designs.

11) Anticipate innovative mobility in the design and maintenance of public infrastructure. Maintenance and investment in infrastructure by *public agencies* should reflect the needs of innovative mobility, such as the installation of sensors, Vehicle-to-Infrastructure (V2I) equipment, and new pavement marking and signage in current roadway designs, as well as needed changes in traffic signal equipment and pavement maintenance. When possible, agencies should take the opportunity to reduce travel lanes in order to free up space for pedestrians and bicyclists, public transit, and other land uses.

12) Update minimum parking requirements and fee structures. Because innovative mobility options should reduce the overall amount of parking space needed, parking requirements for developers and public parking should be reduced. *Developers* should, with encouragement from *decision makers*, provide alternative mobility products instead, such as packages of transit passes, parking spaces for shared vehicles, and financial credits for shared mobility providers.

13) Support innovative bike programs. *Public agencies* should continue to invest in and provide separated and protected bike lanes and connections to overcome the currently fragmented bicycle network, while expanding bikesharing by incentivizing qualifying customers' participation.

14) Adopt pricing policies to deter potential increases in vehicle miles traveled, energy use, and vehicle-generated pollution and carbon resulting from adoption of autonomous vehicles. A key policy tool is *the state* appropriately pricing zero and single-occupancy driving and parking.

15) Create virtual pop-up "mobility hubs," facilities provided by *public-private partnerships*, placed in underserved and other appropriate communities, to provide fixed or on-demand services tailored to neighborhoods, and plan for implementation of permanent mobility hubs in areas where they might provide value.

About *Fast Forward*

Led by Transportation for Massachusetts, the *Fast Forward* white paper is the result of a year-long collaboration among numerous organizations, informed by conversations with leaders in innovative mobility industries, a review of the latest research on the impacts of innovative mobility technologies and services, and feedback from a series of roundtable discussions involving leaders from business, academia, government, community-based organizations and other nonprofits.

To obtain the full *Fast Forward* white paper, visit www.t4ma.org/fastforward.

For more information on Transportation for Massachusetts, visit our website at www.t4ma.org.

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